Oceanside Circulation Element Update

Appendix F

Oceanside General Plan Circulation Element

Prepared by IBI Group

April 2012

Oceanside General Plan
CIRCULATION ELEMENT

April 2012

OCEANSIDE GENERAL PLAN
CIRCULATION ELEMENT UPDATE
City of Oceanside, California

Prepared for
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CIRCULATION ELEMENT

1. INTRODUCTION

The Circulation Element provides goals, objectives, and policies to maintain and improve the City of Oceanside's transportation system and enhance travel choices for current and future residents, visitors, and workers. These policies are complemented by the policies in the Land Use, Noise, Recreational Trails, and Community Facility Elements on related topics such as smart growth and management of public space. Recognizing the relationship between transportation and these related topics is critical to improving mobility and accessibility within the city.

The Circulation Element was last adopted by City Council in 1995. It has had some amendments in response to the changes in the City's land uses and network necessities. The Circulation Element was also reformatted and additional information added in 2002.

The present challenges, opportunities, and transportation issues of interest to the City are addressed in this element. These include but are not limited to:

- Enhancing the City's corridors for all modes of transportation;
- Increasing bicycle and pedestrian connections, routes and facilities;
- Refining the City's traffic calming program to promote safer streets for motorists, pedestrians, and bicyclists;
- Identifying and incorporating Intelligent Transportation System (ITS) technology for the City;
- Increasing support of Transportation Demand Management programs; and
- Improving the efficiency of the existing transportation system.

The City of Oceanside is served by a diverse circulation system consisting of roadways, public transit, rail service, airport, and pedestrian and bicycle facilities. A well-balanced and multi-modal transportation system is considered integral to the City's efforts to sustain and enhance the quality of life and key to its future economic growth. Achieving such a system requires integrating land use and transportation planning, and implementing a range of improvements that enhance connectivity, livability, and vitality.

1.1 Purpose and Authority

The following is a list of the statutory requirements for a General Plan Circulation Element.

Government Code Section	Requirements
§65302(b)	The general plan requires the inclusion of a circulation element.
§65302(b)	A circulation element shall consist of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.
§65302(b)(2)(A)	Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation network that meets the needs for all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.

The Circulation Element shall contain objectives, policies, principles, plan proposals, and/or standards for planning the infrastructure to support the circulation of people, goods, energy, water, sewage, storm drainage, and communications. Mandatory circulation element issues as defined in Statute *65302(b)* include: major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities. Additionally, the Statue *65302(b)(2)(A)* requires the Circulation Element be modified to plan for a balanced, multimodal transportation network that meets the needs of all users of streets, roads, and highways. The statute defines "all users of streets, roads, and highways" as "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors." Transportation networks should additionally consider pedestrian, bicycle, and transit routes, which may not always be located on or along streets, roads, and highways.

Circulation elements should also take into consideration the provision of safe and convenient travel that is suitable to the rural, suburban, or urban context of the local jurisdictions General Plan. This could include policies and implementation measures for both retrofitting and developing streets to serve multiple modes of travel and the development of multimodal transportation network design standards based on street types.

1.2 Scope and Content

The Master Transportation Plan, as Chapter 3 in this element, serves as the Circulation Element's main policy tool for designating future road improvements, extensions, and special intersection design treatments.

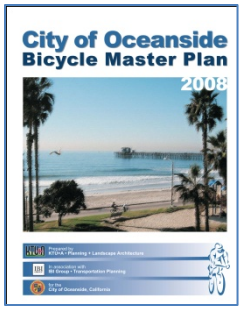
The Circulation Element shall also:

- Identify the transportation needs and issues within the City and those regional relationships that affect the City's transportation system.
- Establish goals for the element with objectives and policies to attain those goals.
- Describe the proposed circulation system in terms of geometric design elements, operating characteristics, and limits of operation including current standards, guidelines, and accepted criteria for the location, design, and operation of the transportation system.
- Consider transportation modes such as carpools, buses, and mass transit as essential in providing services and access to facilities.
- Establish policies that coordinate the circulation system with planned land uses and provide direction for future decision making in the realization of the Circulation Element goals.

1.3 Related Plans and Programs

There are several existing plans and programs prepared by various agencies that are directly applicable to the aims and objectives of the Circulation Element. These plans and programs have been enacted through federal, State, and local legislation and are administered by agencies with powers to enforce federal, State, and local laws. Plans and programs related to the Circulation Element include the following:

CITY OF OCEANSIDE 2008 BICYCLE MASTER PLAN UPDATE

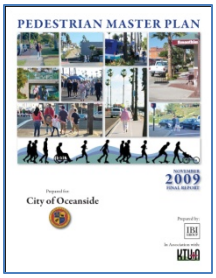


This study is a comprehensive update of the 1995 City of Oceanside General Plan Circulation Element – Recreational Trails Element (Chapter 6, Bicycle Facilities). The Bicycle Master Plan's goals and objectives include establishing facility types to be implemented and identifying points where the City's bikeway system could integrate with the existing San Diego County regional bikeway system.

The Bicycle Master Plan seeks to maximize the efficiencies offered by multi-modal connections between mass transit and bikeways, and to promote a viable alternative to the automobile travel in a climate particularly conducive to bicycle transportation. It also sought to provide a more convenient bikeway system for cyclists who do not have access to motor

vehicles. The Bicycle Master Plan was completed in December 2008. Appendix A contains a copy of the Bicycle Master Plan.

CITY OF OCEANSIDE 2009 PEDESTRIAN MASTER PLAN UPDATE



This study is also a comprehensive update of the 1995 City of Oceanside General Plan Circulation Element – Recreational Trails Element as Chapter 7. The Pedestrian Master Plan's goals and objectives seek to enhance pedestrian mobility by providing pedestrian planning that enhances design standards, the installation and maintenance of pedestrian facilities, and overall safe pedestrian circulation throughout the City. The Oceanside Pedestrian Master Plan update was completed in November 2009. Appendix B contains a copy of the Pedestrian Master Plan.

2030 SAN DIEGO REGIONAL TRANSPORTATION PLAN: PATHWAYS FOR THE FUTURE

The 2030 Regional Transportation Plan (RTP) is based on the adopted General Plans of the region's cities and the County. Developed by the San Diego Association of Governments (SANDAG) and approved in 2007, the 2030 San Diego RTP was developed to meet the region's long-term mobility needs, better connect transportation and land use policy decisions, and create a transportation network that will serve the people of this region well into the 21st century. The 2030 RTP's vision for improving mobility and travel in the San Diego region supports the region's strategy to promote smarter, more sustainable growth.

2050 SAN DIEGO REGIONAL TRANSPORTATION PLAN

The 2050 Regional Transportation Plan ~~is currently under way~~is the blueprint for the regional transportation system that further enhances the quality of life, promotes sustainability, and offers more mobility options for people and goods. The SANDAG board of directors has adopted a Hybrid Scenario for the preferred revenue constrained transportation network scenario for the 2050 RTP. The Hybrid scenario contains a variety of multimodal projects from the initial alternative Revenue Constrained Scenarios, with a primary focus on the Highway Emphasis and Fusion Scenarios. The ~~Draft 2050 RTP, including its air quality conformity analysis, and the Draft Environmental Impact Report are anticipated to be released in spring 2011 for public review and comment~~2050 RTP was approved by SANDAG in October 2011.

RIDING TO 2050, SAN DIEGO REGIONAL BICYCLE PLAN

The San Diego Regional Bicycle Plan was adopted to provide a regional strategy for making the bicycle a useful form of transportation for everyday travel. It was developed to support the implementation of both the Regional Comprehensive Plan and the Regional Transportation Plan. As an integral

part of the 2050 RTP, the Plan will become part of the Sustainable Communities Strategy mandated by Senate Bill 375. The Plan provides detailed information on the structure of the Regional Bicycle Network, the supporting policies and programs, and the benefits of implementing the Plan.

SAN DIEGO AIR POLLUTION CONTROL DISTRICT REGIONAL AIR QUALITY STRATEGY (2009)

The San Diego County Air Pollution Control District (the "District") is responsible for the overall development and implementation of the Regional Air Quality Strategy (RAQS). RAQS for the San Diego region control measures focus on emission sources under the District's authority, specifically stationary emission sources and some area-wide sources. The emission inventories and emission projects in the RAQS reflect the impact of all emission sources and all control measures including those under the jurisdiction of the California Air Resources Board (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and the U.S. Environmental Protection Agency (e.g., aircraft, ships, trains, and pre-empted off-road equipment).

CITY OF OCEANSIDE THOROUGHFARE FEE ORDINANCE

The purpose of the Thoroughfare Fee Ordinance No. 83-01 is to make provisions for assessing and collecting fees as a condition of approval of a final subdivision or parcel map, or as a condition of issuing a building permit that will result in an increase in average daily trips, for the purpose of defraying the actual or estimated costs of constructing or improving existing bridges or thoroughfares.

CITY OF OCEANSIDE TRAFFIC SIGNAL FEE ORDINANCE

The purpose of the Traffic Signal Fee Ordinance is to provide a fair mechanism for defraying public costs associated with the actual or estimated cost of construction of traffic signals pursuant to the requirements of Government Code §66000 et seq. and §66484, and Public Resources Code § 21000 et seq., and Oceanside City Ordinance No. 87-19.

1.4 Relationship to Other General Plan Elements

In accordance with State planning law, the Circulation Element, although independent, must be consistent with the other General Plan elements. All elements of the General Plan are interrelated to a degree, and certain goals and policies of each element may also address issues that are the major subject of other elements. The Circulation Element relates most closely to the Land Use, Noise, Environmental Resource Management, Recreational Trails, and Community Facilities Elements.

Planned development identified in the Land Use Element is the basis for determining future road improvements and connections; therefore, the Land Use Element is directly linked to the Circulation Element. For example, the

circulation policies and plans identify the improvements to the roadway system that will be required in order to serve traffic generated by the uses permitted in the Land Use Element. In addition, the Circulation Element promotes alternative transportation modes to minimize the regional impacts of planned local development.

The Noise Element contains policies and plans aimed to ease the adverse effects of noise on the community that are directly attributable to the future transportation plans contained in the Circulation Element. Noise exposure is generally a key consideration when locating and designing new development along arterials and other transportation related networks.

The Environmental Resource Management and Recreational Trail Elements (a sub-element of this Circulation Element) contain provisions for the preservation of natural areas and non-vehicular transportation. Many open space areas are reserved for the public benefit, such as parks. The circulation system also contains provisions and standards for movement of non-motorized traffic, such as pedestrians, bicyclists, and equestrians. Open space areas are often interconnected with other land uses through the utilization of trails for the exclusive use by non-motorized traffic.

The Community Facilities Element provides a comprehensive listing of all public facilities (which includes the transportation network) that are needed to meet a certain service level demanded by the population. With population growth and given development patterns, the circulation system is evaluated and the potential impacts on the transportation facilities are identified. Therefore, improvements to the circulation system are planned as a means of accommodating new growth and eliminating future deficiencies.

2. LONG RANGE POLICY DIRECTION

The following is a brief description of the potential issues in the circulation system that must be considered in order to achieve the overall goals and objectives of the Circulation Element.

CHAPTER HIGHLIGHTS

- Create a multi-modal system within Oceanside
- Incorporate Complete Streets into the City of Oceanside's Transportation Network

1. The City of Oceanside has several older residential neighborhoods and areas with small businesses that are located near existing roadways that are exposed to moderate noise levels. In new areas of development, these concerns are being addressed through the use of perimeter walls such as sound walls. However, walls are not always the most feasible noise control measure. There must be intermittent openings allowed for driveway access, line-of-sight viewing for motorists, and pedestrian access. Therefore, roadway improvements must critically examine various secondary noise control options (speed limits, truck exclusion, residential relocation, conversion to less sensitive land uses, landscaping, etc.). In certain areas, a buffer zone with increased setback areas may be needed.

2. In order to create a more coordinated and efficient roadway system, some roadway extensions and upgrades have been recommended which will go through residential areas, agricultural areas, or environmentally sensitive areas. Prior to adoption of a final roadway alignment, thorough environmental/engineering studies should be conducted. The decision to commence with roadway construction should occur only when the level of service on the road and/or at nearby intersections is expected to degrade to an unacceptable level by a proposed development and warrants the construction of the roadway. In some cases, the level of service of intersections or segments may already be unacceptable.

3. The impact of proposed roadway improvements may affect residential, commercial, industrial, and other types of structures in currently developed areas. Various existing land uses may require relocation, and/or the reduction of setback areas along roadways designated as requiring additional capacity. In cases where the impacts would be extremely disruptive, all options to roadway widening should be explored or the use of Transportation Management Center (TMC). These options can include elimination of on-street parking with a program of restriping, transportation demand management strategies, or using the TMC to manage the transportation system through adaptive signals on congested corridors.

4. The City of Oceanside is fortunate to have considerable recreational, open space, agricultural, and historic resources. These special resources also present a challenge to the circulation system. A delicate balance must be achieved in allowing adequate roadways to be implemented, while at the same time, present the least amount of disruption of the natural terrain, vegetation, and character of an area. The Environmental

Impact Report adopted for this Circulation Element addresses these concerns and suggests ways to mitigate potential impacts.

5. Like most coastal cities, Oceanside experiences heavy volume of through traffic due to its location in the Los Angeles-San Diego corridor, and due to major trip generators such as the Harbor, Camp Pendleton, recreation areas, and employment centers. The City can benefit by participating in regional corridor proposals to coordinate transportation planning efforts, such as bicycle corridors, commuter rail service from Oceanside to Escondido and Oceanside to San Diego in order to mitigate the negative impacts caused by through traffic.

6. Implementation of the 2030 Master Transportation Roadway Plan must, out of necessity, be closely related to funding opportunities. These are most notably represented by the Thoroughfare Fees that are collected from land development. Administration of the fees requires prioritization of the various elements of the Master Transportation Roadway Plan so that as fees are collected, they are expended on appropriate portions of the street plan that have the greatest need.

7. Implementation of the 2030 Master Transportation Roadway Plan may also have impacts on the structural integrity of the various street sections. As traffic volumes increase, as new streets are constructed, or as existing streets are extended, widened or lanes added, the Traffic Index may well indicate a need for heavier structural section than had been previously planned. Failure to take note of such need may result in premature pavement failure, associated cost, stress, and negative public reaction. In analyzing funding sources such as Thoroughfare Fees, such pavement upgrading is an important cost factor that cannot be overlooked.

The Circulation Element must also plan for the development of multimodal transportation networks based on the requirements and objectives of Assembly Bill (AB) 1358, The California Complete Streets Act. A complete street should allow for all users to effectively travel by motor vehicle, foot, bicycle, and transit to reach key destinations within their community or region. It is recommended that all transportation projects, new or retrofit, ~~should~~ shall be reviewed for opportunities to improve safety, access, and mobility for all travelers and recognize pedestrian, bicycle, and transit modes as integral elements of the transportation system. In addition, the City of Oceanside can use complete streets design to construct networks that are accessible to all modes and all users no matter their age or ability.

The City of Oceanside strives to develop a network of complete streets as is outlined in the various chapters (Public Transit, Bicycle, & Pedestrian) within this Circulation Element and additional adopted planning documents (Bicycle and Pedestrian Master Plans) that support the complete streets concept. The City of Oceanside's Circulation Element strives to follow the suggestions recommended by the *Update to the General Plan Guidelines: Complete Streets and the Circulation Element,* December 2010 as relevant to

Oceanside. A copy of the possible policy areas and data collection technique considerations is included in Appendix C.

The goals, objectives, and policies set forth in the Circulation Element establish a citywide strategy to achieve long-term mobility and accessibility within the City of Oceanside.

GOAL 1: ***A multi-modal transportation system, which allows for the efficient and safe movement of all people and goods and which meets current demands and future needs of the population and projected land uses with minimal impact to the environment.***

GOAL 2: ***Alternative modes of transportation to reduce the dependence of the automobile.***

GOAL 3: ***Alternative transportation strategies designed to reduce traffic volumes and improve traffic flow.***

GOAL 4: ***A citywide transportation system that integrates with the regional transportation system.***

GOAL 5: ***A multi-modal transportation system that creates a balance with preserving community values and maintaining public acceptance.***

OBJECTIVE:

i. Implement a circulation system that provides a high level of mobility, efficiency, access, safety, and environmental consideration that accomodates all modes of travel such as vehicular, truck, transit, bicycle, pedestrian, and rail.

POLICIES:

The following policies are intended to direct City efforts to promote the integration of the circulation system with citywide land use policies and the regional transportation system:

2.1 The Master Transportation Roadway Plan shall be designed to provide the facilities and level of access necessary to serve the existing and proposed land uses designated in the Land Use Element of the General Plan and to satisfy regional travel needs.

2.2 The Master Transportation Roadway Plan shall be designed to provide transportation facilities that support a balanced multi-modal transportation network to serve vehicular, transit, pedestrian, bicycle, equestrian, and freight movement.

2.3 The City shall cooperate with adjacent communities and agencies such as San Diego County, Carlsbad, Vista, Caltrans, North County Transit District, United States Marine Corps Camp

Pendleton, and the San Diego Association of Governments (SANDAG) to provide the maximum compatibility of adopted circulation elements and regional facility plans.

2.4 The City's circulation system shall promote efficient intra- and inter-city travel with minimum disruption to established and planned residential neighborhoods.

2.5 The City will strive to incorporate complete streets throughout the Oceanside transportation network which are designed and constructed to serve all users of streets, roads and highways, regardless of their age or ability, or whether they are driving, walking, bicycling, or using transit.

2.6 The City will strive to stay up-to-date with legislation and emerging technologies as it relates to complete streets and multimodal analysis.

3. MASTER TRANSPORTATION ROADWAY PLAN

The Master Transportation Roadway Plan chapter focuses on providing the guidelines to provide a network of roadways throughout the City which form the transportation network. This is important since the street system is used for vehicular, bicycle, transit, pedestrian, and goods movement. The City of Oceanside strives to create a network of complete streets that creates an environment for all users of the system. The Circulation Element and this Master Transportation Roadway Plan chapter are designed to effectively promote policies and guidelines that support the various forms of transportation available in the City of Oceanside. This chapter primarily focuses on mobility by use of the automobile; however, the design guidelines and policies for a multi-modal network of complete streets are considered throughout the chapter.

The information contained within this chapter is intended to encourage design standards that promote efficiency and safety of the circulation network.

CHAPTER HIGHLIGHTS

- Policies and Implementation Strategies
- Roadway Classifications
- Existing Circulation System
- Regional Modeling Process
- Roadway Design Standards
- LOS Analysis Methodology
- Proposed 2030 Master Transportation Plan
- Recommended Overriding Considerations
- Traffic Impact Study Guidelines

3.1 Policies and Implementation Strategies

GOAL 1: ***A transportation network that supports safe and efficient travel for all modes of transportation.***

GOAL 2: ***A transportation network that is designed to accommodate the existing and future growth of the City of Oceanside.***

Level of Service and Design Standards

OBJECTIVE:

i. Aim for an acceptable LOS D or better on all Circulation Element roadways on an average daily basis and at intersections during the AM and PM peak periods.

ii. Ensure that all streets within the City achieve the City's mobility goals and design standards as highlighted throughout this chapter.

POLICIES:

3.1 In order to achieve the level of service goals, the City shall develop and institute a long-range funding program in which new land development shall bear its share of the associated costs and improvement requirements. Where existing deficiencies occur, the City will have to find funding sources to fund the improvements. Reciprocal agreements with neighboring cities must be developed

as needed to achieve acceptable levels of service due to development in adjacent cities.

3.2 The City shall adopt design standards for all streets in accordance with their functional classifications and recognized design guidelines. The City will use as its basis the design standards of Caltrans and the American Association of State and Highway Transportation Officials (AASHTO).

3.3 All streets within the City shall be designed in accordance with the adopted City of Oceanside design standards (shown in Table 3-1, page 24). Typical cross-sections and design criteria for the various street classifications are shown in the City Engineers Design and Processing Manual.

3.4 The City may permit construction of private streets within individual development projects, provided that:

- They are designed geometrically and structurally to meet City standards.
- Only project occupants are served.
- All emergency vehicle access requirements are satisfied.
- The streets do not provide direct through route between public streets.
- The Homeowners Association and/or the property owners provide an acceptable program for financing regular street maintenance.

3.5 The City may allow private streets to be designed with narrower right-of-way, if approved after City review.

3.6 The City shall institute street access guidelines consistent with the street classifications. These shall be applied where feasible to all new developments. The following guidelines shall be used to define appropriate access:

- The City shall prohibit driveway access to prime arterials.
- Driveway access to major arterials shall not be permitted unless there is no other reasonable means of access to the public street system. Where access to major arterials or secondary collectors must be allowed, it shall be limited through the use of medians and/or access controls to maintain street capacity.
- Along major arterials, access spacing shall be a standard distance of 1,200 feet or more. Under special circumstances this distance may be reduced to a minimum of 600 feet where access is limited to right-in and right-out only. The above measurements shall be made from the ends of curb returns.
- Along secondary collectors, the corresponding access spacing shall be 600 feet for the standard distance and a minimum of 300 feet for special circumstances where access is limited to

right-in and right-out only. The above measurements shall be made from the ends of curb returns.

3.7 The City shall adopt specific alignment plans when "standard equal-sided" widening is not adequate for future needs or when special conditions exist that require a detailed implementation plan. When necessary, specific alignment plans shall be prepared prior to the formal submittal of a development proposal. The need for such plans will be indicated by the following:

- Variable terrain or other sensitive areas that may preclude straight forward preparation of street improvement plans.
- Alignments that are necessary because of existing street designs and/or land use configurations.
- Development proposals that must deal with extraordinary physical or environmental features.

3.8 The City shall consider the feasibility of narrowing local streets that primarily serve residential neighborhoods or implementing other techniques to discourage cut through traffic in new residential neighborhood developments.

3.9 The City shall review all project applications and reduce or eliminate residential driveways on all collector and busier streets. Access to commercial projects shall be designed to meet the City's standards and limited to the extent feasible. The City shall routinely review existing collector and higher streets to determine as feasible the closing, combining, or relocation of existing driveways.

Roadway Improvements

OBJECTIVE:

iii. Construct the roadway network in phases consistent with the needs and growth of the community.

The policies listed in this section will encourage the orderly development and funding of the street system. The construction will be funded through a combination of developer contributions and fees, City funds such as the gasoline tax, regional TransNet sales tax, and State and federal guaranteed financial support.

POLICIES:

3.10 The City shall require dedication and improvement of necessary rights-of-way along Master Transportation Roadway Plan streets. This usually will occur in fulfillment of a condition of approval for a tentative map or as condition of approval for a building permit, whichever occurs first.

3.11 The City shall assure that each addition to the circulation system is a useable link on the total system and that new routes and links are coordinated with existing routes to assure that each new and existing roadway continues to function as it was intended.

3.12 The City shall require or provide adequate traffic safety measures on all new and existing roadways. These measures may include, but are not limited to, appropriate levels of maintenance, proper street design, traffic control devices (signs, signals, and striping), street lighting, and coordination with the school districts to provide school crossing signs and protection.

3.13 The City shall give priority to funding and implementing projects that either complete links on the circulation system or relieve existing deficiencies.

3.14 The City shall, where feasible, interconnect traffic signals to form area networks or corridor systems. These systems shall be timed to facilitate the flow of through traffic on the arterial system, thus enhancing the movement of vehicles and goods through the City, while reducing fuel consumption and air pollution.

3.15 The City shall impose appropriate prorated fees for construction of roadway facilities and associated landscaping to assure that all new development contributes to the completion of the circulation system. In addition to pre-permit collection, such fees may be imposed through creation of assessment districts.

3.16 The City shall approve and build streets as per City of Oceanside Engineering Manual Specifications.

3.17 The City shall require additional right-of-way width and additional improvements of major arterials where required for turning movements or to provide access to adjacent properties whenever access is not feasible from a lower classification street system.

3.18 The City shall:

- Require new developments to provide collector and local street improvements according to the standards of the City Engineering Department.
- Require new developments to dedicate necessary right-of-way when the subdivision or development of property adjacent to Circulation Element streets is proposed.
- Require new developments to provide all necessary grading, installation of curbs, gutters, sidewalks, parkway tree planting, and street lights, unless these improvements are provided through other means.
- Require new developments to provide half-street improvements plus 12 feet beyond the centerline in accordance with City standards.

3.19 For development within the Major Thoroughfare and Traffic Signal Fee area established by the City Council, the City shall collect the Major Thoroughfare Fees as required by Ordinance No. 80-30, the Traffic Signal Fees as required by Ordinance No. 87-19, and the latest City Council resolutions setting such fees.

3.20 If the location and traffic generation of a proposed development will result in congestion on major streets or failure to meet the LOS D threshold, or if it creates safety hazards, the proposed development shall be required to make necessary off-site improvements. Such improvements may be eligible for reimbursement from collected impact fees. In some cases, the development may have to wait until financing for required off-site improvements is available. In other cases where development would result in unavoidable impacts, the appropriate findings of overriding consideration will be required to allow temporary undesirable levels of service.

3.21 The City shall require that those responsible for street improvements replant, replace, or install new landscaping pursuant to existing City policy along all new roadways or on those that have been redesigned and reconstructed.

3.22 Prior to approving any street widening project, the City shall explore all alternatives to adding additional lanes or acquiring additional right-of-way.

3.2 Roadway Classifications

Roadway classification is the process by which streets and highways are grouped into classes according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not operate independently. Rather, most travel involves movement through an integrated network of roads. It is the City's responsibility to plan, design, and implement a street system that recognizes the importance of the use and function of each hierarchical roadway classification.

The City of Oceanside recognizes the importance of the use and function of each street classification. The class of each road has a certain set of design guidelines and intended functions that are described below.

Expressway – An Expressway is designed to provide express direct travel through a city with several lanes of travel in each direction. It is a multilane roadway that is often a divided highway for through traffic with fully controlled access to intersections and with possible grade separations at most intersections (SR76 has mostly at-grade intersections). Expressways are constructed and maintained by the California Department of Transportation (Caltrans). Expressways in Oceanside are generally four or six lanes. The Caltrans Highway Design Manual (Index 405.5) states that median opening (includes intersections) should be spaced at intervals no closer than 1,600

feet. The cross section for an expressway is 102/160 or 122/200 feet (curb-to-curb/total right-of-way width).

Prime Arterial – A Prime Arterial is designed to provide regional, sub-regional, and intra-city travel. It includes high design standards with six lanes of travel, raised and landscaped medians, 8-foot shoulders, highly restricted direct access, and on-street parking is not allowed. The cross section for a prime arterial is 104/124 feet (curb-to-curb/total right-of-way width).

Major Arterial – A Major Arterial is designed to provide intra-city and sub-regional service. Direct access is allowed, but selectively restricted to assure proper function of the roadway. Typical design standards include the provision of four or six lanes of travel with a raised and landscaped median, 8-foot shoulders for emergency parking and bike lanes, and left turn lanes are typically protected along the roadway. The cross section of a major arterial is 80/100 feet (curb-to-curb/total right-of-way width).

Secondary Collector – A Secondary Collector is designed for intra-city travel as a link between arterial and collector roadways. It frequently provides direct access to abutting properties; however, that is not its primary purpose. The typical design features include the provision of four travel lanes with a center two-way left turn lane and includes bike lanes or four lanes with left turn pockets without a raised median. The cross section of a secondary collector is 64/84 (curb-to-curb/total right-of-way width) with a two-way left-turn lane and 54/74, 60/80 feet without a two-way left-turn lane.

Collector Street – A Collector is designed to connect local streets with the adjacent arterial street network. The design standards typically include the provision for two travel lanes and on-street parking is allowed, except in specific locations where parking is removed to provide turn lanes at intersections. Collector streets frequently provide direct access to abutting properties, although the desire is to limit access where possible to reduce conflict. Collectors are generally two lanes with or without a center two-way left turn lane. The cross section of a collector is 50/70 (curb-to-curb/total right-of-way width) with a two-way left-turn lane and 40/60 or 50/70 feet without a two-way left-turn lane. A Collector can also be a two-lane one-way street, such as the one-way couplet on Mission Avenue between Cleveland Street and Clementine Street with Seagaze Drive. A Collector that is a two-lane one-way street generally has parking on both sides of the street.

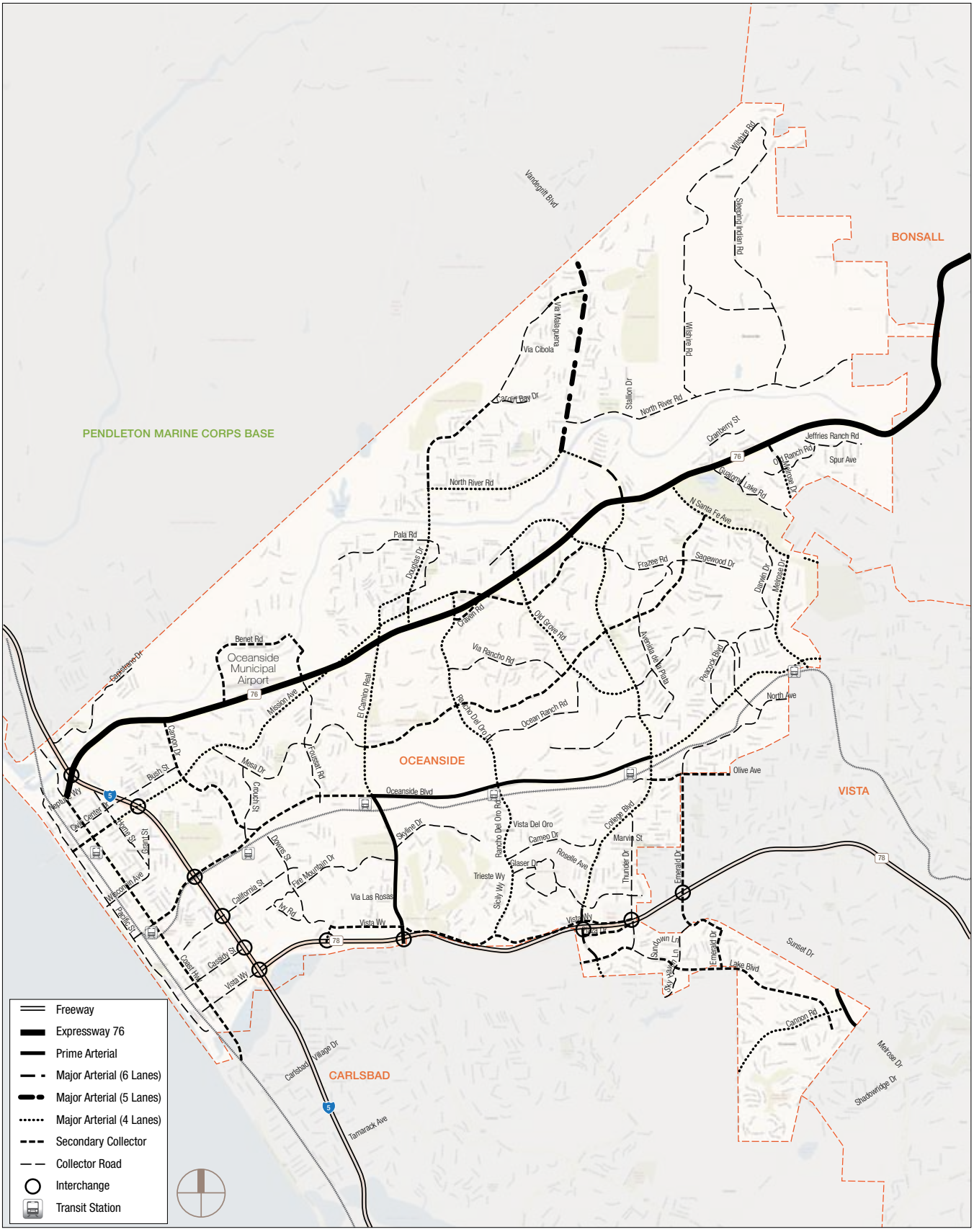
Local Street – A Local Street is designed to provide direct access to abutting properties and to provide connection between neighborhood streets and the collector street network. The Local Street may be discontinuous to discourage through trips. The typical design standards include the provision for two travel lanes, parking lanes on both sides of the street, and direct driveway access. The cross section of a local street is 36/56 or 40/60 (curb-to-curb/total right-of-way width).

All major elements of the circulation system have been assigned to one of these classifications to aid in understanding the design configuration and right-of-way needs for any segment of the system.

3.3 Existing Circulation System

The existing roadway system within the City of Oceanside is illustrated on Figure 3.1. Regional circulation facilities serving the City include the Interstate 5, State Route 78 and State Route 76. Several of the major north/south and east/west arterials such as El Camino Real, Rancho Del Oro Road, College Boulevard, Oceanside Boulevard and Mission Avenue are accessed via these facilities.

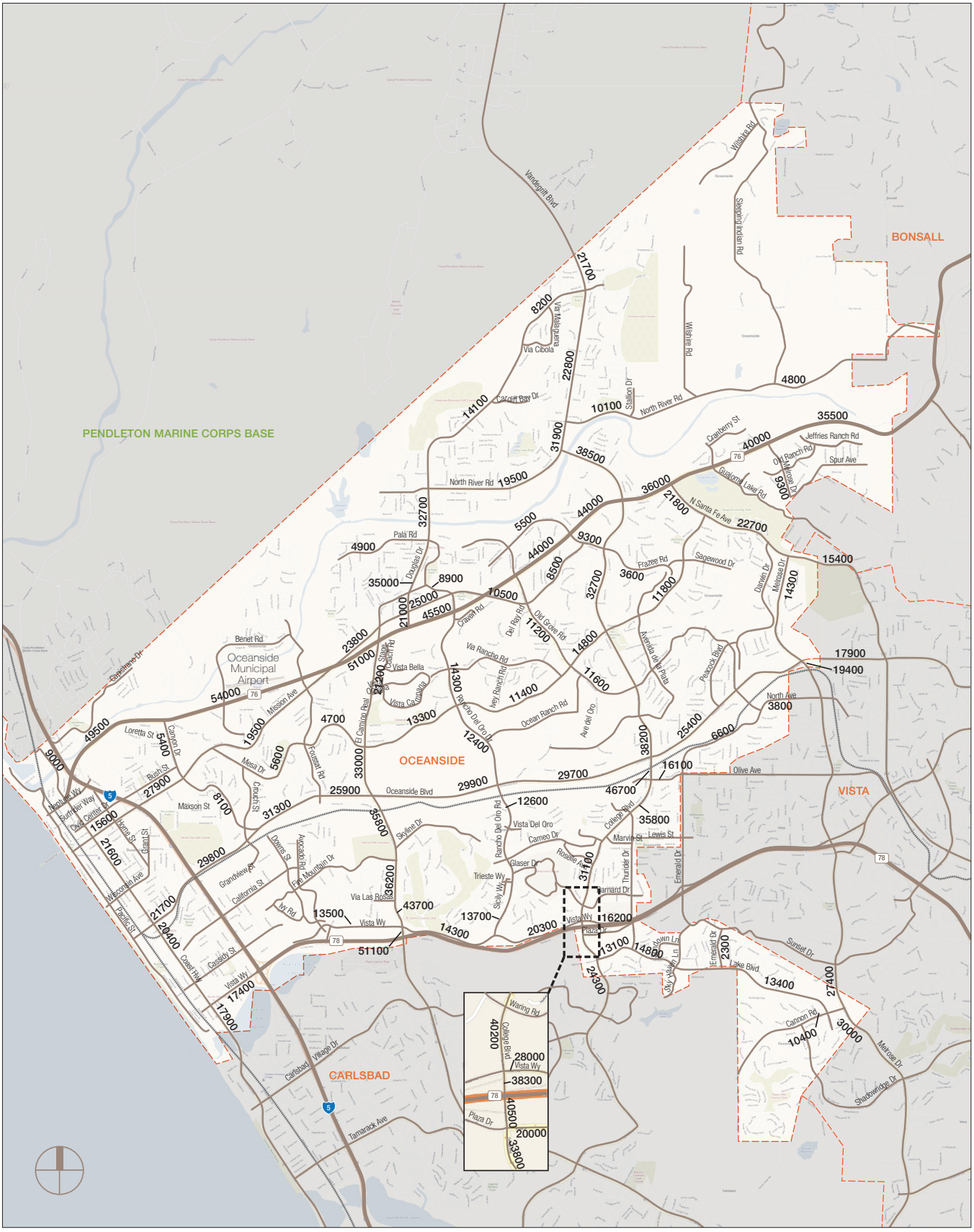
The existing traffic conditions were analyzed to determine areas where the level of service did not meet the LOS D or better threshold. The existing traffic volumes are shown on Figure 3.2. Figure 3.3 depicts the existing level of service conditions for the roadway segments, and Figure 3.4 depicts the existing level of service conditions for the key intersections in the City of Oceanside. Detailed tables that include the existing roadway capacity, traffic volumes, delay and level of service are included in Appendix D.



Not to Scale

Existing Roadway Classifications

Figure 3.1


PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Vandegrift Blvd
Via Cibola
Cardiff Bay Dr
North River Rd
Stallion Dr
Cranberry St
Jeffries Ranch Rd
Spur Ave
Guajome Lake Rd
N Santa Fe Ave
Pala Rd
Douglas Dr
Frazee Rd
Sagewood Dr
Melrose Dr
Benet Rd
Mission Ave
Loretta St
Canyon Dr
Bush St
Mesa Dr
Foussat Rd
El Camino Real
Vista Bella
Vista Campana
Via Rancho Rd
Del Rey Rd
Old Grove Rd
Ocean Ranch Rd
Ave del Oro
Avenida de la Plata
Peacock Blvd
North Ave
Olive Ave
Oceanside Blvd
Maxson St
Morse St
Grant St
Downs St
Avocado Rd
Fire Mountain Dr
Grandview St
California St
Ivy Rd
Via Las Rosas
Vista Wy
Cassidy St
Coast Hwy
Vista Wy
Skyline Dr
Rancho Del Oro Rd
Vista Del Oro
Cameo Dr
Glaser Dr
Trieste Wy
Sicily Wy
Roselle Dr
Marvin St
Lewis St
College Blvd
Barnard Dr
Thunder Dr
Emerald Dr
Lake Blvd
Sunset Dr
Town Ln
Ivory Way Ln
Cannon Rd
Waring Rd
College Blvd
Vista Wy
Plaza Dr
Carlsbad Village Dr
Tamarack Ave
Shadowridge Dr
Melrose Dr
Capehenge Dr
Wisconsin Ave
Foothills St
Cowles Mtn Blvd
Wilshire Rd
Shepard Indian Rd
Wire Mountain Rd
Old Ranch Rd
Lonetree Rd
Cranberry Ln
Stage Coach Rd
Rancho Del Oro Dr
Avenida de la Plata
Ave del Oro
Via Rancho Rd
Vista Campana
Vista Bella
Stage Coach Rd
Old Grove Rd
Del Rey Rd
Crouch Rd
Douglas Dr
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Foothills St
Coast Hwy
Cassidy St
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Ivy Rd
Via Las Rosas
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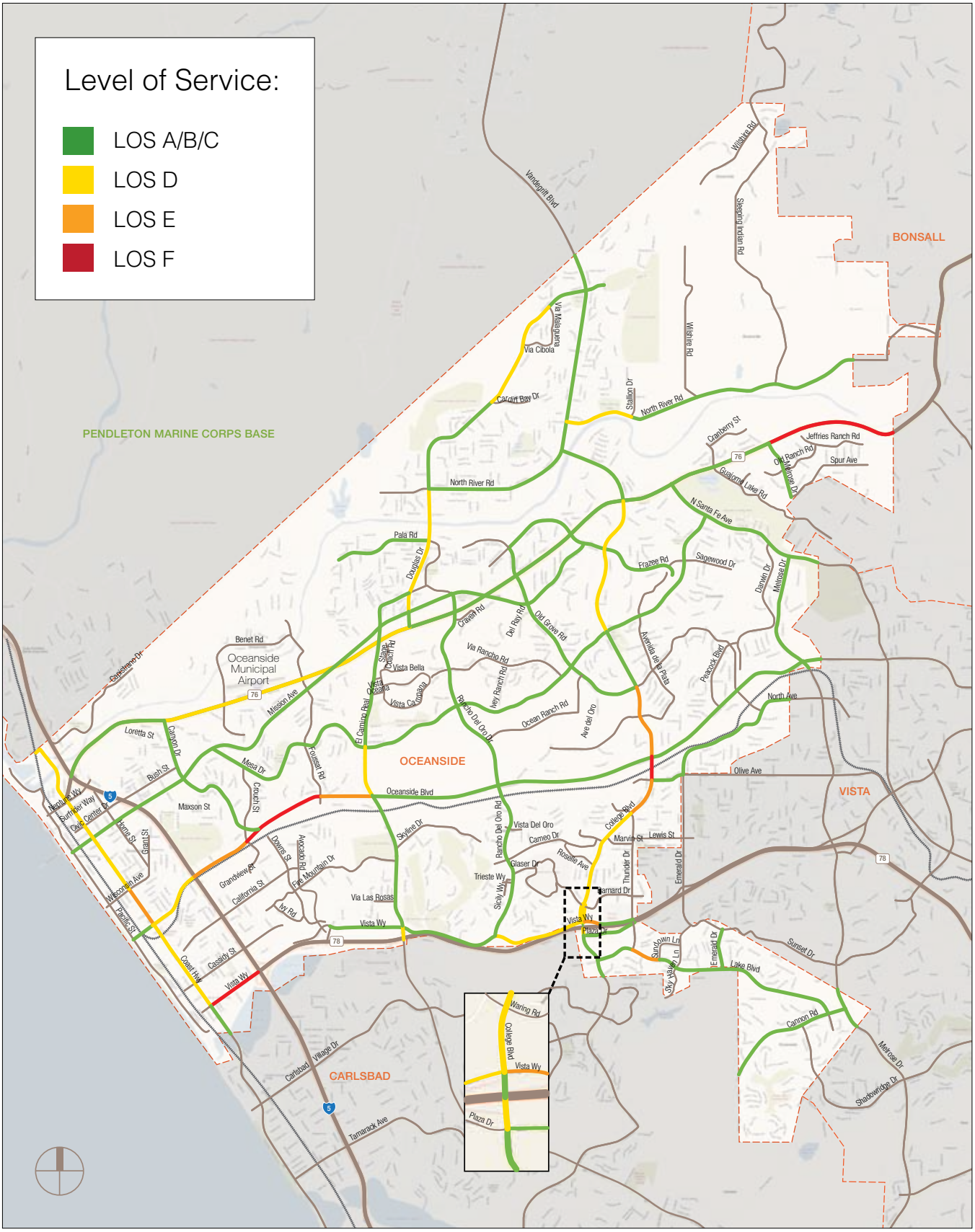
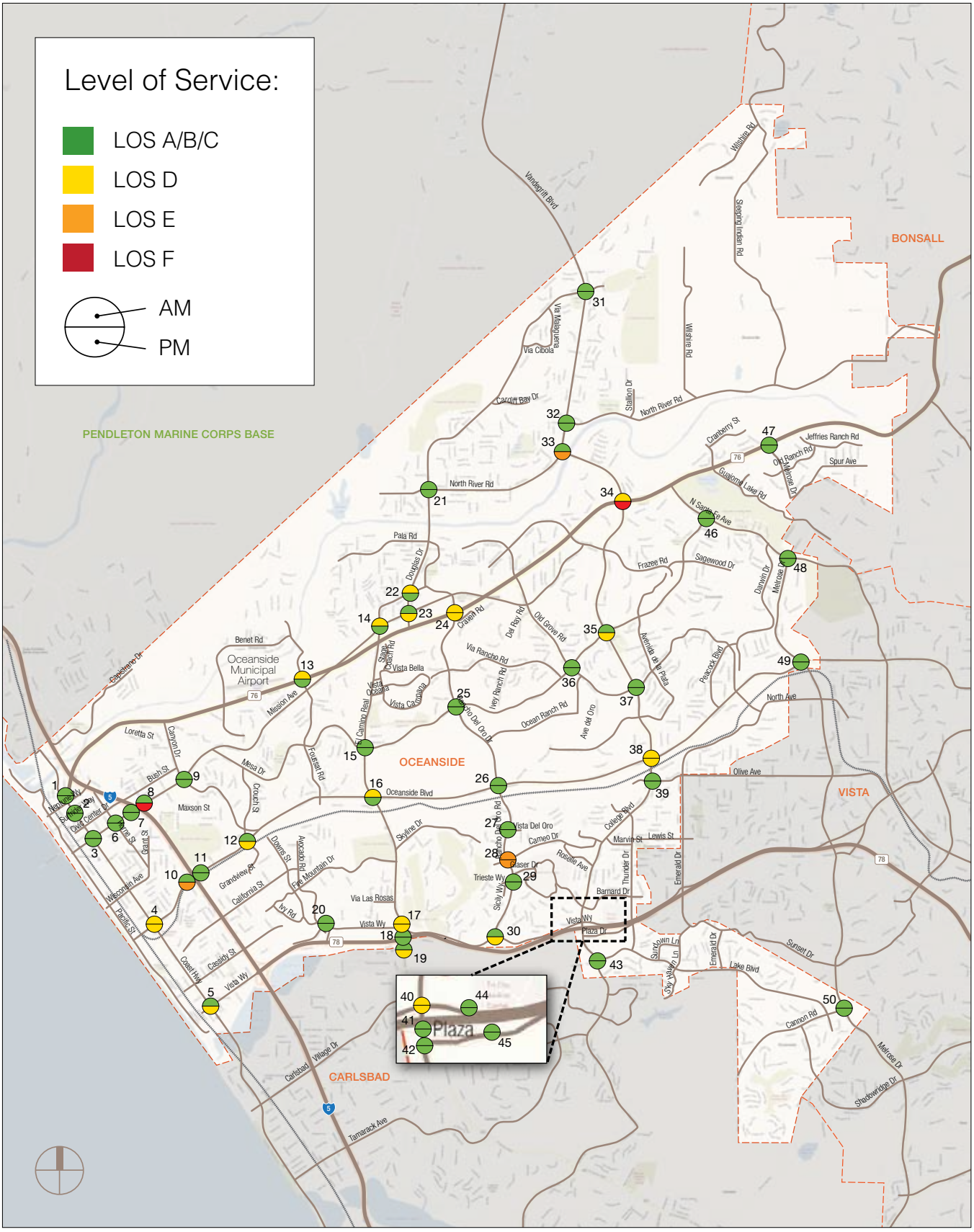
North Ave
Peacock Blvd


Level of Service:
LOS A/B/C
LOS D
LOS E
LOS F
PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Vandegrift Blvd
Via Arbolada
Via Cibola
Cardiff Bay Dr
Stallion Dr
North River Rd
Wilshire Rd
Sycamore Canyon Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
Spur Ave
Guajome Lake Rd
Old Highway 395
N Santa Fe Ave
Pala Rd
Douglas Dr
Frazee Rd
Sagewood Dr
Melrose Dr
Benet Rd
Craven Rd
Del Rey Rd
Old Grove Rd
Via Rancho Rd
Vista Bella
Vista Cordata
Vista Cosmetta
Vey Ranch Rd
Ocean Ranch Rd
Ave del Oro
Avenida de la Plata
Peacock Blvd
North Ave
Olive Ave
Capehorn Dr
Loretta St
Cannon Dr
Bush St
Mesa Dr
Mission Ave
El Camino Real
Foussat Rd
Oceanside Blvd
Maxson St
Crouch St
Horne St
Grant St
Wisconsin Ave
Pacific St
Coast Hwy
Downs St
Avocado Rd
Fire Mountain Dr
Grandview St
California St
Ivy Rd
Cassidy St
Vista Wy
Via Las Rosas
Skyline Dr
Rancho Del Oro Rd
Vista Del Oro
Cameo Dr
Glaser Dr
Trieste Wy
Sicily Wy
Roselle Ave
College Blvd
Marvin St
Lewis St
Barnard Dr
Thunder Dr
Emerald Dr
Plaza Dr
Sunset Dr
Lake Blvd
Cannon Rd
Shadowridge Dr
Waring Rd
College Blvd
Carlsbad Village Dr
Tamarack Ave
Cassia Rd
Ocean Air Dr
Sandlewood Pl
Sandlewood Ln
Sunglow Ln
Sky Way
Rock Way



Note: Intersections 8, 27, 28, and 29 are unsignalized

3.4 Regional Modeling Process

The San Diego Association of Governments (SANDAG) regional transportation model was used to help assess the long range traffic impacts of the General Plan land uses on the proposed Circulation Element Master Transportation Roadway Plan. SANDAG updates and provides the regional traffic forecasts for the San Diego region. SANDAG uses a regional transportation model to produce highway and transit forecasts for individual forecast years between 2003 and 2030. These forecasts are updated periodically to incorporate the most recent planning assumptions.

In the regional model, the County is divided into traffic analysis zones, and the northern portion of the County is further divided and analyzed as the combined North County Sub-Area model. The combined North County Sub-Area Model is a subset of the SANDAG Series 11 regional model. The North County Sub-Area Model includes the cities of Carlsbad, Oceanside, Escondido, Vista, San Marcos, and Poway. At the direction of Oceanside's City Council, the Series 11 North County Sub-Area model was used to forecast future 2030 traffic volumes.

The Series 11 Combined North County Sub-Area model traffic forecasts utilize the "Reasonably Expected" network as defined in the Regional Transportation Plan (RTP) and the Final Series 11 2030 Regional Growth Forecast. It was completed in March 2009. This subarea model produces current and future traffic volumes tailored to the traffic patterns of the six North County cities. It serves as the basis for travel demand forecasting needs in these cities. The SANDAG Series 11 Year 2030 North County Sub-Area model traffic volumes forecasts represent the City of Oceanside's Year 2030 traffic volumes which helped shape the proposed Master Transportation Roadway Plan network.

The SANDAG 2050 Regional Transportation Plan ~~is currently underway~~was approved in October 2011. The SANDAG Board of Directors approved the Hybrid Scenario as the preferred Revenue Constrained Transportation Network. The Hybrid Scenario contains projects that include improvements to the existing Trolley system as well as a number of new light rail (LRT) services in other high demand travel corridors and other bus rapid transit (BRT) and transit projects. The proposed Hybrid Scenario also includes improvements for all of the major freeway and highway corridors. It should be noted that the Hybrid Scenario assumes that State Route 76 (SR76) is a four-lane expressway not a six-lane expressway as shown in the SANDAG Series 11 North County Sub-Area model and the City of Oceanside's Circulation Element. SANDAG determined that SR76 would remain a four-lane facility in 2050 RTP and is not shown on the hybrid scenario project list to be improved to a six-lane facility. The City of Oceanside analysis shows that SR76 would operate at LOS D or worse in the Year 2030 based on future traffic volumes that were taken from the Series 11 North County Sub-Area model. Therefore, the Circulation Element will continue to show SR76 as a six-lane facility as the future traffic volumes (approx. 51,000 to 66,000 ADT, Series 11 Combined North County Sub-Area model) justify the need for a six-lane expressway in Year 2030. It is recommended that the City of Oceanside include the cost of

widening SR76 to a six-lane facility in the City's Thoroughfare Fee program due to the contradiction between the City's Circulation Element classification and the 2050 RTP.

3.5 Roadway Design Standards

The roadway design standards for the City of Oceanside are based on engineering standards and on evolving policies and practices regarding the City's transportation infrastructure. The City of Oceanside has established roadway design standards in order to standardize the City's roadway elements by ensuring that they meet both state and nationally accepted design criteria. While the Circulation Element provides the roadway design standards, it is not a substitute for professional engineering judgment and close coordination with the City Traffic Engineer during project development and plan preparations. In addition, bicycle and pedestrian facilities should be included in the roadway design as appropriate. Bicycle and pedestrian facilities are further outlined in Chapters 6 and 7. Table 3-1 provides a summary of the City of Oceanside's Street Design Criteria.

TABLE 3-1
CITY OF OCEANSIDE STREET DESIGN CRITERIA

Design Elements	6-Lane Prime Arterial	6-Lane Major Arterial	4-Lane Major Arterial	4-Lane with TWLT Secondary Collector	4-Lane Secondary Collector	2-Lane with TWLT Collector	2-Lane Collector	2-Lane Local	Cul-de-Sac Street	Private
Volume Capacity	60,000	50,000	40,000	30,000	25,000	15,000	10,000	2,200	Less than 200	Less than 500[2]
Design Speed	60 mph	55 mph	55 mph	45 mph	45 mph	35 mph	~~35~~ 25 mph	~~30~~ 25 mph	25 mph	25 mph
Stopping Sight Distance[1]	580'	500'	500'	360'	360'	250'	200'	150'	150'	125'
Minimum Spacing of Intersections[3]	2,600'	1,200'	1,200'	600'	600'	300'	300'	200'	NA	200'
Right-of-Way[4]	124'	124'	100'	84'	74'-80'	70'	60'-70'	56'-60'	56'	VARIES
Curb-to-Curb Distance	104' 16' Median	104' 16' Median	80' 16' Median	64'	54'-60'	50'	40'-50'	36'-40'	36'-40'	40'-36' 32'-28'[5]
Minimum Traffic Index	10	10	9	8	8	7	6	5	5	5
Minimum Structural Section[6]	6AC/8AB	6AC/8AB	6AC/6AB	5AC/6AB	5AC/6AB	4AC/6AB	4AC/6AB	3AC/6AB	3AC/6AB	3AC/6AB
Access to Adjoining Property	None	None	None	Where no other access is possible	Where no other access is possible	Where no other access is possible	Limited Access	OK	OK	OK
Minimum Horizontal Radius Without Superelevation	1,000 2,200	1,000 1,800	1,000 1,800	750 1,100	750 1,100	500 600	350 N/A	200 N/A	200 N/A	200 N/A
Maximum Grade	6%	8%	8%	8%	8%	8%	10%	12%[7]	12%[7,8]	12%[7]
Minimum Grade	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Maximum Intersection Grade	3%	3%	3%	4%	4%	5%	5%	5%	5%	5%
Curb Return Radii	35'	35'	35'	35'	35'	30'	30'	25'	40'	25'-35'
Street Lights Location per Standard Drawing No. M-4[9]	30,000 lumen 200' staggered	30,000 lumen 200' staggered	30,000 lumen 200' staggered	30,000 lumen 250' staggered	30,000 lumen 250' staggered	9,500 lumen 250' one side or staggered	9,500 lumen 250' one side or staggered	9,500 lumen at all intersections 250' spacing one side of street	9,500 lumen at mid-block if less than 200'	9,500 lumen at all intersections 250' spacing one side of street

Footnotes:

1. Stopping sight distance shall not be used for intersection sight distance. Refer to Caltrans Design Manual for intersection sight distance (Corner Sight Distance).
2. Private streets with greater than 500 ADT to be designed to public street standards.
3. Measured BCR to BCR.
4. Additional Right-of-Way at intersections shall be required to accommodate turning lanes as necessary.
5. 28' no parking on either side; 32' parking one side only.
6. Minimum sections allowed. Actual sections are to be based on the R-value tests.
7. Grades greater than allowed must have written approval of the City Traffic Engineer prior to approval of the tentative map or development plan.
8. Cul-de-sac turnarounds shall not exceed 5% maximum grade.
9. Standard Drawings are located in the City's Engineering Design and Processing Manual.
   Note: Expressways within the City of Oceanside are designed to Caltrans Highway Design Manual criteria.

3.6 LOS Analysis Methodology

The efficiency of traffic intersection operations and available and utilized capacity of roadways are measured in terms of Level of Service (LOS). The LOS refers to the quality of traffic flow along roadways and at intersections. Evaluation of roadways and intersections involves the assignment of grades from "A" to "F," with LOS A representing the lowest level of congestion and LOS F representing extremely crowded and restricted operations. Each letter grade corresponds to a range of volume to capacity (V/C) values. The values for roadways are presented as volume to capacity ratios or vehicle demand divided by the roadway capacity. Therefore, as the ratio approaches a 1.00 capacity, the roadway approaches LOS F.

3.6.1 Freeways and Ramps

Freeways and associated interchanges must be evaluated, since all freeways are on the Congestion Management Program system. All signalized intersections of freeway ramps with arterials should be evaluated using the Highway Capacity Manual (HCM) signalized intersection operational method (see section 3.6.3). For diamond interchanges, the timing and phasing of the two signals must be coordinated to ensure queue clearances. Signal timing sheets should be requested from Caltrans or the City of Oceanside. Freeways impacted by a proposed project should be evaluated for significant impacts. Level of service (generally used by Caltrans) for freeways are categorized in Table 3-2.

If ramp metering is present at a freeway interchange, the effects of the metering should be analyzed. The analysis input and output for ramp metering is explained in the Traffic Impact Study (TIS) components guidelines which are included in Appendix G. In addition, the thresholds for a significant impact to ramps or freeways are included in Appendix G.

TABLE 3-2
LEVEL OF SERVICE DESCRIPTION FOR FREEWAYS

LOS	Demand/ Capacity	Congestion/ Delay	Traffic Description
A	<0.41	None	Free flow.
B	0.42-0.62	None	Free to stable flow, light to moderate volumes.
C	0.63-0.79	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
D	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
E	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
F	>1.00	Considerable	Forced or breakdown. Delay measured in average flow, travel speed (mph). Signalized segments experience delays >60.0 secs/vehicle.
F0	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestions, long queues form behind breakdown points, stop and go.
F1	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
F2	1.36-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
F3	>1.46	Extremely Severe 3+ hours of delay	Gridlock.

3.6.2 Roadways

Level of Service standards shall be used to determine acceptable levels of Average Daily Traffic (ADT) for all City roadways. LOS standards must be met by all new development projects or agreed upon mitigation measures must be implemented upon issuance of the certificate of occupancy of the first residential unit, commercial/industrial building or educational facility.

Each classification in the Circulation Element hierarchy of arterial roadways has a design capacity and associated LOS threshold. Table 3-3 shows the design capacity and LOS thresholds for all roadways. If a roadway is calculated to operate at LOS E, then an arterial peak hour analysis shall be performed following the HCM methodology. A computer software with HCM methodology analysis shall be used to determine arterial level of service for peak hour analysis. Any other methodology used should first be discussed and approved by the City.

TABLE 3-3
CIRCULATION ELEMENT ROADWAY CLASSIFICATION LOS & CAPACITY

Class	Lanes	Cross Section[1]	Level of Service				
			A	B	C	D	E
Expressway	6	102/160 122/200	30,000	42,000	60,000	70,000	80,000
Expressway	4	102/160 122/200	25,000	35,000	50,000	55,000	60,000
Prime Arterial	6	104/124	25,000	35,000	50,000	55,000	60,000
6-Lane Major Arterial	6	104/124	20,000	28,000	40,000	45,000	50,000
5-Lane Major Arterial[2]	5	102/122	17,500	24,500	35,000	40,000	45,000
4-Lane Major Arterial	4	80/100	15,000	21,000	30,000	35,000	40,000
Secondary Collector (4 lanes with 2-way left turn lane)	4	64/84	10,000	14,000	20,000	25,000	30,000
Secondary Collector (4 lanes without 2-way left-turn lane, with left turn pockets)	4	54/74, 60/80	9,000	13,000	18,000	22,000	25,000
Collector (commercial fronting, 2-lanes with 2-way left turn lane) [3]	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (residential streets in the Circulation Element or industrial fronting)	2	40/60, 50/70	4,000	5,500	7,500	9,000	10,000
Local Street (residential streets NOT in the Circulation Element)	2	36/56, 40/60	—	—	2,200	—	—

Notes:

1. Cross sections are listed as curb-to-curb width/total right-of-way width, in feet.
2. Vandegrift Boulevard is the only Circulation Element roadway designated as a 5-Lane Major Arterial. It is not intended that other roadways be built to 5-lane Major Arterial standards.
3. This capacity will also be assumed for a two-lane one-way collector.

3.6.3 Intersections

Intersection Level of Service analysis should be conducted using the HCM Methodology. For signalized intersections, the methodology described in the HCM Chapter 18 for signalized intersections is used. With this methodology, the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. The relationship between control delay per vehicle and LOS for signalized intersections is summarized in Table 3-4.

TABLE 3-4
HCM LEVEL OF SERVICE DESCRIPTION FOR SIGNALIZED INTERSECTIONS

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication.	≤ 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 20
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 20 – 35
D	Tolerable delays: drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	> 35 – 55
E	Significant delays: volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2010.

For unsignalized intersections, the methodology described in the HCM Chapters 19 and 20 for unsignalized intersections is used. With this methodology, LOS is related to the control delay for each stop-controlled movement. The relationship between control delay per vehicle and LOS for unsignalized intersections is summarized in Table 3-5.

TABLE 3-5
HCM LEVEL OF SERVICE DESCRIPTION FOR UNSIGNALIZED INTERSECTIONS

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	No delay for stop-controlled approaches.	≤ 10
B	Operations with minor delay.	> 10 – 15
C	Operations with moderate delays.	> 15 – 25
D	Operations with some delays.	> 25 – 35
E	Operations with high delays and long queues.	> 35 – 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2010.

3.7 Proposed 2030 Master Transportation Roadway Plan

The 2030 Master Transportation Roadway Plan was developed by assessing the existing network and future 2030 traffic conditions. There were 18 potential 2030 network alternatives reviewed for the Master Transportation Roadway Plan. The 18 potential network alternatives were run using the Series 11 Sub-Area model. These alternatives were reviewed and narrowed down to five scenarios that were presented to City staff and at public meetings with the understanding that two variations of the five would be selected for further detailed analysis in a traffic impact study. The proposed Master Transportation Roadway Plan presented in this section is one of the two alternatives that were analyzed in the traffic impact study.

The 2030 Master Transportation Roadway Plan as shown on Figure 3.5 represents the planned street system along with the classifications of those streets. Where there is a change from one classification to another, along a certain street, a transition will occur mid-block to preclude non-continuing lanes at intersections. The design criteria for the higher classification shall generally take precedence through the transition area. The City Traffic Engineer shall review these transition areas and provide guidance.

There are several pieces of the transportation network that have changed from existing to the proposed 2030 Master Transportation Roadway Plan. The major changes to the circulation network include:

- State Route 76 is six-lanes
- Rancho Del Oro Road at SR78 is an interchange

- College Boulevard is a four- and six-lane hybrid
  - Four-lanes between SR76 and Avenida de la Plata
  - Six-lanes between Avenida de la Plata and Olive Drive
  - Four-lanes between Olive Drive and Waring Road
  - Six-lanes between Waring Road and Lake Boulevard
- Melrose Drive is connected between Spur Avenue and N. Santa Fe Avenue
- Pala Road is connected between Los Arbolitos Boulevard and Foussat Road
- Mission Avenue is a one-way couplet between Cleveland Street and Clementine Street with Seagaze Drive (Clementine Street will be one-way northbound and Cleveland Street will be one-way southbound)

In addition to the major network changes, there are several other network improvements proposed for the 2030 Master Transportation Roadway Plan. Table 3-6 highlights the changes from the existing network to the proposed 2030 network. Several facilities are already built to their ultimate classification and are therefore not mentioned in Table 3-6. A complete list of roadway segment classification, forecast 2030 traffic volumes, delay and LOS are included in Appendix E.

TABLE 3-6
2030 PROPOSED CLASSIFICATION CHANGES
(COMPARED TO EXISTING)

Facility	Existing		2030 Proposed	
	# Lanes	Classification	# Lanes	Classification
Canyon Dr: Mission Ave to Oceanside Blvd	2	Collector	4	Secondary Collector
Coast Hwy: Harbor Dr to SR76	2	Collector	4	Secondary Collector
College Blvd: Old Grove Rd to Olive Dr	4	Major	6	Major
El Camino Real: Mesa Dr to Oceanside Blvd	4	Major	~~6~~5	Major
Melrose Dr: SR76 to N. Santa Fe Ave*	4/6	Major	6	Major
Melrose Dr: N. Santa Fe Ave to Oceanside Blvd	4	Major	6	Prime
Melrose Dr: Oceanside Blvd to City Limits	4	Major	6	Prime
Mission Ave: Cleveland St to Clementine St	4	Secondary Collector	2 (one-way)	Collector**
North Ave: Olive Dr to Melrose Dr	2	Collector	4	Secondary Collector
North River Rd: Vandegrift Blvd to Melrose Dr	2	Collector	4	Major

TABLE 3-6
2030 PROPOSED CLASSIFICATION CHANGES
(COMPARED TO EXISTING)

Facility	Existing		2030 Proposed	
	# Lanes	Classification	# Lanes	Classification
North River Rd: Melrose Dr to Eastern City Limits	2	Collector	4	Secondary Collector
Oceanside Blvd: I-5 to El Camino Real	4	Secondary Collector	4	Major
Pala Rd: Foussat Rd to Los Arbolitos Blvd	NA	NA	4	Secondary Collector
Pala Rd: Los Arbolitos Blvd to Douglas Dr	2	Collector	4	Secondary Collector
SR76: I-5 to Melrose Dr	4	Expressway	6	Expressway
SR76: Melrose Dr to Eastern City Limits	2	Expressway	4	Expressway

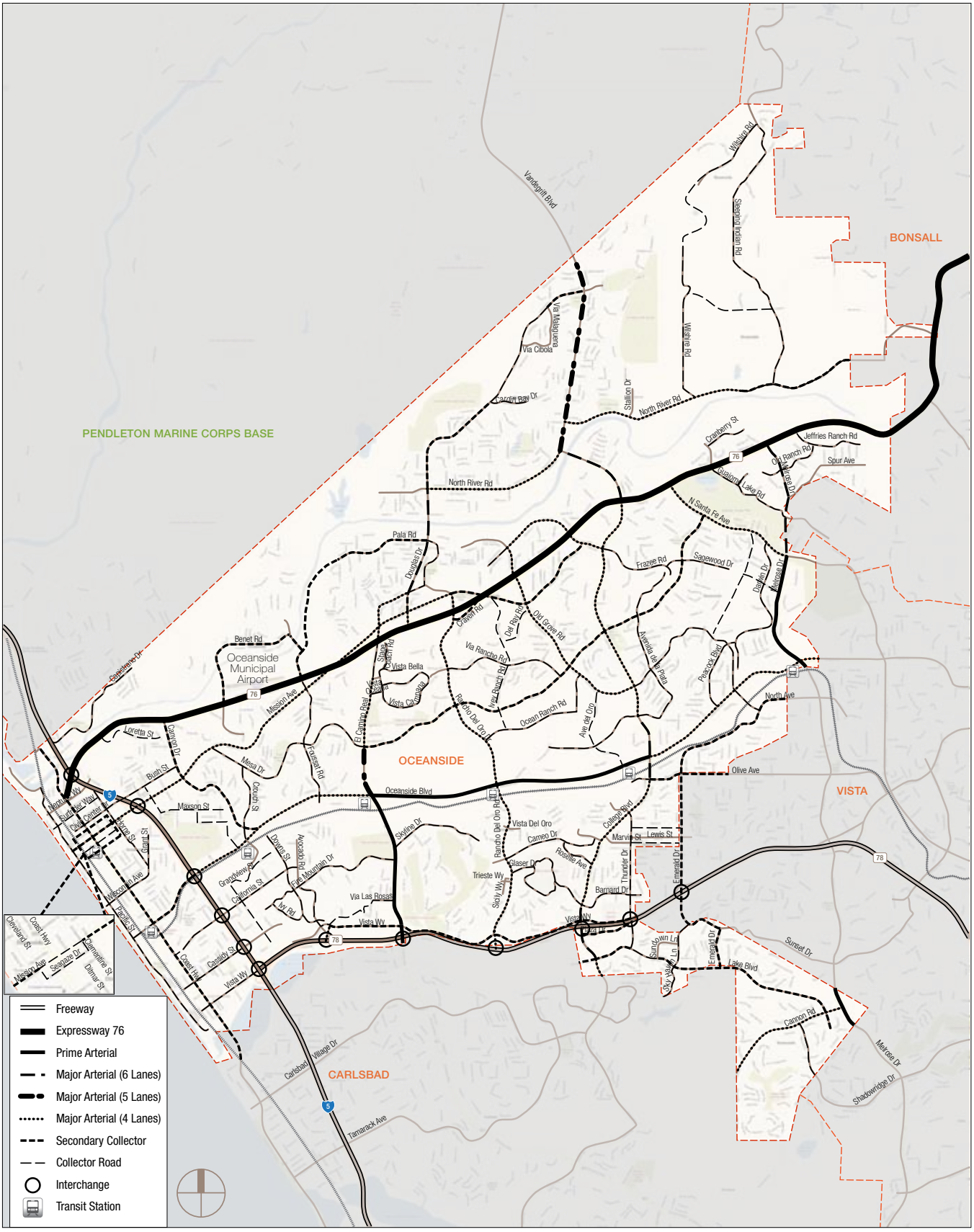
Note:

*Melrose Drive between SR76 and North Santa Fe Avenue could possibly only be a four-lane major instead of a six-lane major in 2030.

**Mission Avenue will be a two-lane one-way couplet between Cleveland and Clementine Streets with Seagaze Drive. Clementine Street will be one-way northbound and Cleveland Street will be one-way southbound.

As previously stated, the transportation network adopted in the 1995 Circulation Element was also used as the baseline for developing the now proposed 2030 Master Transportation Roadway Plan. The major changes from the 1995 Circulation Element to the now proposed 2030 Master Transportation Roadway Plan is:

- College Boulevard is a four- and six-lane hybrid
  - Four-lanes between SR76 and Avenida de la Plata
  - Six-lanes between Avenida de la Plata and Olive Drive
  - Four-lanes between Olive Drive and Waring Road
  - Six-lanes between Waring Road and Lake Boulevard
- Melrose Drive is NOT connected between SR76 and North River Road
- Mission Avenue is a one-way two-lane couplet between Cleveland Street and Clementine Street
- Jeffries Ranch Road is NOT connected to SR76
- Old Ranch Road is NOT connected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Via Vallejo Lane
Wilson Rd
Stallion Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
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Calaveras Lake Rd
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Pala Rd
Douglas Dr
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Sagewood Dr
Dahlia Dr
Melrose Dr
Benet Rd
Mission Ave
Loretta St
Canyon Dr
Bush St
Mesa Dr
Foussat Rd
El Camino Real
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Pacific St
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Hill Mountain Dr
Via Las Rosas
Vista Wy
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Carlsbad Village Dr
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Vista Sorrento Pkwy
Vista Bella
Vista Grande
Via Rancho Pkwy
Rancho Del Oro Dr
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Avenida de la Plata
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Vista Del Oro
Cameo Dr
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Skyline Dr
Sicily Wy
Trieste Wy
Glaser Dr
Rosalie Ave
Marvin St
Lewis St
Thunder Dr
Barnard Dr
Emerald Dr
Sunnyhill Ln
Sky Way
Lake Blvd
Sunset Dr
Cannon Rd
Melrose Dr
Shadowridge Dr
Freeway
Expressway 76
Prime Arterial
Major Arterial (6 Lanes)
Major Arterial (5 Lanes)
Major Arterial (4 Lanes)
Secondary Collector
Collector Road
Interchange
Transit Station

Not to Scale

3.7.1 Unacceptable LOS Roadway Segments

There are several segments in the proposed 2030 Master Transportation Roadway Plan that do not operate at an acceptable level of service D or better and the mitigation measures to improve the operations to an acceptable level of service are not considered feasible. Figure 3.6 depicts the 2030 Master Transportation Roadway Plan traffic volumes. Figure 3.7 depicts the level of service operations for the roadway network for the 2030 Master Transportation Roadway Plan. As forecast traffic volumes build on the major corridors such as Coast Highway, College Boulevard, El Camino Real and Oceanside Boulevard, traffic should be managed through the Transportation Management Center (TMC). This will not provide full mitigation but simply improve overall traffic flow along these segments. The potential mitigation measures necessary to bring these segments to an acceptable LOS D or better are not always feasible or do not work towards achieving the overall long-term goals for the City of Oceanside. However, it is noted what would be required to fully mitigate these segments. The following are City of Oceanside roadway segments that do not operate at an acceptable LOS D or better under the proposed 2030 Master Transportation Roadway Plan.

Coast Highway between Wisconsin Avenue and Oceanside Boulevard

- Capacity: Four-lane secondary collector with LOS E capacity of 25,000 *(see Table 3-3 for roadway capacities)*
- LOS: Forecast 23,300 ADT volumes, LOS E, V/C ratio 0.93
- Mitigation: Widening to a four-lane secondary collector with a center two-way left-turn lane would accommodate forecast traffic volumes

College Boulevard between SR76 and Mesa Drive, Old Grove and Avenida de la Plata, Oceanside Boulevard and Thunder Drive, Vista Way and Plaza Drive, and Lake Boulevard and Southern City Limits

- Capacity: Four-lane major between SR76 and Avenida de la Plata, six-lane major between Avenida de la Plata and Olive Drive, four-lane major between Olive Drive and Waring Road, six-lane major between Waring Road and Lake Boulevard, and four-lane major between Lake Boulevard and the Southern City Limits
- Capacity: Four-lane major LOS E capacity of 40,000 and Six-lane major LOS E capacity of 50,000
- LOS: Forecast between 36,000-49,000 ADT volumes, LOS E and F, V/C ratio 0.90-1.04
- Mitigation: Widening the four-lane major sections (where there is an impact) to a six-lane major or widening the six-lane major sections to a six-lane prime arterial would accommodate forecast traffic volumes; however, residents on certain sections of College Boulevard would be impacted by widening this corridor.

Douglas Drive between Via Malaguena and Cardiff Bay Drive

- Capacity: Two-lane collector with LOS E capacity of 15,000 between Via Malaguena and Cardiff Bay Drive
- LOS: Forecast 13,600 ADT volumes, LOS E, V/C ratio 0.91 between Via Malaguena and Cardiff Bay Drive
- Mitigation: The segment between Via Malaguena and Cardiff Bay Drive has wetlands adjacent to the roadway that may prohibit this section from being widened to accommodate forecast traffic volumes.

El Camino Real between Vista Way and SR78

- Capacity: Six-lane prime arterial with LOS E capacity of 60,000 between Vista Way and SR78
- LOS: Forecast 59,000 ADT volumes, LOS E, V/C ratio 0.98 between Vista Way and SR78
- Mitigation: Widening of the segment between Vista Way and SR78 to an eight-lane facility would improve the LOS; however, there are right-of-way restrictions on this segment that would not feasibly allow any additional widening. Due to existing topography, street location, and buildings some congestion on these segments may occur at buildout.

Lake Boulevard between Thunder Drive and Sundown Lane

- Capacity: Two-lane collector with LOS E capacity of 15,000
- LOS: Forecast 16,100 ADT volumes, LOS F, V/C ratio 1.07
- Mitigation: Widening this segment to a four-lane secondary collector would accommodate the forecast traffic volumes. However, there is opposition from the residents fronting the street to widen the street segment beyond its current two-lane collector designation.

Mesa Drive between Mission Avenue and Foussat Road

- Capacity: Two-lane collector with LOS E capacity of 10,000
- LOS: Forecast 11,100 ADT volumes, LOS F, V/C ratio 1.11
- Mitigation: Widening this segment to a two-lane collector with a center continuous two-way left turn lane would accommodate forecast traffic volumes. Widening this segment to accommodate a two-way left-turn lane is not possible due to existing residential frontage.

North River Road between College Boulevard and Vandegrift Boulevard

- Capacity: Five-lane major arterial with LOS E capacity of 45,000
- LOS: Forecast 42,300 ADT volumes, LOS E, V/C ratio 0.94
- Mitigation: Widening this segment to a six-lane major arterial would accommodate forecast traffic volumes.

Oceanside Boulevard between Crouch Street and Foussat Road

- Capacity: Four-lane major arterial with LOS E capacity of 40,000
- LOS: Forecast 38,000 ADT volumes, LOS E, V/C ratio 0.95
- Mitigation: Widening this segment to a six-lane major arterial would accommodate forecast traffic volumes.

Vista Way between Coast Highway and I-5

- Capacity: Two-lane collector with LOS E capacity of 15,000 between Coast Highway and I-5
- LOS: Forecast 18,200 ADT volumes, LOS F, V/C ratio 1.21 between Coast Highway and I-5
- Mitigation: Widening Vista Way between Coast Highway and I-5 to a four-lane secondary collector would accommodate forecast traffic volumes; however, there are residential dwelling units fronting this street that oppose the widening of this segment.

Vista Way between College Boulevard and SR78 Ramps

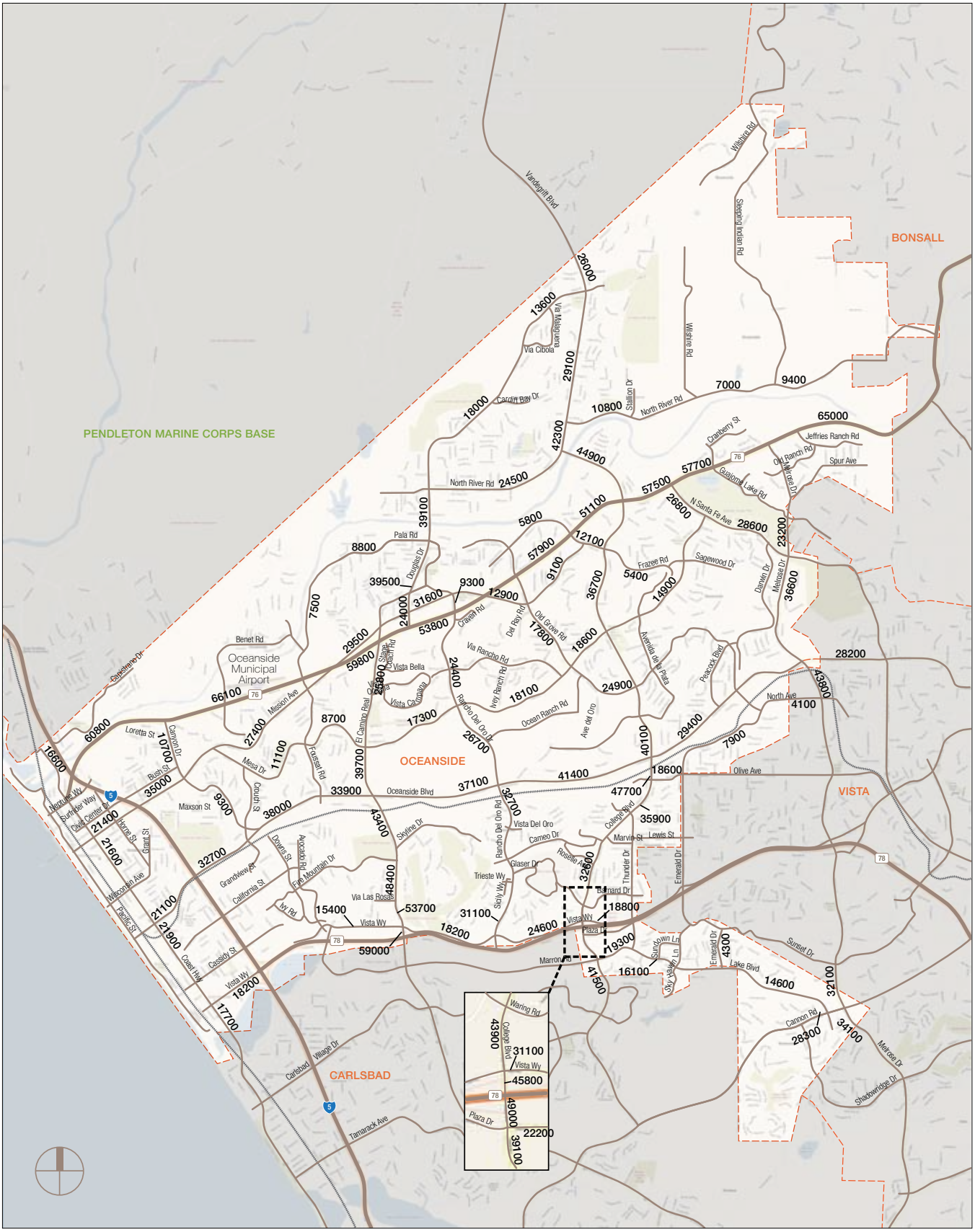
- Capacity: Four-lane secondary collector with LOS E capacity of 30,000 between College Boulevard and SR78 Ramps
- LOS: Forecast 31,100 ADT volumes, LOS F, V/C ratio 1.04 between College Boulevard and SR78 Ramps
- Mitigation: It should be noted that this segment has an eastbound right-turn lane serving the SR78 EB On-Ramp. However, the City strives to improve the westbound approach of this segment by providing a westbound dedicated right-turn lane and extending the storage length of the westbound left-turn lanes at College Boulevard and Vista Way intersection.

3.7.2 Unacceptable LOS Intersections

In addition, there are several key intersections in the proposed 2030 Master Transportation Roadway Plan that does not operate at an acceptable level of service during peak hours. Figure 3.8 depicts the level of service operations for the key intersections for the proposed 2030 Master Transportation Roadway Plan. Below is a list of intersections that operate at LOS E or F during the AM or PM peak hours. The potential mitigation measures for the intersections that are proposed to operate at LOS E or F include adding an additional thru, left, or right-turn lanes to the necessary leg of the intersection. The intersection level of service, delay, and list of potential mitigation measures for these intersections is included in Appendix F.

- Mission Avenue and I-5 NB & SB Ramps (PM peak hour)
- Oceanside Boulevard and I-5 NB & SB Ramps ((PM peak hour)
- Oceanside Boulevard and Crouch Street (PM peak hour)
- SR76 and Foussat Road (AM peak hour)
- El Camino Real and Oceanside Boulevard (AM peak hour)
- Douglas Drive and El Camino Real (AM & PM peak hours)

- Douglas Drive and Mission Avenue (AM & PM peak hours)
- College Boulevard and SR76 (PM peak hour)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Via Cibola
Cardiff Bay Dr
Stallion Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
Spur Ave
Guajome Lake Rd
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Old Grove Rd
Melrose Dr
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Cassidy St
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Del Rey Rd
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North Ave
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Oceanside Blvd
Maxson St
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Civic Center Dr
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Grant St
Wisconsin Ave
Pacific St
Coast Hwy
Vista Wy
Carlsbad Village Dr
Tamarack Ave
Grandview St
California St
Ivy Rd
Downs St
Avocado Rd
Fire Mountain Dr
Via Las Rosas
Skyline Dr
Vista Del Oro
Cameo Dr
Glaser Dr
Trieste Wy
Sicily Wy
Rancho Del Oro Rd
College Blvd
Marvin St
Lewis St
Roselle St
Thunder Dr
Emerald Dr
Bernard Dr
Vista Wy Plaza
Marron Rd
Sunglow Ln
Sky Valley Ln
Lake Blvd
Sunset Dr
Cannon Rd
Melrose Dr
Shadowridge Dr
Waring Rd
College Blvd
Plaza Dr
Cannon Dr
Carlsbad Blvd
Carpenteria Dr
Meadow Wy
Courthaven Way
Civic Center Dr
Loretta St
Bush St
Cannon Dr
Mesa Dr
Fordham St
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Waring Rd
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Douglas Dr
Pala Rd
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Via Rancho Vista
Cardiff Bay Dr
Stallion Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
Spur Ave
Guajome Lake Rd
N Santa Fe Ave
Old Grove Rd
Melrose Dr
Sagewood Dr
Frazee Rd
Via Rancho Rd
Del Rey Rd
Ivey Ranch Rd
Ocean Ranch Rd
Rancho Del Oro Dr
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Peacock Blvd
Dawkins Dr
North Ave
Olive Ave
Oceanside Blvd
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El Camino Real
Foussat Rd
Douglas Dr
Craven Rd
Stage Coach Rd
Via Las Rosas
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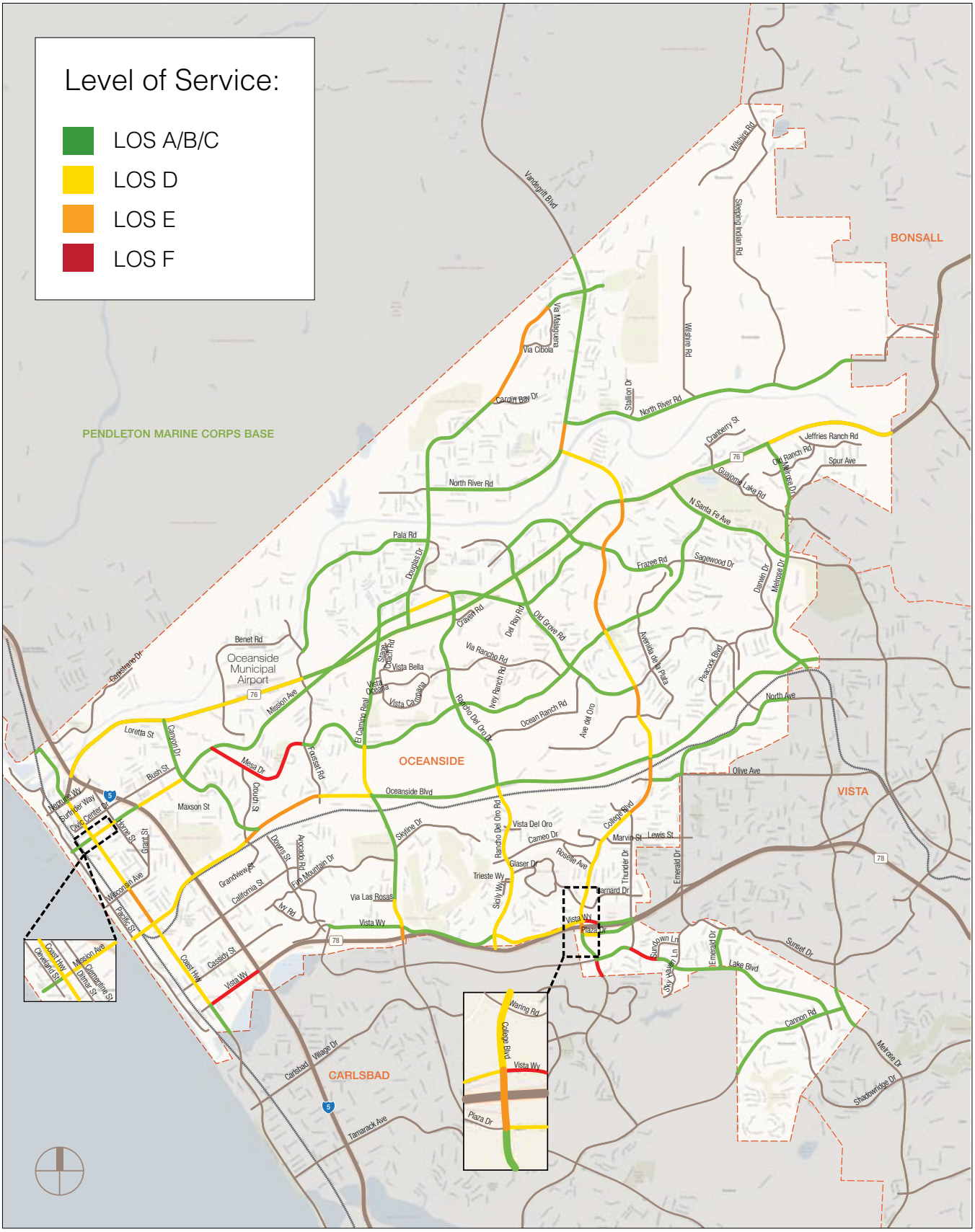
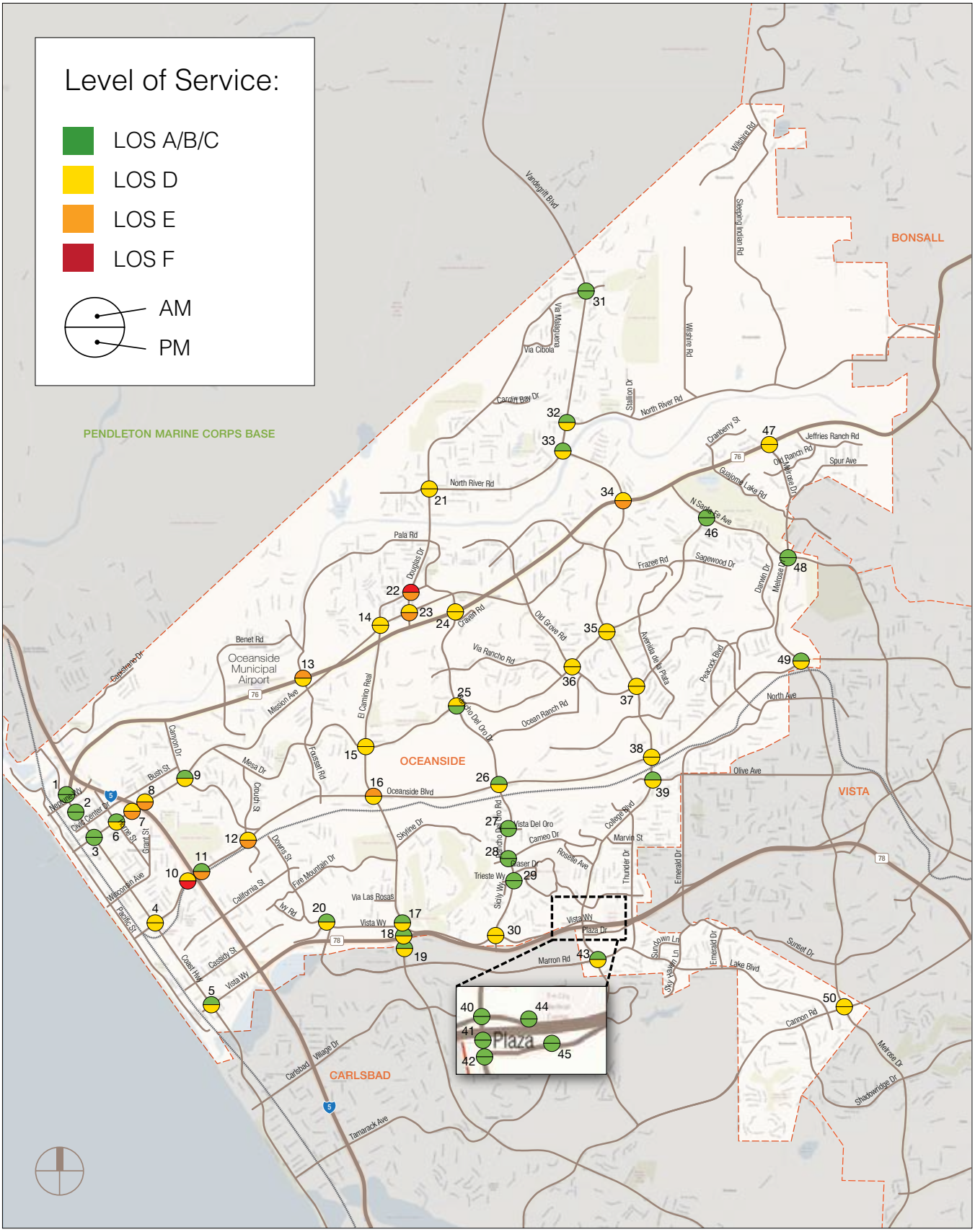


2030 Master Transportation Plan Roadway Level of Service

Figure 3.7


Level of Service:
LOS A/B/C
LOS D
LOS E
LOS F
AM
PM
PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Plaza
Vandegrift Blvd
Wilshire Rd
Via Cibola
Via Valverde
Mirasol Rd
Stallion Dr
Cardiff Bay Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
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Roselle Ave
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Emerald Dr
Fire Mountain Dr
California St
Wisconsin Ave
Ivy Rd
Via Las Rosas
Vista Wy
Plaza Dr
Marron Rd
Sunset Dr
Lake Blvd
Cannon Rd
Carlsbad Village Dr
Tamarack Ave
Shadowridge Dr

3.7.3 Recommended Overriding Considerations

The following segments and intersection are recommended for consideration by City Council for an overriding consideration with the adoption of this Circulation Element. The mitigation measures identified for these segments have significant land use or environmental impacts that prohibit a feasible mitigation to bring the facility to an acceptable level of service.

Roadway Segments:

Coast Highway between Wisconsin Avenue and Oceanside Boulevard

The Master Transportation Roadway Plan shows this segment as a four-lane secondary collector. It would require a four-lane 64/84 secondary collector designation without the existing on-street parking to accommodate the forecast traffic volumes. The new Traffic Management Center (TMC) can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between SR76 and Mesa Drive

The Master Transportation Roadway Plan shows this segment as a four-lane major arterial. It would require a six-lane major arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between Old Grove Road to Avenida de la Plata

The Master Transportation Roadway Plan shows this segment as a four-lane major arterial. It would require a six-lane major arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between Oceanside Boulevard and Olive Drive

The Master Transportation Roadway Plan shows this segment as a six-lane major arterial. It would require a six-lane prime arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between Olive Drive and Thunder Drive

The Master Transportation Roadway Plan shows this segment as a four-lane major arterial. It would require a six-lane major arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between Vista Way and Plaza Drive

The Master Transportation Roadway Plan shows this segment as a six-lane major arterial. It would require a six-lane prime arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

College Boulevard between Lake Boulevard and the Southern City Limits

The Master Transportation Roadway Plan shows this segment as a four-lane major arterial. It would require a six-lane major arterial designation to accommodate the forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

Douglas Drive between Via Malaguena and Cardiff Bay

The Master Transportation Roadway Plan shows this segment as a two-lane divided roadway. It would require a four-lane secondary collector designation to accommodate the forecast traffic volumes. However, there are known environmental constraints that prohibit widening this segment of Douglas Drive.

El Camino Real between Vista Way and SR78

The Master Transportation Roadway Plan shows this segment as a six-lane prime arterial. It would require an eight-lane arterial designation to accommodate the forecast traffic volumes on this segment. However, there are land use constraints due to the proximity of existing development that prohibit widening El Camino Real to eight-lanes. This segment had a previous overriding consideration from the 1995 Circulation Element. It is recommended that an overriding consideration be adopted for this segment again for this update of the Circulation Element.

Lake Boulevard between Thunder Drive and Sundown Lane

The Master Transportation Roadway Plan shows this segment as a two-lane roadway with a center two-way left-turn lane. It would require a four-lane secondary collector designation to accommodate forecast traffic volumes. There have been traffic accidents and the residents on this segment have expressed opposition to this segment of Lake Boulevard being widened.

Mesa Drive between Mission Avenue and Foussat Road

The Master Transportation Roadway Plan shows this segment as a two-lane collector. It would require widening it to a 50/70 collector to accommodate forecast traffic volumes.

North River Road between College Boulevard and Vandegrift Boulevard

The Master Transportation Roadway Plan shows this segment as a five-lane major arterial. It would require a six-lane major arterial designation to

accommodate forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

Oceanside Boulevard between Crouch Street and Foussat Road

The Master Transportation Roadway Plan shows this segment as a four-lane major arterial. It would require a six-lane major arterial designation to accommodate forecast traffic volumes. The new TMC can be used to manage the transportation system through adaptive signals on congested corridors.

Vista Way between Coast Highway and I-5 Ramps

The Master Transportation Roadway Plan shows this segment as a two-lane roadway with a center two-way left turn lane. It would require a four-lane secondary collector designation to accommodate forecast traffic volumes. There are residents fronting this segment and the residents oppose the widening of this segment of Vista Way.

Vista Way between College Boulevard and SR78 Ramps

The Master Transportation Roadway Plan shows this segment as a four-lane secondary collector. It would require a four-lane major arterial designation to fully accommodate forecast traffic volumes. However, improvements to the College Boulevard and Vista Way intersection in the form of a westbound dedicated right-turn lane and lengthening the westbound left-turn lanes storage would improve peak hour operations on this segment. Therefore, the westbound improvements at College Boulevard/Vista Way should be implemented.

Intersections:

Mission Avenue and I-5 SB Ramps

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound and two westbound left-turn lanes to fully mitigate this intersection. This would require widening the Mission Avenue bridge over I-5. The Caltrans I-5 widening project plans show the Mission Avenue bridge remaining as four-lanes.

Mission Avenue and I-5 NB Ramps

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound to fully mitigate this intersection. This would require widening the Mission Avenue bridge over I-5. The Caltrans I-5 widening project plans show the Mission Avenue bridge remaining as four-lanes.

Oceanside Boulevard and I-5 SB Ramps

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound, two westbound right-turn lanes, and two eastbound left-turn lanes to fully mitigate this intersection.

Oceanside Boulevard and I-5 NB Ramps

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound to fully mitigate this intersection.

Oceanside Boulevard and Crouch Street

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound to fully mitigate this intersection.

SR76 and Foussat Road

This intersection cannot be fully mitigated in the AM peak hour, but providing two right-turn lanes northbound and three thru lanes southbound will improve the peak hour operations.

El Camino Real and Oceanside Boulevard

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes both east- and westbound to fully mitigate this intersection.

Douglas Drive and El Camino Real

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes southbound, two thru lanes and one dedicated right-turn lane northbound, and on dedicated left-turn and one dedicated thru-lane westbound to fully mitigate this intersection. There is also not sufficient right-of-way at this intersection to provide the recommended mitigation measures.

Douglas Drive and Mission Avenue

The new TMC can be utilized to manage traffic on Mission Avenue; however, it cannot be determined that the use of the TMC and adaptive signal controls will fully mitigate this intersection. It would require providing three thru lanes eastbound and a dedicated right-turn lane and two left-turn lanes westbound to fully mitigate this intersection. There is also not sufficient right-of-way at this intersection to provide all of the recommended mitigation measures;

however, the City will implement the westbound dedicated right-turn lane and two left-turn lanes at this intersection to improve overall peak hour operations.

College Boulevard and SR76

This intersection cannot be fully mitigated in the PM peak hour, but providing three thru lanes and two right-turn lanes with an overlap in the northbound and three thru lanes southbound will improve the peak hour operations. The right-of-way at this intersection is constrained; therefore, the City Engineer should review any proposed improvement plans before moving forward with this proposed mitigation.

3.8 Traffic Impact Studies

3.8.1 Traffic Impact Study Guidelines

The SANTEC/ITE Guidelines for Traffic Impact Studies (TIS) in the San Diego Region, March 2000 (or most recent version) shall be followed within the City of Oceanside for any proposed project that would have an impact on the City's roadway network. A TIS can also be required based on the discretion of the City. Early consultation between the developer and the City is required to establish the base study parameters, assumptions, and analysis methodologies for the TIS. The City of Oceanside has a list of required components for TIS reports. All TIS reports should follow the required TIS components guidelines which are included in Appendix G. A TIS can be performed by any consultant on the City approved Traffic Engineering Consultants list to complete development traffic impact studies.

As recommended in the SANTEC/ITE Guidelines, the use of the most recent version of the SANDAG Trip Generation rates should be used or the rates from ITE's latest Trip Generation manual. For smart growth/mixed-use development areas, SANDAG has developed a Trip Generation for Smart Growth: Planning Tools for the San Diego Region to identify trip generation rates associated with smart growth developments. This new method of applying Smart Growth trip generation rates is intended to supplement data in the San Diego Traffic Generators Manual, published by SANDAG in 2000, and the accompanying Not-so-Brief-Guide to Trip Generation, published by SANDAG in 2002. The most recent version of the SANDAG Smart Growth or Trip Generation rates should be used.

3.8.2 Traffic Analysis Performance Criteria

The City of Oceanside's minimum acceptable level of service for all roadways is LOS D. The values associated with the LOS D minimum for the different roadway classifications are defined in Table 3-3 (page 27). The minimum acceptable level of service for intersections during the peak periods is LOS D. The values associated with LOS D for intersections during the peak periods were previously defined in Tables 3-4 and 3-5 (pages 28 & 29). These LOS standards are considered acceptable within the San Diego region and have been used in the analysis for the Circulation Element.

3.8.3 Mitigation Measures

Any proposed development project that causes a street segment or intersection to operate worse than LOS D is a significant project impact. If a segment or intersection operates at LOS E or F under pre-project conditions, a significant impact is determined as outlined in the most recent version of the SANTEC/ITE Guidelines. The developer shall propose, prepare and provide feasible mitigation measure(s) for the City to review that would improve the impacted location(s) to an acceptable LOS. Mitigation measures should be used to construct on-and off-site transportation infrastructure improvements and dedicate right-of-way connected to impacts resulting from new development. The City also may require a developer to provide improvements to pedestrian and/or bicycle facilities as part of the project's mitigation measures. Chapters 6 and 7 focus on the Pedestrian and Bicycle Facility networks in the City of Oceanside.

Any proposed development project that affects a street segment that already operates, or is projected to operate worse than LOS D, regardless of peak hour analysis, the developer shall propose, prepare and provide mitigation measure(s) for the City to review. If there are no feasible mitigation measures that would fully mitigate traffic impacts, the developer shall propose, prepare and provide various mitigation measures, such as adaptive signal timing, that may not include physical improvements to the impacted facility. Where various mitigation measures have been prepared, agreed upon by the City, and will be implemented, yet are not sufficient to fully mitigate the traffic impacts, then LOS E during peak hour periods will be considered acceptable. A project's fair share contributions may also be considered by the City for predetermined project improvements (i.e. TMC, adaptive signals) in lieu of prepared and implemented mitigation measures.

3.9 Additional Recommended Transportation Network Guidelines

The following recommended guidelines are for action by the City:

1. Develop and implement a Traffic Engineering Consultant on-call list for potential developers to utilize for traffic impact studies.

2. Implement the proposed transportation network and street classification standards as shown on Figure 3.5 (page 32).

3. As more precise intersection data becomes available, incorporate special design treatments for mitigating potentially unacceptable levels of service at those intersections identified in Section 3.7.2 (page 35) and included in Appendix F.

4. Continue to impose the City's Thoroughfare Fee and Traffic Signal Fee Ordinances to fund improvements necessary to maintain acceptable levels of service.

5. Update and revise the City's Thoroughfare Fee and Traffic Signal Fee Ordinances periodically to include road segment and intersection improvements as necessary to maintain acceptable LOS, and make any necessary adjustments in the amount of fees to be imposed.

6. Construct road segment improvements and road expansions as indicated on the Master Transportation Roadway Plan to provide LOS D or better at such time as traffic flow warrants the improvements or expansion.

7. Widen approaches and make any other necessary intersection improvements to achieve LOS D or better for those intersections which would be impacted by proposed development.

8. Incorporate the following mitigation measures, where appropriate, into the design of new and improved roadways and streets, to ensure that a new roadway will not result in future noise levels exceeding City land use compatibility criterion:

    - Alignment alternative
    - Roadway barriers
    - Lateral separation
    - Vertical Profile
    - Retrofitting existing sensitive uses with added wall insulation, double pane windows, and air conditioning.
    - Relocation of severely impacted sensitive uses.
    - Buffer zones with adequate setbacks to avoid potentially unhealthful exposure to roadway noise and air quality levels.

9. In the design of transportation facilities, every reasonable effort should be made to integrate and preserve significant natural features of the land, such as major canyons, watercourses, wetlands, native vegetation, trees, and rock outcroppings.

10. Locate and design roadways to avoid excessive grading and to respect the existing hillside and/or wetlands topography.

11. Require utilities to be undergrounded or relocated whenever possible, in conjunction with roadway construction.

12. Require landscaping to be replanted, replaced, or introduced along all new roadways or those which have been redesigned or reconstructed.

~~12.~~13. In the design of transportation facilities, reasonable effort should be made to integrate a complete streets design concept to accommodate the various users of the network such as pedestrians, bicyclists, transit, etc.

4. TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a set of specific strategies that influence travel behavior by mode, frequency, time, route, or trip length in order to help achieve an efficient and sustainable use of transportation facilities, along with other community goals such as promoting access for all transportation system users, improving mobility, and minimizing the negative impacts of vehicular travel. TDM strategies typically include: managing parking and pricing; marketing transit and providing commuter subsidies; promoting walking, bicycling and ridesharing; and encouraging telework and flexible work strategies. TDM provides an overarching framework for the City to achieve the Circulation Element's goals, objectives and policies, because it offers strategies which apply to all modes of transportation.

The City of Oceanside strives to develop policies and a set of services which together encourage a balanced usage of many modes of travel and less dominance of the single occupant vehicle. Table 4-1 shows the 2000 Census shows that approximately 74% of workers in both the City of Oceanside and the County of San Diego drive alone to work. While the City of Oceanside has travel mode diversity similar to that of the County of San Diego, the City strives to further decrease the percentage of those who drive alone to work while increasing the percentage of commuters who use alternative modes of transportation.

CHAPTER HIGHLIGHTS

- Reduce the Use of the Single Occupant Vehicle
- Encourage TMD Strategies Such as Teleworking or Staggered Work Hours.
- Encourage Residents to Use Alternative Modes of Transportation

TABLE 4-1
2000 COMMUTE MODES

	Drive Alone		Carpool		Public Transit[1]		Non-Motor[2]		Work at Home	
Oceanside	52,880	73%	11,779	16%	2,692	4%	1,828	2.5%	2,658	4%
County of San Diego	977,286	74%	173,069	13%	44,871	3%	66,346	5%	58,122	4%

Footnotes:

1. Includes bus, transit, rail, and other forms of public transportation.
2. Includes bicycle, walk, and other non-motorized trips.

Note: Percentages do not equal 100 due to rounding.

Source: 2000 Census, SANDAG website.

The San Diego Regional Transportation Plan provides for a regional TDM program**.** The regional TDM program provides a mix of opportunities and services to promote viable alternatives to the single occupant motor vehicle commute. iCommute (www.icommutesd.com) is the regional program that offers commute choices within the San Diego region. The program is managed by SANDAG as part of the regional 511 transportation information program. The goal of the program is to manage and reduce traffic congestion during peak-times, as well as reduce greenhouse gas emissions and other

environmental pollutants that result from commuters driving to work alone daily. iCommute offers assistance and tools to commuters and employers through various services such as carpool, vanpool, schoolpool, transit, bike to work, and work from home programs.

Carpool – Carpooling shares the daily commute with another driver. iCommute offers RideMatcher, which is a database of thousands of commuters looking for carpool partners. TripTracker allows the individual commuter to track carpool trips and see the cost and environmental savings. The iCommute Carpool program also offers a Guaranteed Ride Home Program for those who carpool three or more times each week. And, Park and Ride Lots are free and available for those who carpool or vanpool. Oceanside currently has four park and ride lots at the following locations:

- SR78/College Boulevard South (3700 Haymar Drive)
- Moreno Street (1928 Moreno Street)
- SR78/College Boulevard North (3710 Vista Way)
- Frontier Drive/New Hope Church (Mission Avenue & Frontier Drive)

Vanpool – Vanpools allow groups of 7 to 15 people to share their commute to work. A van can be leased by the commuter or an employer through one of iCommute's contracted vanpool vendors and receive up to $400 per month to help offset the cost of the lease. The RideMatcher, TripTracker, Guaranteed Ride Home and Park and Ride Lots are all available to vanpool commuters as well.

SchoolPool – This is iCommute's free carpool matching service for parents of children who attend the same school anywhere in the region. iCommute has helped to establish SchoolPool programs at elementary, middle, and high schools throughout the region.

Transit – Public transportation service is available throughout the region, including Oceanside. iCommute offers a link to 511's Transit Trip Planner to plan a commute using the public transportation available in the San Diego region.

Bike to Work – iCommute will help a commuter find a ride partner, as well as connect the commuter with a free bike locater and map out the best route of travel. There are even some financial incentives offered through certain employers who commute by bicycle.

Work from Home – Teleworking is a convenient solution that enables employees to work from home or a remote location one or more days per week. iCommute can refer an employer to area teleworking and flexible working experts who will help establish program evaluation guidelines and strategies, training sessions for employees and managers, one-on-one consultation with telework experts, presentation on teleworking designed for middle and upper management, and the overall design and implementation of a customized telework program.

The City of Oceanside can also integrate these TDM programs through their Energy Roadmap. SANDAG is coordinating the Energy Roadmap program to offer energy-planning assistance to local governments in the San Diego region through an energy-efficiency partnership with SDG&E. By saving energy, local jurisdictions can contribute to state and regional goals for saving energy and reducing greenhouse gas emissions that contribute to climate change. The iCommute program provides free assistance and tools for jurisdictions to design and implement TDM programs as part of their Energy Roadmap. TDM programs promote transportation solutions that reduce traffic congestion, fuel consumption, and greenhouse gas emissions by providing alternatives to commuters who drive alone to work.

GOAL: ***Support programs that encourage increased vehicle occupancies and trip reduction in order for residents to enjoy the quality of life that currently exists in Oceanside.***

OBJECTIVES:

i. Move more people in fewer vehicles while providing high quality modes of transportation.

ii. Maintain high quality transportation services which cater to the needs of all residents, regardless of age, income, or physical ability.

iii. Encourage alternative modes of transportation through TDM practices such as transit, walking, bicycling, and teleworking especially during peak travel periods.

POLICIES:

The following policies are intended to direct City efforts to promote the integration of TDM programs:

4.1 The City shall encourage the reduction of vehicle miles traveled, reduction of the total number of daily and peak hour vehicle trips, and provide better utilization of the circulation system through development and implementation of Transportation Demand Management strategies. These may include, but not limited to, implementation of peak hour trip reduction, encourage staggered work hours, telework programs, increased development of employment centers where transit usage is highly viable, encouragement of ridesharing options in the public and private sector, provision for park-and-ride facilities adjacent to the regional transportation system, and provision for transit subsidies.

4.2 The City shall maintain and implement the policies and recommendations of the Bicycle Master Plan as part of the

Recreational Trails Element. These facilities shall connect residential areas with schools, parks, recreation areas, major employment centers, and neighborhood commercial areas.

4.3 The City shall maintain and implement the policies and recommendations of the Pedestrian Master Plan as part of the Recreational Trails Element to ensure pedestrian access along streets and to other locations throughout the City are properly maintained and provided.

4.4 The City shall support parking policies that increase the cost of parking and/or reduce the supply of off-street parking to encourage drivers to consider using alternative modes of transportation or carpool/vanpool opportunities where transit facilities are available.

4.5 The City shall encourage businesses to offer financial incentives to use modes of transportation other than the single occupant vehicle by way of subsidized transit, carpool/vanpool programs, bike to work programs, parking cash-out programs, or some combination of these.

4.6 The City shall encourage new developments to provide onsite facilities such as showers, lockers, carpool stalls, and bicycle racks.

4.7 The City shall coordinate with businesses and employers to organize and facilitate transportation commuter fairs that provide information on carpools, vanpools, transit, bicycling, and other alternative commute modes to the single occupant vehicle as well as the advantages and costs savings of alternative forms of transportation.

4.8 The City shall support and promote the SANDAG's regional iCommute program that encourages the reduction of the use of the single occupancy vehicle.

4.9 The City shall look for opportunities to incorporate TDM programs into their Energy Roadmap that contributes to state and regional goals for saving energy and reducing greenhouse gas emissions.

4.10 The City shall maintain curb use priorities that consider, in descending order, the needs of through traffic, transit stops, bus turnouts, passenger loading needs, and short- and long-term parking.

5. PUBLIC TRANSIT AND RAIL POLICIES AND GUIDELINES

The public transit and rail chapter focuses upon the enhancement and expansion of the transit services in the City of Oceanside. An integral part of the multimodal system is the provision for public transit and rail service. For transit to be successful, it should be strategically planned so that it is accessible to users and operates in a timely fashion. Adequate public transit improves the overall mobility for all residents in the City and its visitors, and encourages multi-modalism, increased transit ridership and other alternatives to the single-occupant vehicle as a mode of transportation.

Improvements to the transit system could increase the number of riders, reduce reliance on the automobile, decrease the need for street capacity improvements, make more efficient use of the existing street system, reduce the demand for parking, improve air quality, increase interaction among people, and enhance the quality of life for residents of Oceanside. In addition, the provision of public transit and rail in the City of Oceanside promotes a balanced, multimodal transportation network that is capable of meeting the needs of all users.

CHAPTER HIGHLIGHTS

- Increase the Use of Transit and Rail Service in Oceanside
- Support Frequent, Reliable & Convenient Transit Service
- Utilize Public Transit and Rail service as a Way to Reduce Automobile Emissions

The following are a list of public transit and rail systems that currently provide service to the City of Oceanside.

North County Transit District (NCTD) BREEZE – public bus system for North County travel that connects with the COASTER, SPRINTER, Metrolink, Amtrak, San Diego transit and trolley lines, and Orange County Transit Authority system at the San Clemente station.

NCTD COASTER – commuter rail system that links North County and San Diego with seven stations from Oceanside to downtown San Diego in the Interstate 5 corridor.

NCTD SPRINTER – passenger light rail system that provides the east-west mobility link between Oceanside, Vista, San Marcos, and Escondido that runs 22 miles along the State Route 78 corridor. The SPRINTER also connects with the COASTER at the Oceanside Transit Center.

LIFT ADA Service – paratransit service that operates during the same days and hours that the BREEZE fixed route system operates providing curb to curb service.

Metrolink – commuter rail system that provides connection between Oceanside and Orange, Los Angeles, Riverside, San Bernardino, and Ventura Counties in Southern California.

Amtrak Pacific Surfliner – intercity passenger rail service.

There are 12 bus routes operated by NCTD in Oceanside in addition to the COASTER rail and SPRINTER light-rail service. Table 5-1 gives a summary of the existing transit service in Oceanside. Figure 5.1 depicts the existing transit service in Oceanside (Source: *NCTD 2011 Mobility Plan*).

TABLE 5-1
EXISTING TRANSIT SERVICE ROUTES

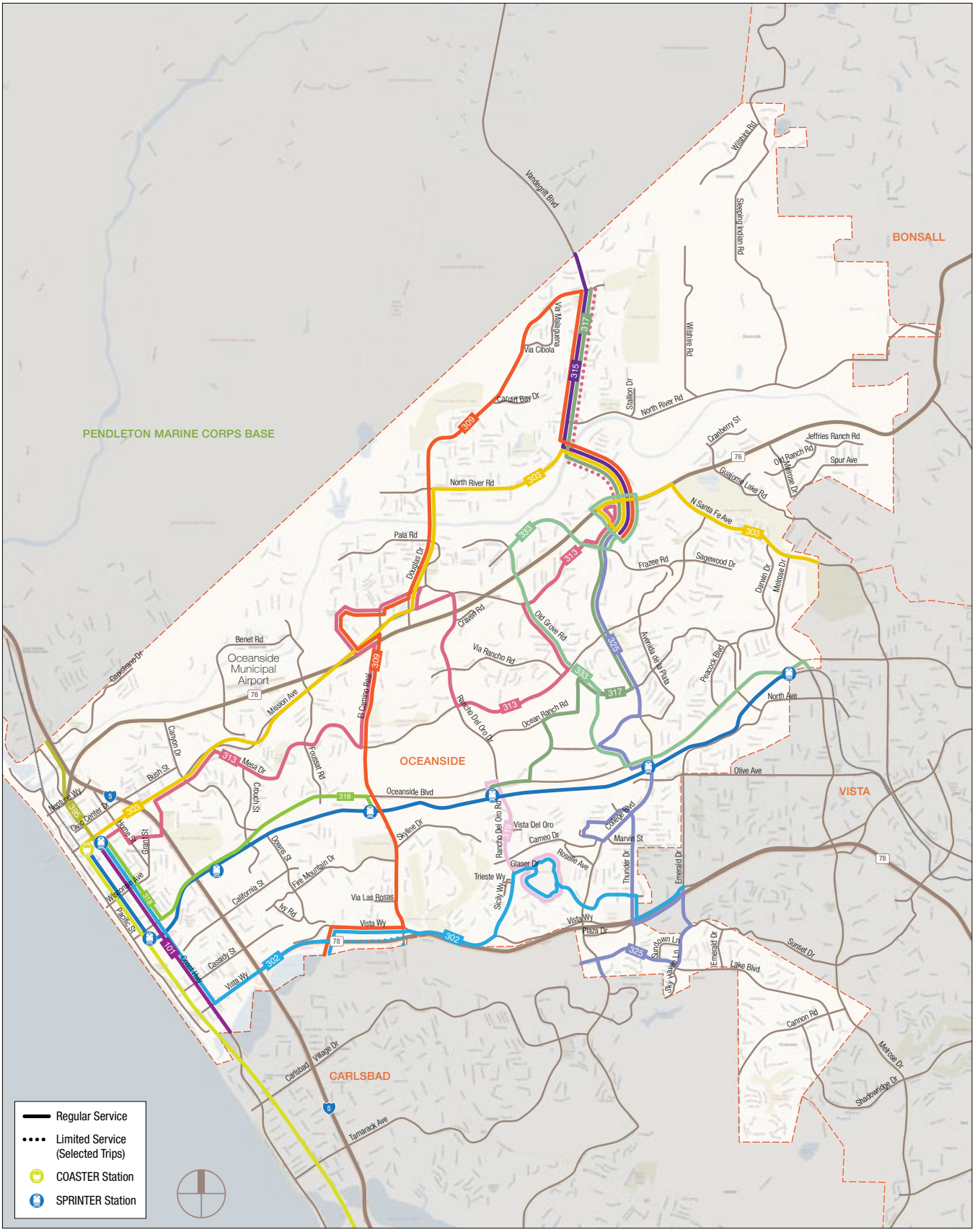
Route	Endpoints		Major Corridors Served	Weekday Frequency (weekday)
101	Oceanside Transit Center	UTC	Coast Hwy	30 mins
302	Oceanside Transit Center	Vista Transit Center	Vista Way	30 mins
303	Oceanside Transit Center	Vista Transit Center	Mission Ave Douglas Dr N. River Rd N. Santa Fe Ave	15 mins
309	College Blvd Town Center North	Encinitas Station	El Camino Real Douglas Dr	30 mins
313	Oceanside Transit Center	College Blvd Town Center North	Mesa Dr Mission Ave Rancho Del Oro Rd	60 mins
315	College Blvd Town Center North	22 Area Camp Pendleton	Vandegrift Blvd	60 mins
317	Vandegrift Blvd/Gold Dr	Rancho Del Oro Sprinter Station	Vandegrift Blvd College Blvd	60 mins
318	Oceanside Transit Center	El Camino Real Sprinter Station	Oceanside Blvd	60 mins
319	El Corazon Senior Center	MiraCosta College	Rancho Del Oro Dr Barnard Dr	30 mins
325	Carlsbad Village	College Blvd Town Center North	College Blvd Vista Way	60 mins
333	College Blvd Town Center North	Vista Transit Center	Frazee Rd Old Grove Rd Oceanside Blvd	60 mins
395	Oceanside Transit Center	El Camino Real (Orange County)	Coast Hwy Camp Pendleton	180 mins
SPRINTER	Oceanside Transit Center	Escondido Transit Center	Oceanside Blvd	30 mins
COASTER	Oceanside Transit Center	Santa Fe Depot (San Diego)	Coast Hwy	45-35 mins

NCTD has prepared the 2011 Mobility Plan to provide a road map for fundamentally restructuring NCTD's services and enhancing the area's role as the mobility manager for its area. The primary purpose of the plan is to enable NCTD to make the best use of available resources to provide the best possible mobility options to its residents. The plan is currently in the public review period with a public hearing scheduled for April 21, 2011 and NCTD Board action scheduled for May 19, 2011.

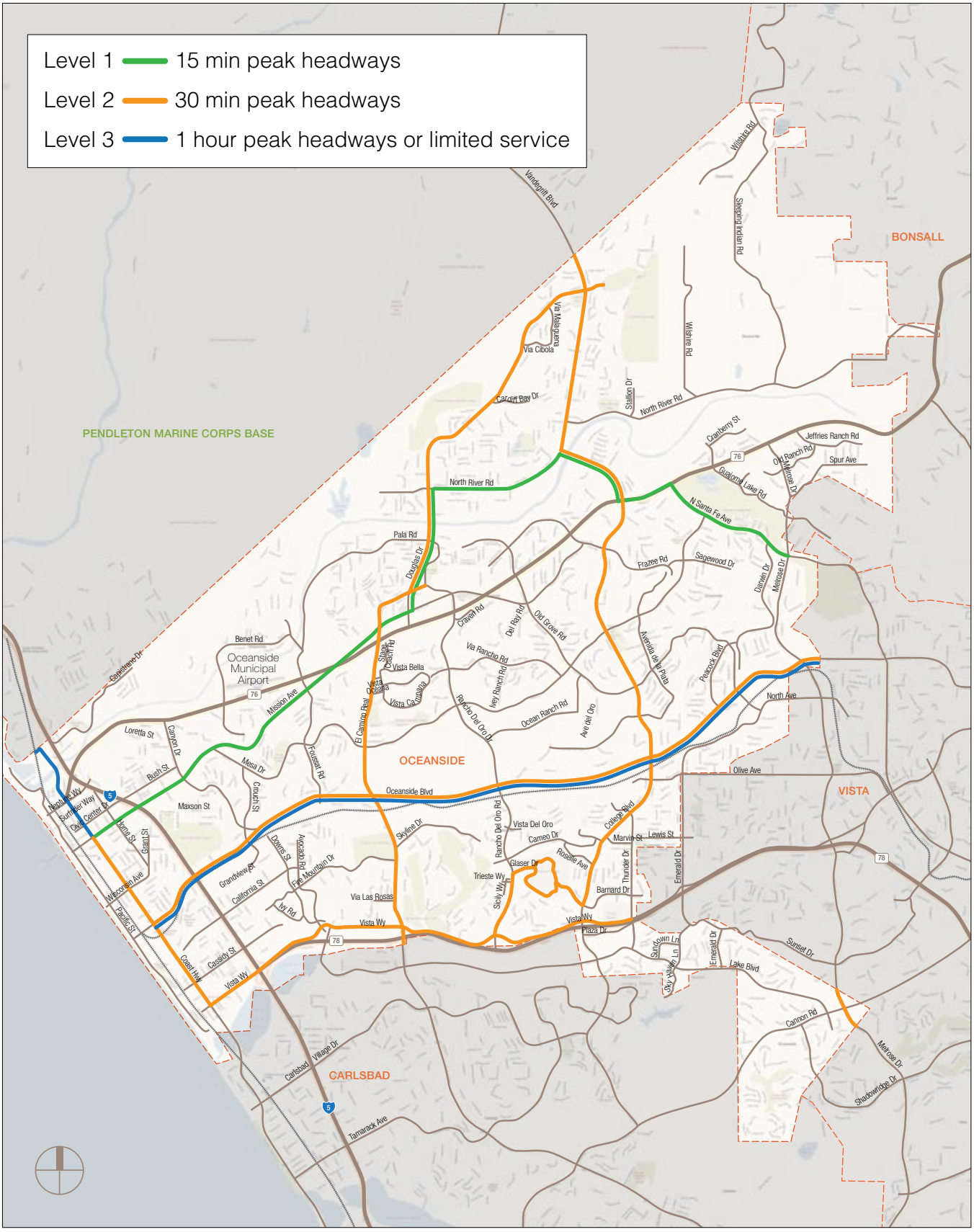
Based on the proposed transit service for the City of Oceanside shown within the 2011 Mobility Plan, the following corridors will be served by transit in the future:

- Avenida del Oro
- Avenida de la Plata
- Coast Highway
- College Boulevard
- Corporate Center Drive
- Douglas Drive
- El Camino Real
- Melrose Drive
- Mesa Drive
- Mission Avenue
- North River Road
- North Santa Fe Avenue
- Oceanside Boulevard
- Rancho Del Oro Drive
- Vandegrift Boulevard
- Vista Way

Figure 5.2 depicts the future major transit corridors in the City of Oceanside. These major transit corridors are based on the proposed service information available in the 2011 Mobility Plan which is included in Appendix H.


PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Regular Service
Limited Service (Selected Trips)
COASTER Station
SPRINTER Station

Not to Scale


Level 1 15 min peak headways
Level 2 30 min peak headways
Level 3 1 hour peak headways or limited service
PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Vandegrift Blvd
Willshire Rd
Stagecoach Trail Rd
Via Arbolada
Via Cibola
Cardiff Bay Dr
Stallion Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
Spur Ave
Guajome Lake Rd
Old Melrose Dr
N Santa Fe Ave
Pala Rd
Douglas Dr
Frazee Rd
Sagewood Dr
Melrose Dr
Benet Rd
Capehorn Dr
Mission Ave
Craven Rd
Del Rey Rd
Old Grove Rd
Via Rancho Rd
Vista Bella
Vista Cassiopeia
Ivey Ranch Rd
Ocean Ranch Rd
Ave del Oro
Avenida de la Plata
Peacock Blvd
North Ave
Olive Ave
Loretta St
Cannon Dr
Bush St
Mesa Dr
Foussat Rd
El Camino Real
Oceanside Blvd
Maxson St
Crouch St
Skyline Dr
Rancho Del Oro Rd
Vista Del Oro
Cameo Dr
College Blvd
Marvin St
Lewis St
Emerald Dr
Thunder Dr
Barnard Dr
Roselle Ave
Glaser Dr
Trieste Wy
Sicily Wy
Via Las Rosas
Vista Wy
Plaza Dr
Sunset Dr
Lake Blvd
Cannon Rd
Melrose Dr
Shadowridge Dr
Tamarack Ave
Carlsbad Village Dr
Coast Hwy
Cassidy St
Ivy Rd
Grandview St
California St
Avocado Rd
Fire Mountain Dr
Downs St
Grant St
Nevada St
Wisconsin Ave
Pacific St
Center Dr
Summer Way
Cleo St
Hayes Wy
5
76
78

The policies within this section seek to provide and maintain a safe, efficient, and environmentally friendly public transit and rail system for the City of Oceanside and its residents.

GOAL 1: ***Support the increased use and availability of transit and rail service to encourage a multimodal transportation network in Oceanside.***

GOAL 2: ***Ensure that Oceanside residents have adequate and convenient public transportation by collaborating with NCTD.***

OBJECTIVES:

i. Support programs that reduce the interregional use of the single-occupant vehicles and increase the use of alternative forms of transportation.

ii. Support the development, improvement, expansion, and increased ridership of transit within the City, including the development of new forms of transit and transit technologies as they become available.

iii. Support mixed use developments in transit focus areas and transit oriented developments.

iv. Support and work with NCTD to ensure that frequent, reliable, and convenient transit service is available to the residents of Oceanside.

POLICIES:

5.1 The City shall collaborate with the NCTD to attain a balance of transportation opportunities. This shall include the establishment of criteria to implement transit improvements, corridor improvements, transit centers, and track improvements and maintenance.

5.2 The City shall require developers to construct, where appropriate, transit facilities when their development is on a transit service route including bus stop amenities to include lighted shelters, benches, and route information signs (where appropriate) through coordination with NCTD.

5.3 The City shall collaborate with NCTD to establish transit stops adjacent to senior housing facilities, areas with high concentrations of medical facilities, major employment centers as well as retail and commercial areas.

5.4 The City shall collaborate with NCTD to support the provision of paratransit services and facilities for elderly and disabled residents, and those of limited means, which shall include bus stops, bus shelters, and ramps at stops.

5.5 The City shall collaborate and work with NCTD to identify and implement opportunities to improve transit and bus operations through methods such as transit signal priority, bus only lanes, or queue jump lanes at locations where transit service levels are affected by traffic congestion.

5.6 The City shall provide improved information and directional destination signage to the transit centers and stations along Coast Highway, Oceanside Boulevard, and other major thoroughfares.

5.7 The City shall continue to work with NCTD to assure that transit centers and major stops have adequate bicycle and pedestrian access, including secure bicycle storage. The City shall continue to work with NCTD to encourage more bus services that accommodate bicycles.

5.8 The City shall work with NCTD, as applicable, to provide safe and adequate transit facilities that include covered shelters, proper lighting, safe crossings, and locations that are highly visible.

5.9 The City shall continue to work with NCTD to ensure that access to transit stations and bus stops are ADA compliant.

5.10 The City shall work with NCTD to encourage additional passenger usage of rail service by providing safe and adequate commuter parking facilities with shuttle service if appropriate and enhanced landscaping.

5.11 The City shall work with NCTD to increase public awareness of the local and regional transit services and facilities available in Oceanside.

5.12 The City shall support goods movement through the use of railroad freight service in support of the reduction of greenhouse gas emissions.

5.13 The City shall support policies in the Land Use chapter of the General Plan that encourages the use of transit and mixed use development.

6. BICYCLE FACILITIES

In addition to roadways and various forms of transit, non-motorized transportation alternatives are encouraged throughout the City of Oceanside. Bicycle transportation provides environmental and social benefits for the citizens of Oceanside by providing an integrated network of bicycle facilities and trails for the safe and efficient movement of people in and through the City of Oceanside.

In 2008, the City of Oceanside adopted a Bicycle Master Plan, designed to guide development and maintenance, identify funding sources, and promote use of its bicycle facilities. It contains detailed policies, network maps, and other tools to be used by the City in order to provide the cycling needs of City residents and other stakeholders. The 2008 adopted Bicycle Master Plan is included in Appendix A.

As with all California cities, Oceanside's bicycle facilities are grouped into three classes as defined by Caltrans:

Class I Bike Paths are hard-surface routes within an exclusive right-of-way physically separated from vehicular roadways and intended specifically for non-motorized use.

Class II Bike Lanes are marked bicycle lanes within roadways adjacent to the curb lane, delineated by appropriate striping and signage.

Class III Bike Routes are marked by a series of signs designating a preferred route between destinations such as residential neighborhoods and shopping areas. These routes share the right-of-way with on road vehicles.

Figure 6.1 on the following page illustrates the existing bicycle facilities in Oceanside.

CHAPTER HIGHLIGHTS

- A Connected Network of Cycling Facilities to Facilitate Use
- Safe, Destination-Oriented Network of Facilities
- Easy-to-Understand Wayfinding Measures and Other Physical Treatments
- Regular Maintenance of Existing Facilities

SAN DIEGO COUNTY
CAMP PENDLETON
VISTA
CARLSBAD
OCEANSIDE
PALA
MISSION
NORTH RIVER
SR-76
SR-78
I-5
City of Oceanside
Surrounding Cities
Highways
Roads
Rivers
Existing Bicycle Facilities
Class 1: Bike Path
Class 2: Bike Lane
Class 3: Bike Route
Existing Bicycle Facilities
0 0.5 1
Miles
Data Source: SANDAG and KTU+A (2008)

6.1 Bicycle Facilities

Building on the efforts of the Bicycle Master Plan, the following goals, objectives, and policies were developed in close cooperation with City staff and community stakeholders. Together, they represent the fundamental criteria for the City of Oceanside's planned bikeway system.

GOAL 1: ***Provide a safe, interconnected network of bicycle facilities within Oceanside for recreational and commuter users.***

GOAL 2: ***Make bicycling a viable mode choice in an effort to reduce congestion, improve air quality, and provide residents and visitors with public health and recreational benefits***.

OBJECTIVES:

i. Ensure the bikeway system will endeavor to be a complete system emphasizing local and regional continuity and connectivity.

ii. Design the bikeway system to be destination-oriented, especially towards employment centers, residential areas and high use activity centers – including access to other modes of local and regional transportation systems.

iii. Ensure safety along the bikeway system by focusing on maximum visibility for the cyclist, signage, bikeway segment selection and utilizing easily-recognized markers to clearly identify paths, lanes and routes.

iv. Conform to the minimum design standards established by Caltrans Highway Design Manual Chapter 1000.

v. Regularly maintain bikeway system segments and facilities.

vi. Implement bikeway system design and layout to minimize the City's and adjacent property owners' liability exposure to issues such as trespassing, loss of privacy, damage and property loss associated with bike routes.

vii. Whenever possible, develop bikeway system design and layout to minimize potential financial burden to the City by engaging development to implement bike segments, locating segments within the existing right-of-way, and minimizing the need for acquisition.

viii. Whenever possible, construct the bikeway system to utilize

environmentally sensitive routing to minimize environmental impacts.

ix. Strive to include bicycle facilities including, but not be limited to, bike lockers and locking racks at existing and new developments.

x. Increase the amount of bicycle parking in areas of high bicycle traffic.

xi. Provide training opportunities for engineering, planning staff, and law enforcement on how to accommodate bicyclists.

xii. Continue to utilize City and community resources to not only promote the benefits of cycling, but also to enhance safety by educating both cyclists and drivers to coexist with an awareness of each other.

CHAPTER HIGHLIGHTS

- Design Cycling Facilities that Minimize Environmental Impacts
- Increase Bicycle Parking and Provide Other Bicycle Amenities in Areas with High Bicycle Usage
- Promote Education and Training Opportunities for Law Enforcement and Local Residents on Proper Cycling Behavior and Enforcement

POLICIES:

6.1 The City shall implement the Bicycle Master Plan, which identifies existing and future needs and provides funding and implementation recommendations.

- Update the plan periodically as required by Caltrans.
- Require that the development of the Bicycle Circulation System be consistent with the implementation of the City's Bicycle Master Plan

6.2 The City shall discourage on-street parking where bicycle lanes or routes are present or planned.

6.3 The City shall integrate bicycle and pedestrian planning and safety considerations more fully into the planning and design of the roadway network, transit facilities, public buildings, and parks.

6.4 The City shall provide and maintain a safe, direct, and comprehensive bicycle network connecting neighborhoods, employment locations, public facilities, transit stations, parks and other key destinations.

6.5 The City shall plan Class II bicycle lanes into all prime arterial, major arterials, and secondary collectors where safe and appropriate as determined by City staff.

6.6 The City shall cooperate with other governmental agencies to provide connection and continuation of the regional bicycle routes and corridors such as the Coastal Rail Trail, Camp Pendleton Trail, San Luis Rey River Trail, El Camino Real bikeway, and Inland Rail Trail as identified in the 2030 San Diego Regional Transportation Plan.

6.7 The City shall encourage large new developments to be designed with features such as secure bicycle parking and lockers, bike racks, shower facilities, and other amenities that accommodate bicycle users.

6.8 The City shall support bicycle outreach efforts consistent with the cycling engineering, education, enforcement, and encouragement efforts identified in the Bicycle Master Plan.

6.9 The City shall continue to develop and implement a Safe Routes to School program to ensure that all schools have adequate traffic safety programs for bicycles and pedestrians within a two-mile radius of the school.

6.10 The City shall continue to seek private, local, State, and federal funds for bicycle circulation system expansion.

PLANNED AND RECOMMENDED FACILITIES

Prior to the adoption of the Bicycle Master Plan, the City had a series of additional, planned facilities slated for implementation.

These facilities mirror the goals, objectives, and policies above, and provide guidance to City staff on the ways in which to best implement the improvements as defined in previous iterations of the Circulation Element and those additional recommendations developed as part of the Bicycle Master Plan.

Figures 6.2 and 6.3 below illustrate the City's Planned Bicycle Facilities and the additional Recommended Bicycle Facilities proposed in the Bicycle Master Plan.

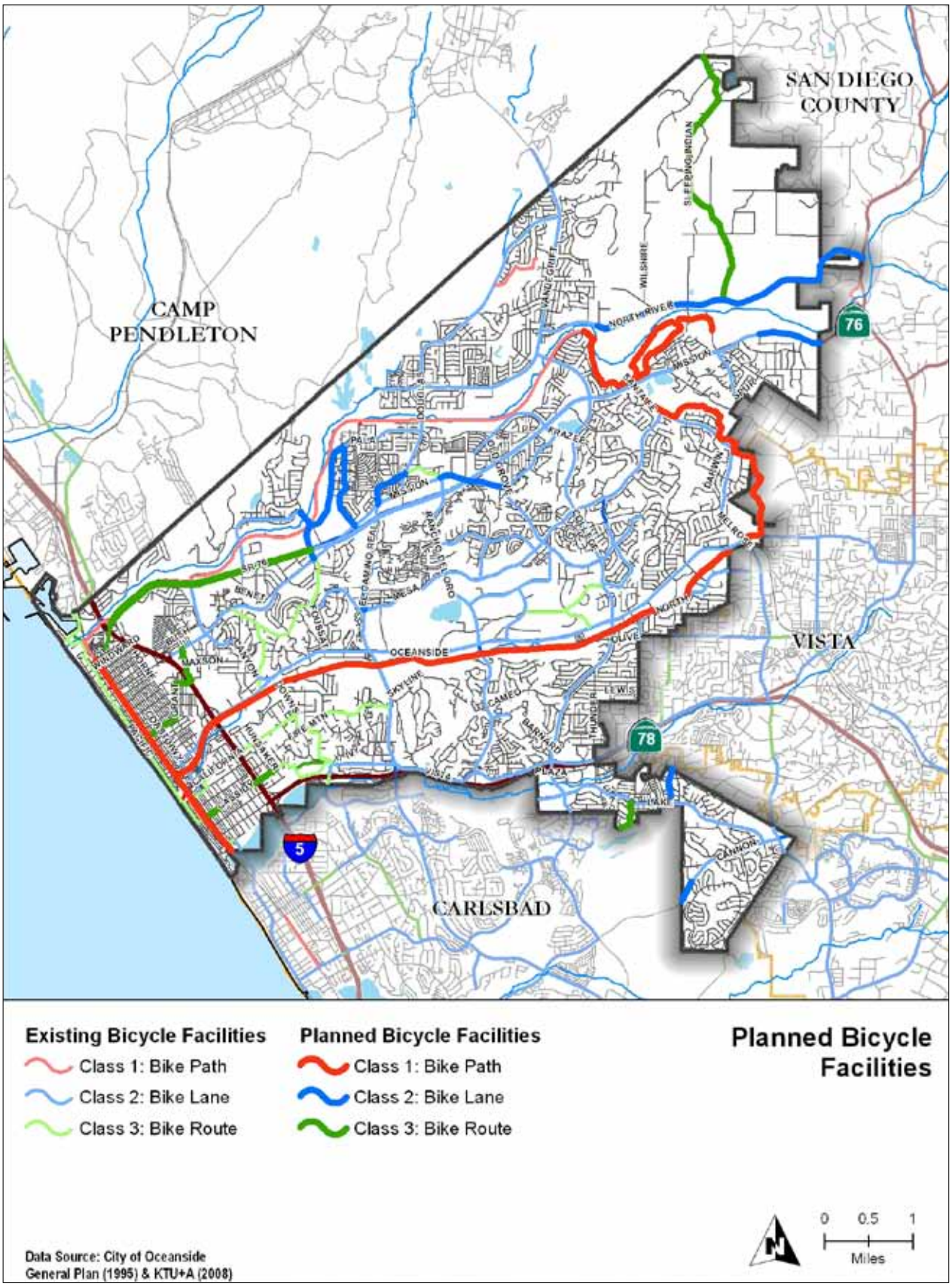
6.2 Equestrian Facilities

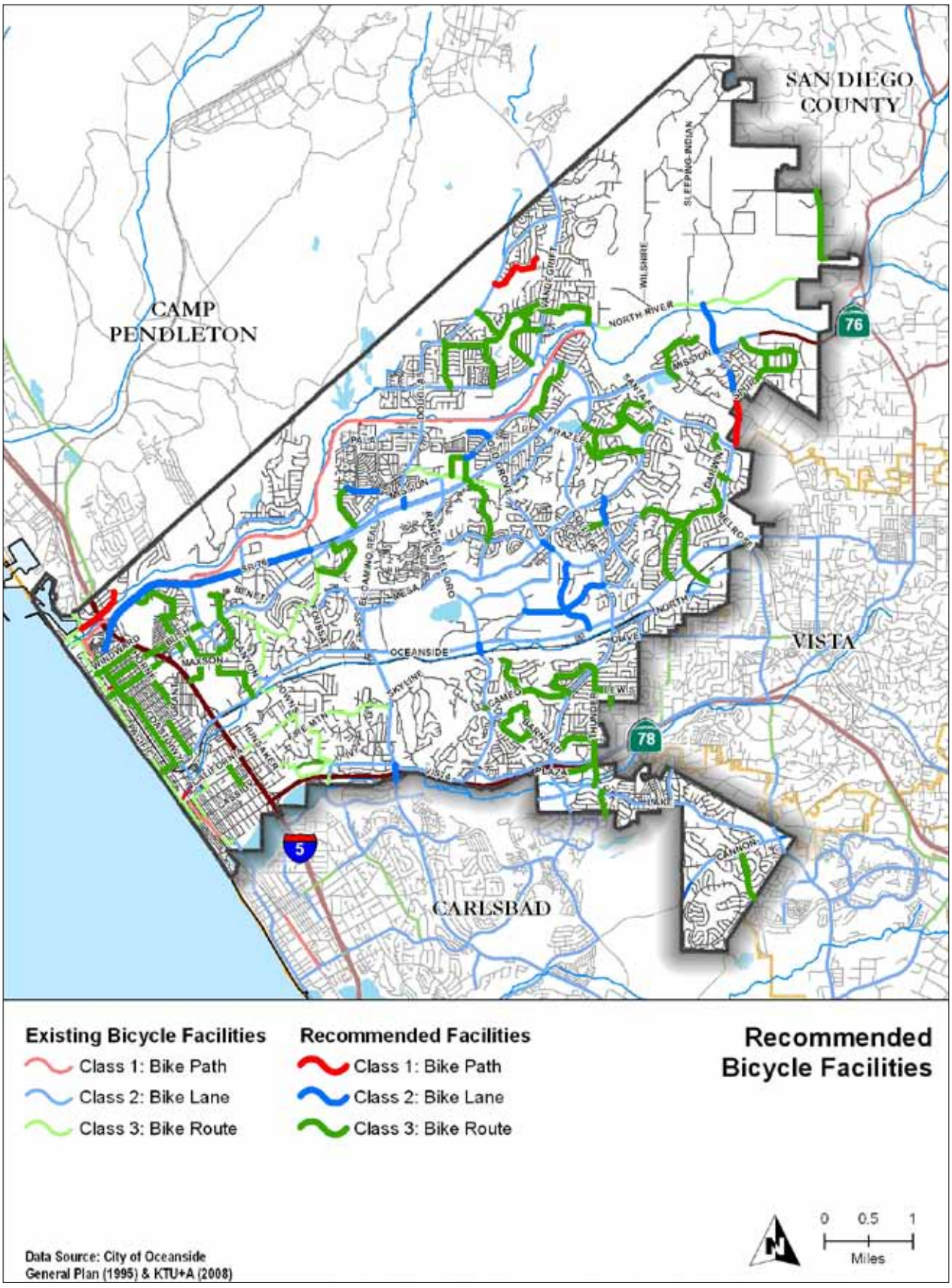
OBJECTIVE:

i. To preserve and enhance equestrian trails where they currently exist in the vicinity of Guajome Regional Park, and to cooperate with San Diego County in planning regional recreational trails.

POLICY:

6.11 The City shall protect and maintain the equestrian trails as a form of recreational opportunity and provide additional trail opportunities as part of the implementation of the City's Recreational Trails Element.


SAN DIEGO COUNTY
CAMP PENDLETON
VISTA
CARLSBAD
OCEANSIDE
76
78
5
Existing Bicycle Facilities
Class 1: Bike Path
Class 2: Bike Lane
Class 3: Bike Route
Planned Bicycle Facilities
Class 1: Bike Path
Class 2: Bike Lane
Class 3: Bike Route
Planned Bicycle Facilities
0 0.5 1
Miles
Data Source: City of Oceanside
General Plan (1995) & KTU+A (2008)


SAN DIEGO COUNTY
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Existing Bicycle Facilities
Class 1: Bike Path
Class 2: Bike Lane
Class 3: Bike Route
Recommended Facilities
Class 1: Bike Path
Class 2: Bike Lane
Class 3: Bike Route
Recommended Bicycle Facilities
0 0.5 1
Miles
Data Source: City of Oceanside
General Plan (1995) & KTU+A (2008)

7. PEDESTRIAN FACILITIES

Pedestrian facilities should enhance the quality of the walking and public transit environments, and foster greater use of both modes. Improvements should focus on reductions in the number and severity of pedestrian-vehicle conflict points, clarified pedestrian routing, widened sidewalks, and improved aesthetic features such as landscaping.

Encouraging a more walkable community will bring many benefits to the City of Oceanside. It will provide convenient and affordable transportation options, reduce vehicular-travel and related pollution, and improve the overall health and fitness of residents.

There are different areas within the City of Oceanside that require different levels of pedestrian improvements based upon adjacent roadways, levels of usage, topography and land uses. All walking facilities found within Oceanside fit into one of the following seven walking facility route types.

CHAPTER HIGHLIGHTS

- Support Walking as a Primary Means of Transportation
- Improve Pedestrian Safety Around Schools
- Repair Sidewalks and Remove Pedestrian Hazards
- Implement Safe Routes To School Programs
- Provide Accessible Pedestrian Facilities at Transit Stations and Bus Stops

District Sidewalks

District Sidewalks are sidewalks along roads that support heavy pedestrian levels in mixed-use concentrated urban areas. Usually, the district is an urbanized area with special functions, such as theater districts, office parks, shopping centers, or college campuses.

Corridor Sidewalks

Corridor sidewalks are defined as sidewalks along roads that support moderate density business and shopping districts with moderate pedestrian levels. They can range from wide sidewalks along boulevards to small sidewalks along a heavily auto oriented roadway.

Connector Sidewalks

Connector sidewalks tend to have low pedestrian levels and are along roads with moderate to high average vehicular traffic. Connector sidewalks tend to be long and, in some cases, do not have accessible land uses directly adjacent to the sidewalk.

Neighborhood Sidewalks

Neighborhood sidewalks are sidewalks along roads that support low to moderate density housing with low to moderate pedestrian levels. Neighborhood streets and their associated walkways are generally lower volume streets, with low to moderate widths, single lanes in each direction, and posted speed limits of 25 miles per hour.

Ancillary Pedestrian Facilities

Ancillary Pedestrian Facilities are facilities away from or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways. Many of these ancillary facilities attract local residents and workers, generating moderate to high pedestrian use.

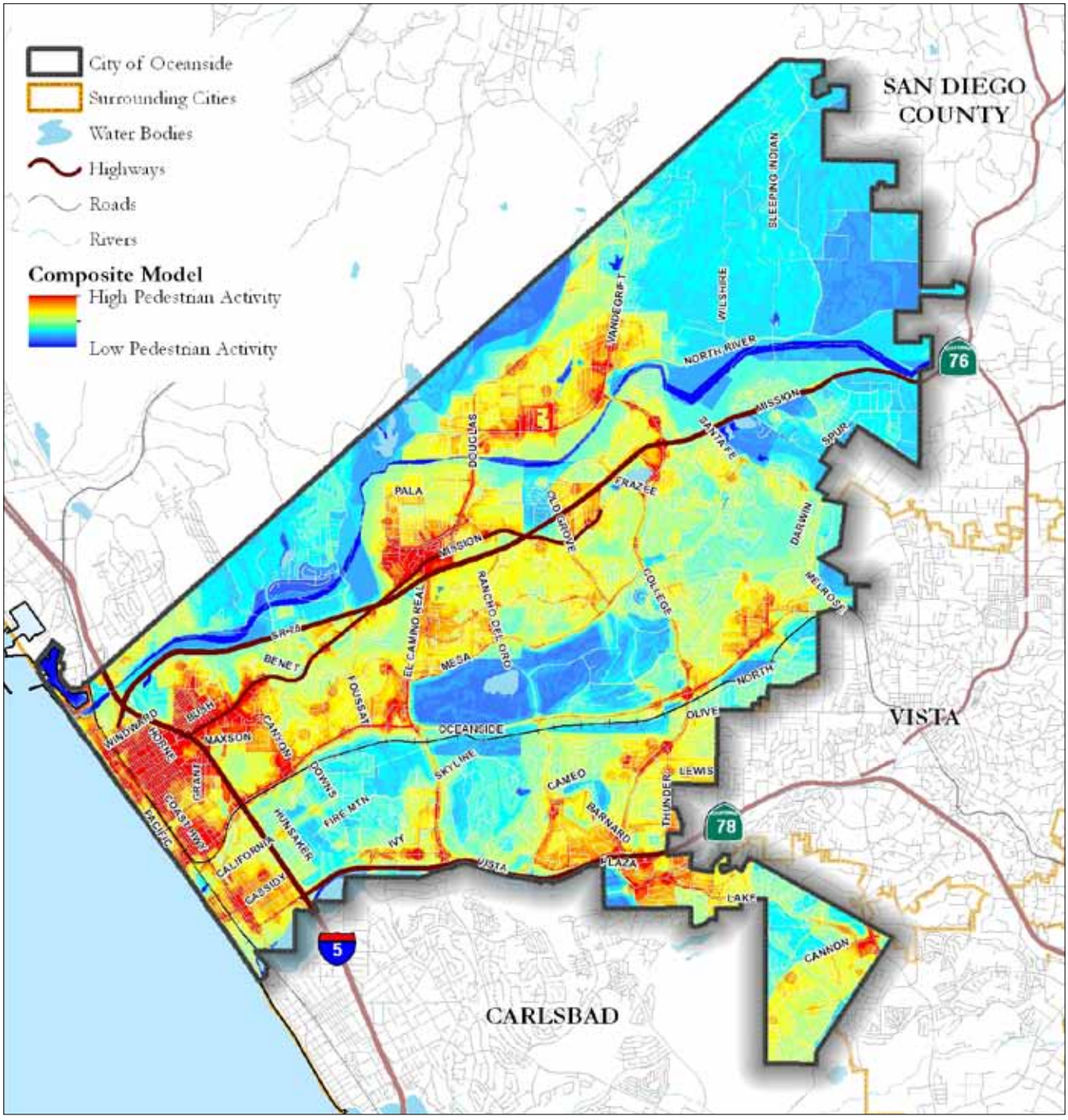
Paths

Paths are paved facilities with exclusive right-of-ways that act as corridors and have little or no vehicular cross flows. Many of these paths are exclusive to pedestrians and bicycles and are not associated with streets.

Trails

Unpaved walkways or roads used for recreational use or open space maintenance are classified as Trails. Trails are separated from roads and support activities such as hiking, biking and walking primarily through parks and open space.

As part of developing the Pedestrian Master Plan, the areas of high pedestrian activity within the City of Oceanside were identified. This was done through the use of a Pedestrian Priority Model which combines pedestrian generators, attractors, barriers, and detractor issues to identify areas that have high generators, attractors, barriers, and detractors. This model helped identify the areas within Oceanside where pedestrians are most likely to be, either currently or if improvements were made. Figure 7.1 depicts the pedestrian activity levels within the City of Oceanside for both existing and potential pedestrian activity areas.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The goals and policies contained in this chapter were taken from the Pedestrian Master Plan (PMP), as the PMP is a planning document consistent with the Circulation Element for the City's long range pedestrian planning efforts.

GOAL 1: ***Develop and maintain a safe pedestrian network that is free of barriers and hazards; that has sufficient lighting, signs, signals, street crossings, and buffers from vehicular traffic in order to create a sense of security for the pedestrian. Utilize corrective measures through engineering, education, and enforcement.***

GOAL 2: ***Create pedestrian environments that encourage walking through the use of public art, street trees, furnishings, and other amenities. Assure a positive walking environment by making the pedestrian feel protected, comfortable and connected with the environment and the City.***

GOAL 3: ***Develop a complete pedestrian network that provides continuous and convenient access to transit, employment centers, retail, neighborhoods, schools, beaches, parks, public places and other essential pedestrian destinations.***

GOAL 4: ***Assure that pedestrian facilities meet local, state and federal access requirements. Utilize "Universal Access" principles that go beyond the minimum standards, since all pedestrians benefit from this approach.***

GOAL 5: ***Support walking as a primary means of transportation that in turn supports transit and bike options. A positive walking environment is essential for supporting smart growth, mixed land uses, transit oriented development, traffic calming and for reducing traffic congestion and greenhouse gas emissions.***

GOAL 6: ***When walkable communities are provided, they enhance neighborhood quality by providing opportunities for social interaction, enhanced economic development and healthy lifestyles. A walkable community can provide clarity to the physical organization of neighborhoods by making people familiar with their environment.***

GOAL 7: ***Identify funding for pedestrian facilities to encourage walking as a key form of transportation within the City. Develop an action priority plan to acquire funding for pedestrian facilities to create an economical and efficient pedestrian network within Oceanside by partnering with private interests and other public agencies.***

OBJECTIVES:

i. Support projects, improvements, and programs that create a safer pedestrian walking environment.

ii. Encourage development patterns that promote walking and increase connectivity.

iii. Work towards closing the existing gaps in Oceanside's pedestrian network.

iv. Promote accessibility and mobility for all people including children, disabled, and the elderly.

POLICIES:

7.1 The City shall identify and work towards repairing sidewalks and public areas that have pedestrian hazards.

7.2 The City shall encourage pedestrian facility improvements such as signs, signals, streets crossings, and proper lighting especially in areas where there is high pedestrian activity and/or safety issues.

7.3 The City shall develop education programs to improve driver and pedestrian knowledge of pedestrian rights.

7.4 The City shall continue to enforce pedestrian right-of-way laws.

7.5 The City shall develop projects and programs to improve pedestrian safety around schools.

7.6 The City shall encourage future development to avoid sidewalk obstructions such as newspaper stands, signage, etc.

7.7 The City shall require the construction of a minimum five-foot wide sidewalk in all new developments and street improvements but encourage sidewalk widths that go beyond the minimum five-foot ADA standards in areas with high pedestrian activity.

7.8 The City shall encourage the inclusion of public walkways, open space, or trails for pedestrian usage in large, private developments.

7.9 In accordance with State law, the City shall provide for the handicapped and elderly to all public buildings by the removal of architectural and access barriers.

7.10 The City shall require all new developments to provide universal access (meaning access for all ages or persons with disabilities).

7.11 The City shall encourage the inclusion of public walkways, open space, and trails in large, private developments.

7.12 The City shall continue to fulfill the federal mandate to provide curb ramps at every pedestrian crossing.

7.13 The City shall continue to develop and implement a Safe Routes to School program to ensure that all schools have adequate traffic safety programs for pedestrians and bicycles within a two-mile radius of the school.

7.14 The City shall encourage and promote quality pedestrian access to transit stations and bus stops in Oceanside.

7.15 The City shall work with NCTD to provide accessible pedestrian facilities at transit stations and bus stops.

7.16 The City shall implement the recommendations of the Pedestrian Master Plan.

7.17 The City shall require that pedestrian circulation and facilities be developed consistent with the City's Recreational Trails Element.

PLAN RECOMMENDATIONS

The Pedestrian Master Plan indentified several pedestrian issues concerned with missing sidewalks, safety, accessibility, walkability, and connectivity. All of the issues identified as part of the Pedestrian Master Plan were prioritized into the top 25 projects based on a ranking system that was developed. The list of top 25 priority projects is shown in the Table 7-1. A more detailed assessment of each of the 25 projects is included in the Pedestrian Master Plan (*November 2009*). The Pedestrian Master Plan is included in Appendix B.

TABLE 7-1
SUMMARY OF TOP 25 PEDESTRIAN PROJECTS PRIORITIZED

Prioritized Project Number	Location	Improvements	Pedestrian Activity Levels	Safety	Accessibility	Connectivity	Walkability	Innovation	Total Score	Total Cost
1	South Coast Highway, South Tremont and Cleveland Streets (Between Mission Ave and Leonard Ave)	Enhance street conditions, add green space, new streets, roundabouts and increased mixed use, add lighting.	10	44	14	11	9	2	**90**	**N/A**
2	Mission Avenue (Between Pacific St and Horne St)	Install more lighting, pedestrian warning signs, and enhanced crosswalks when the opportunity presents itself. Install traffic signal at Clementine St when the signal warrants are met.	10	41	14	11	9	2	**87**	**N/A**
3	Mission Avenue (Between Horne St and Archer St)	Install enhanced crosswalks when signal warrants are met and add more pedestrian warning signs.	10	22	14	10	6	2	**64**	**$6,120**
4	Coast Highway (Between Morse St and Oceanside Blvd)	Redefine and extend walkway system to south of tracks to increase accessibility and walkability, add green space, and increase mixed use.	10	15	14	11	9	2	**61**	**N/A**
5	Crouch Street at Oceanside Boulevard (Oceanside Blvd at Crouch St and Greenbrier Dr)	Add sidewalks and pedestrian facilities at Crouch Street and Oceanside Blvd. Relocate amenities that block sidewalks.	6	16	14	11	6	2	**55**	**$369,225**
6	Mission Avenue (Between Mesa Dr and Fireside St)	Install missing sidewalks, install and enhance crosswalks when signal warrants are met. Move obstacles from the sidewalks.	2	27	12	7	5	1	**54**	**$261,799**
7	I-5/Oceanside Boulevard (Oceanside Blvd between Saratoga St and Nevada St)	Add missing sidewalks, enhance and install crosswalks when signal warrants are met. Add lighting underneath I-5.	4	15	14	13	4	2	**52**	**$470,408**
8	The Strand (Between Pier View Way and Wisconsin Ave)	Add crosswalks and stop sign at Seagaze Dr when signal warrants are met. Add pedestrian warning signs.	10	5	15	10	9	2	**51**	**$641,047**

Prioritized Project Number	Location	Improvements	Pedes-trian Activity Levels	Safety	Access-ibility	Connec-tivity	Walk-ability	Innov-ation	Total Score	Total Cost
9	Pacific Street (Between Pier View Way and Wisconsin Ave)	Increase width of sidewalks based on level of use. Move bollards and install sidewalk into the adjacent planting to provide a wider walking path.	10	8	10	11	7	2	**48**	**$82,863**
10	South Cleveland Street (Between Oceanside Blvd and Wisconsin Ave)	Improve street conditions (street trees, repair sidewalks, add curb ramps..etc)	10	4	13	10	6	2	**45**	**N/A**
11	Pier View Way Promenade (Streets including and bordered by Mission Ave, Tremont St, Civic Center and Myers St)	Provide bulbout at corners and move parking signs off of the sidewalks. Move restaurant furniture away from pedestrians path of travel.	10	18	10	3	2	2	**45**	**$405,675**
12	Tremont Street and Cleveland Street (Between Washington Ave and Oceanside Blvd)	Connect and install sidewalks and curb ramps.	6	4	14	13	6	2	**45**	**$408,071**
13	South Coast Highway (Between Eaton St and Cassidy St)	Improve and widen sidewalks. Add roundabouts and shade trees.	4	10	14	5	7	2	**42**	**N/A**
14	Oceanside Pier (Pier View Way and Pacific St)	Provide elevator from the Pier to the Strand. Provide a ADA accessible ramp between Pacific Street and the amphitheater. Clear obstacles from the sidewalks.	10	2	14	6	5	3	**40**	**$1,372,950**
15	San Luis Rey River Mouth (West of I-5, between Windward Wy and Harbor Dr)	Provide "Arts Bridge" with a wide sidewalk promenade. Increase traffic calming with roundabouts, crosswalks, and street trees. Extend walkway grid system.	4	3	14	5	9	2	**37**	**N/A**
16	El Camino Real at Oceanside Boulevard (El Camino Real and Industry St)	Add crosswalks on Oceanside Blvd at El Camino Real and add missing sidewalks.	4	14	10	4	2	2	**36**	**$28,283**
17	Freeman, Ditmar, Nevada, Clementine and Horne Streets (Between Oceanside Blvd and Seagaze Dr)	Make pedestrian connections across railroad tracks and traffic calming on connector streets. Wider sidewalks. Add missing sidewalks.	4	11	8	3	6	2	**34**	**N/A**

Prioritized Project Number	Location	Improvements	Pedes-trian Activity Levels	Safety	Access-ibility	Connec-tivity	Walk-ability	Innov-ation	Total Score	Total Cost
18	Pacific Street (Between Wisconsin Ave and Morse St)	Add sidewalks when opportunities arise, remove landscaping within pedestrian path of travel, and revise driveways.	6	8	9	6	2	2	**33**	**$96,593**
19	Academy Road/Mission Avenue (Mission Ave at Academy Rd)	Provide sidewalks and curb ramps on north side of Mission Ave from Academy Rd eastbound under SR76 to entrance of shopping center.	2	1	14	5	6	2	**30**	**$104,463**
20	Canyon Drive/Mission Avenue (Mission Ave at Canyon Dr)	Clear sidewalks of utility boxes. Move "Canyon Dr" sign that hangs over the sidewalk.	10	6	3	4	2	2	**27**	**$21,600**
21	Melrose Drive at Oceanside Boulevard (Melrose Dr and Oceanside Blvd)	Add crosswalks and sidewalks on Oceanside Blvd at Melrose Drive when signal warrants are met.	2	1	9	6	2	2	**22**	**$236,925**
22	San Luis Rey Drive/I-5 Crossing (San Luis Rey Drive at Interstate 5)	Add lighting in the underpass and install paving between staircase and San Luis Rey Drive.	4	2	9	4	2	1	**22**	**$58,050**
23	Pacific Street (Between Morse St and Eaton St)	Address ADA issues on east side of road with ADA accessible ramps. Install sidewalks on west side of Pacific St.	4	1	11	1	2	2	**21**	**$280,800**
24	El Corazon Trail Access (El Corazon Trails at El Camino Real, Oceanside Blvd, and Mesa Dr)	Add missing sidewalks along El Camino Real and Mesa Drive to provide connection. Add trail entry points for future trail access.	2	3	5	4	3	1	**18**	**$222,102**
25	North Side of the San Luis Rey River Trail (North side of San Luis Rey River between College Blvd and Douglas Dr)	Improve walkability with amenities and re-grade surface.	2	1	3	1	5	1	**13**	**$494,532**
									Grand Total	**$5,515,336**

8. TRAFFIC CALMING

The City of Oceanside strives to be more sustainable and livable with a comprehensive traffic calming program that has incorporated more uniform methods of evaluating hazardous traffic conditions in residential neighborhoods. The purpose of traffic calming methods in the City of Oceanside is to maintain the livable and environmental quality of our neighborhoods while ensuring the safe and efficient movement of people and goods.

CHAPTER HIGHLIGHTS

- Follow the City of Oceanside's Neighborhood Traffic Calming Program
- Support traffic calming measures where needed

The City of Oceanside Neighborhood Traffic Calming Program was adopted by City Council in February 2011. The program lists the goals and objectives for the city. The purpose of the traffic calming program is to identify the cause of neighborhood traffic concerns and determine feasible traffic calming solutions. In general, the traffic calming program applies to local residential streets. A copy of the Neighborhood Traffic Calming Program is included in Appendix I.

The goals and objectives of the traffic calming program are intended to aid in the development and implementation of a traffic calming plan. The goals identify the desired outcome of the traffic calming program, and the objectives identify the method by which the goals of the traffic calming program will be achieved. This chapter reinforces the goals and objectives of the traffic calming program with additional policy recommendations.

GOAL 1: ***Improve street safety, promote community character, and enhance the quality of life in Oceanside neighborhoods.***

GOAL 2: ***Educate residents on the traffic calming process and make tools available that would address their concerns.***

GOAL 3: ***Actively involve the community in identifying solutions to traffic concerns that achieve desired results for their neighborhood.***

OBJECTIVES:

i. Provide a structure to clearly identify traffic problems along a street or in a neighbhorhood.

ii. Provide a clear and concise list of tools that may be used to resolve traffic-related issues.

iii. Provide a structure for residents throughout the process of initiating traffic calming on their street or in their neighborhood.

POLICIES:

8.1 The City shall strive to meet the goals, objectives, and standards contained in the City of Oceanside Neighborhood Traffic Calming Program.

8.2 The City shall follow established Neighborhood Traffic Calming Program guidelines for existing local streets and established neighborhoods in processing traffic calming requests.

8.3 The City shall, where feasible, integrate traffic calming features into the roadway design of local streets in new development areas.

8.4 The City shall locate traffic calming devices in new, in-fill, or redevelopment areas in order to minimize the potential for cut-through or high speed traffic.

8.5 The City shall consider pedestrian enhancements at intersections with high pedestrian activity.

9 INTELLIGENT TRANSPORTATION SYSTEM TECHNOLOGIES

CHAPTER HIGHLIGHTS

- Use the TMC to monitor and optimize traffic in real time
- Fifty-eight intersections will be connected to the TMC with CCTVs
- Support various ITS technologies within Oceanside now and potential ones for the future

Intelligent Transportation Systems (ITS) encompass a broad range of technologies and associated operations which seek to improve and maximize the efficiency of the existing transportation infrastructure. When integrated into the transportation system's infrastructure, and in vehicles themselves, these technologies can alleviate congestion, improve safety, and enhance productivity. It can also be used as a cost effective means of increasing the efficiency of the transportation system.

The use of ITS to improve the efficiency and safety of our transportation resources and networks has been an increasing and progressive trend in the United States and throughout the world. It highlights the needs to make the most of the physical infrastructure in order to reduce the impacts to the overall urban environment. While the focus is frequently on the technologies being deployed through ITS, it is important to note that each ITS effort must be supported by appropriate operations and maintenance resources to ensure long-term effectiveness.

ITS Currently In Use or Under Development by the City:

The following technologies are either currently in use or under development by the City:

Central Signal Management System is a centralized software application used to monitor and manage traffic signals within the City. This system was updated in 2010 to the new regional standard known as the Regional Arterial Management System (RAMS). This system is also known regionally as QuicNet. This system allows City staff to remotely monitor signal operations and alerts for all signals that have communications back to the City Traffic Management Center (TMC). The system also allows for centralized management of coordinated signal timing plans for corridors. The recently upgraded system also allows for shared monitoring of City, Caltrans interchange, and neighboring jurisdiction signals where agreed to by the agencies involved. Finally, use of this system ensures the City retains consistency with the rest of the agencies in the region in terms of signal operations and providing relevant data to traveler information systems.

Advanced Signal Control Options allow for more advanced approaches to signal operations beyond the traditional application of fixed timing plans for different times of the day. Ranging from what is termed responsive to adaptive, these approaches can be deployed along corridors or in key areas to allow the signal operations to adapt to rapidly changing traffic flows and conditions. In 2010, the City initiated efforts on College Boulevard to test some of these options to assess where they may be most effectively applied.

Emergency Preemption System is the hardware and software comprising a system that provides for the altering of standard traffic signal timings and

sequences to efficiently accommodate approaching emergency vehicles in order to reduce response times. The City has already deployed an emergency preemption system at all signalized intersections. As this system is very useful for assisting in emergency response, the maintenance and lifecycle replacement should be considered over time.

Closed-Circuit Television (CCTV) is the use of video cameras to transmit a signal to a specific place, on a limited set of monitors. The video cameras would usually be mounted on poles or other street fixtures to view traffic flows at intersections, roadways, highways, or bridges. In many cases, cameras used for detection purposes for signal operations can also provide video feeds to allow for real-time remote viewing of traffic conditions. In 2010, the City commenced design and installation of expanded traffic video monitoring capabilities with video feeds being brought to the City Traffic Management Center.

Driver Feedback Signs and Devices are deployed to inform drivers of their speed as they approach and pass a particular location in relation to the posted speed limit. These devices can also collect data regarding approaching and passing speeds of vehicles, as well as volumes of vehicles, to assist City engineers in determining the effectiveness of speed control measures. The City has deployed some of these devices and will have eleven sites operational in the near-term. Additional sites are planned for the future with potential wireless communications to provide data back to the TMC.

Transportation Management Center serves as the central data collection center where real time information is gathered from many sources such CCTV cameras and traffic signals. The information received at the TMC would enable the City traffic engineers to monitor and optimize traffic in real time to ensure a fast, intelligent and coordinated response is made to improve traffic operations on the circulation system. This information and the associated response measures are usually managed through a software application known as an Advanced Traffic Management System (ATMS). Aside from the use of immediately improving the efficiency of the circulation system, the TMC can monitor and provide traveler information (with the use of changeable message signs) during peak traffic periods and/or emergency situations. In addition, the TMC allows traffic engineers to monitor and adjust traffic signal plans during special events, as well as implement real-time transportation management measures at incident locations. The TMC is equipped to operate as the primary location for the City's Emergency Operation Center. If a natural disaster were to occur, the TMC would provide emergency personnel with up-to-date information to share with officials and citizens. Finally, the City TMC could coordinate with partner TMCs operated by other Cities and Caltrans to more readily respond to regional conditions that impact transportation in the City of Oceanside.

The City of Oceanside has completed Phase I of the **Transportation Management Center**. Phase II is currently in design, which consists of preparing plans to install a fiber optic backbone along Coast Highway,

Oceanside Boulevard, El Camino Real, and College Boulevard, a sixteen panel video wall, and thirty-five of the proposed CCTV cameras at key signalized intersections. Construction for Phase II is planned for early 2012. It is expected that additional phases would follow as funding becomes available.

Potential ITS Applications Under Consideration for Future Use:

The following technologies are being considered for potential future deployment and use within the City of Oceanside:

Changeable Message Signs are electronic traffic signs often used on roadways to give travelers information about traffic congestions, accidents, incidents, roadwork zones, or speed limits on a specific segment. In urban areas, they can also be used for parking guidance and information. As of 2010, the City had commenced design to support a limited deployment of changeable message signs. When these signs are installed they would be managed from the City Traffic Management Center to provide information and assist in traffic direction during special events, incidents, and other similar situations. Unlike their freeway counterparts, these signs are generally smaller and deployed to more readily match the scale of the city environment.

Transit Signal Priority (TSP) is an operational strategy that facilitates the movement of buses through predefined traffic-signal controlled intersections. The objectives of TSP include improved schedule adherence and improved transit travel time efficiency while minimizing impacts to normal traffic operations. Standards for TSP have been established regionally, but the City has not yet implemented these types of measures.

Arterial Speed and Conditions Detection is a method used to more rigorously monitor arterial speeds and queues similar to the specialized detection that is in place along much of the regions freeway network. Devices are placed in or alongside the roadbed to detect vehicles as they pass for counting the number of vehicles and speeds during a unit of time (typically 60 seconds). This information can be used for traffic conditions monitoring by staff at the Traffic Management Center, for reporting information to traveler information systems such as 511, and for long-term monitoring of traffic speeds and trends. The City has not yet implemented these types of solutions, but regional tests are underway that may promote future deployment within the City.

511 Program is a regionwide program for providing near real-time traveler information for auto and transit users. Information can be accessed by phone (by dialing 5-1-1) or through the Internet. The goal is to provide a single source for traveler information data and conditions in the San Diego region. The information provided through 511 is subject to data made available by local, regional, and State agencies. The regional 511 Program has already been deployed and is managed by SANDAG, and information would be provided through the TMC and the various systems that the City of Oceanside deploys.

Smart Parking Systems can be deployed to provide information to travelers on available parking in constrained or high demand parking environments. For example, some California coastal cities have deployed these systems to inform visitors of available beach parking spaces and provide directions to lots with available parking that may not be readily visible from major thoroughfares. Systems vary, but are generally deployed to detect vehicles in individual spaces or more commonly compare vehicles entering and leaving controlled parking lots. Information has typically been made available through specialize electronic signage, but many cities are now using Internet webpages or even mobile device information options.

Street Lights Management includes systems to enhance energy and maintenance efficiency for City provided street lights along roads and other transportation facilities. The system can be used to dim lights in areas where no traffic or activity is present. In addition, the system can monitor and provide alerts for burned out bulbs, which allows for more focused maintenance and replacement. When combined with LED and low energy lighting options, this approach can improve safety and save energy.

Summary of ITS Device Deployment and Supporting Communications

The City of Oceanside has identified 58 intersections that will be connected to the TMC with CCTVs. Figure 9.1 shows the City of Oceanside's traffic signal communication system. Table 9-1 shows the first 35 of the 58 intersections that will be connected to the TMC during initial operations. Table 9-2 shows the remaining 23 intersections that will be connected to the TMC.

TABLE 9-1
PROPOSED CCTV INTERSECTION LOCATIONS TO BE INSTALLED DURING INITIAL OPERATIONS

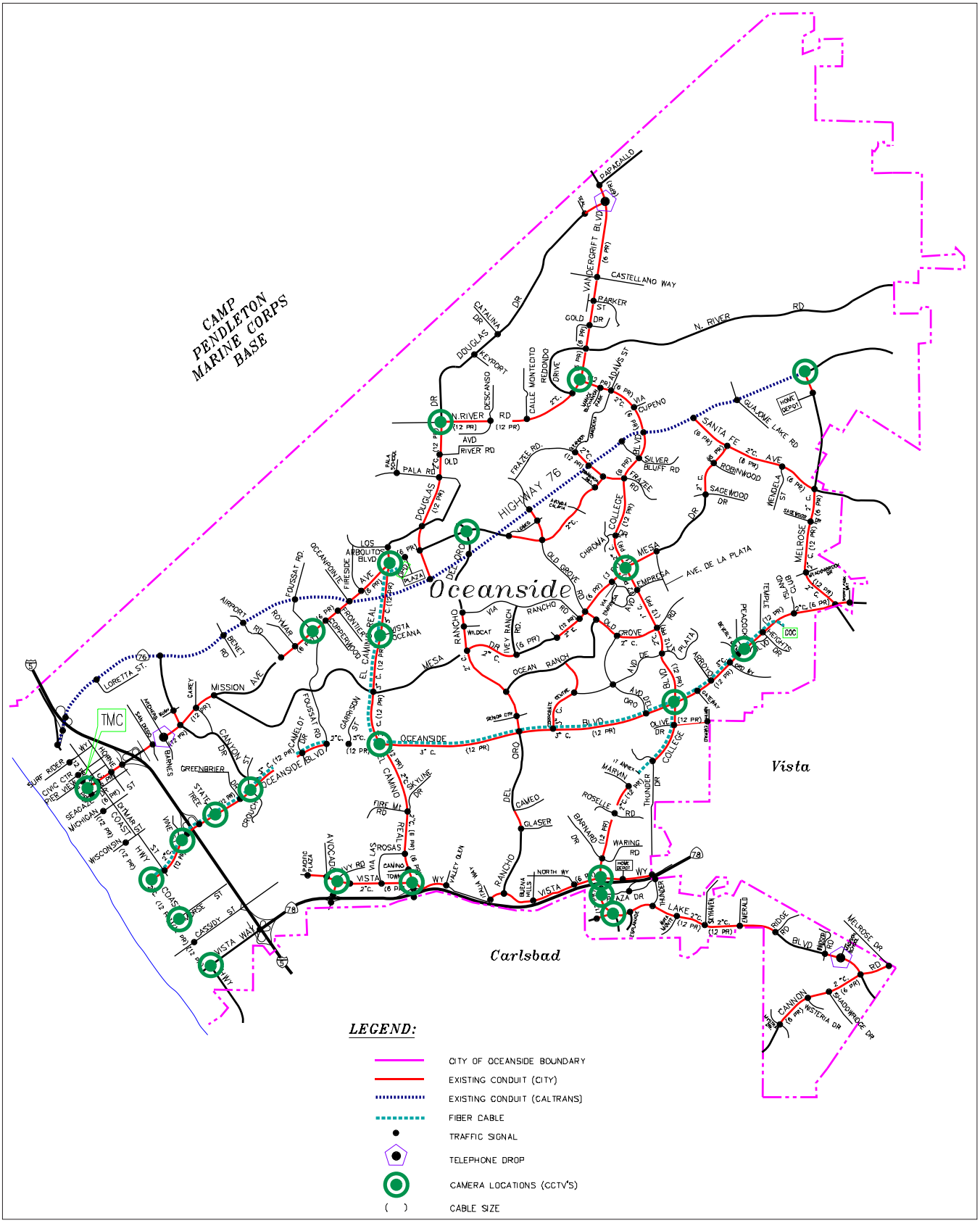
1. Coast Highway & Surfrider Way	19. Jefferson Street & Vista Way
2. Coast Highway & Mission Avenue *(2 CCTVs)*	20. Vista Way & El Camino Real
3. Coast Highway & Wisconsin Avenue	21. Vista Way & Rancho Del Oro Road
4. Coast Highway & Oceanside Boulevard	22. Vista Way & College Boulevard
5. Coast Highway & Vista Way	23. College Boulevard & Lake Boulevard
6. Mission Avenue & Horne Street	24. College Boulevard & Plaza Drive
7. Mission Avenue & San Diego Street	25. College Boulevard & Old Grove Road
8. Mission Avenue & Canyon Drive	26. College Boulevard & Mesa Drive
9. Mission Avenue & Foussat Road	27. College Boulevard & North River Road
10. Mission Avenue & El Camino Real	28. El Camino Real & Vista Oceana
11. Mission Avenue & Douglas Drive	29. El Camino Real & Douglas Drive
12. Oceanside Boulevard & State Tree Drive	30. North River Road & Douglas Drive
13. Oceanside Boulevard & Crouch Street	31. Rancho Del Oro Road & Via Rancho Road
14. Oceanside Boulevard & El Camino Real	32. Old Grove Road & Mesa Drive
15. Oceanside Boulevard & Rancho Del Oro Road	33. Vandegrift Boulevard & Parker Street
16. Oceanside Boulevard & College Boulevard	34. Lake Boulevard & Thunder Drive
17. Oceanside Boulevard & Peacock Boulevard	35. North Santa Fe Avenue & Melrose Drive
18. Oceanside Boulevard & Melrose Drive	

Source: City of Oceanside

TABLE 9-2
PROPOSED CCTV INTERSECTION LOCATIONS

1. Mission Avenue & Frazee Road	13. Lake Boulevard & Cannon Road
2. College Boulevard & Barnard Drive	14. Melrose Drive & Cannon Road
3. College Boulevard & Thunder Drive	15. Mesa Drive & Rancho Del Oro Drive
4. College Boulevard & SR 76 (*outside of ROW)*	16. Old Grove Road & Avenida Soledad
5. Douglas Drive & Vandegrift Boulevard	17. Old Grove Road & Avendia Del Oro
6. El Camino Real & Mesa Drive	18. Mesa Drive and Sagewood Drive
7. El Camino Real & Via Las Rosas	19. Oceanside Boulevard & Foussat Road
8. SR76 & Foussat Road (*outside of ROW)*	20. Lake Boulevard & Skyhaven Lane
9. SR76 & Coast Highway (*outside of ROW)*	21. Mission Avenue and Myers Street
10. North Santa Fe Avenue & Mesa Drive	22. Coast Highway & Morse Street
11. Oceanside Boulevard & Vine Street	23. SR76 *(outside of Caltrans ROW)* & Melrose Drive
12. Mission Avenue & Rancho Del Oro Drive	

Source: City of Oceanside



Source: City of Oceanside

This section of the Circulation Element establishes a high-level ITS technology plan that creates the framework of policies for integrating the City of Oceanside's existing and future resources with ITS technology to effectively meet the future transportation needs and expectations of the City.

GOAL 1: ***Encourage and support the use of Intelligent Transportation System technologies to increase the efficiency of the transportation network.***

GOAL 2: ***Support the use of Intelligent Transportation System technologies as a cost-effective alternative to improve the transportation network.***

OBJECTIVE:

i. To improve the safety, security, and movement of goods, people, and services for all modes of transportation by using advanced technologies, coordinated management techniques, and by providing real-time traveler information.

ii. Improve air quality and reduce green house gas emissions through traffic signal optimization and the use of advanced signal control techniques.

iii. To ensure compliance with regional ITS architecture and National ITS standards where feasible to promote interoperability and information exchange with other agencies in the region.

iv. To work cooperatively with regional ITS and related operations efforts to enhance regional and local response to incidents and events impacting the City.

v. To collect data for public dissemination and/or analysis by the City traffic engineers.

POLICIES:

9.1 The City shall budget and allocate the operations and maintenance resources necessary to properly maintain and effectively operate the TMC.

9.2 The City shall continue to support the development of a Traffic Management Center with an Advanced Traffic Management System (ATMS).

9.3 The City shall enhance the communications network, particularly fiber optic cables, for use with ITS technologies.

9.4 The City shall deploy functional and cost efficient ITS technology that will maximize the use of existing infrastructure.

9.5 The City shall improve the traffic signal equipment in order to facilitate signal coordination/synchronization and the deployment of an ATMS.

9.6 The City shall collaborate with NCTD to identify opportunities to provide transit signal priority along important or major transit/bus corridors.

9.7 The City shall ensure that all ITS technology related to transit signal priority gives first priority to emergency services signal preemption.

9.8 The City shall utilize available ITS technologies such as changeable electronic message signs and CCTV camera systems to improve event management, construction activity, and report real-time traffic conditions.

9.9 The City shall coordinate with neighboring jurisdictions and agencies to better enhance ITS technologies for transit and overall traffic operations across jurisdictional boundaries.

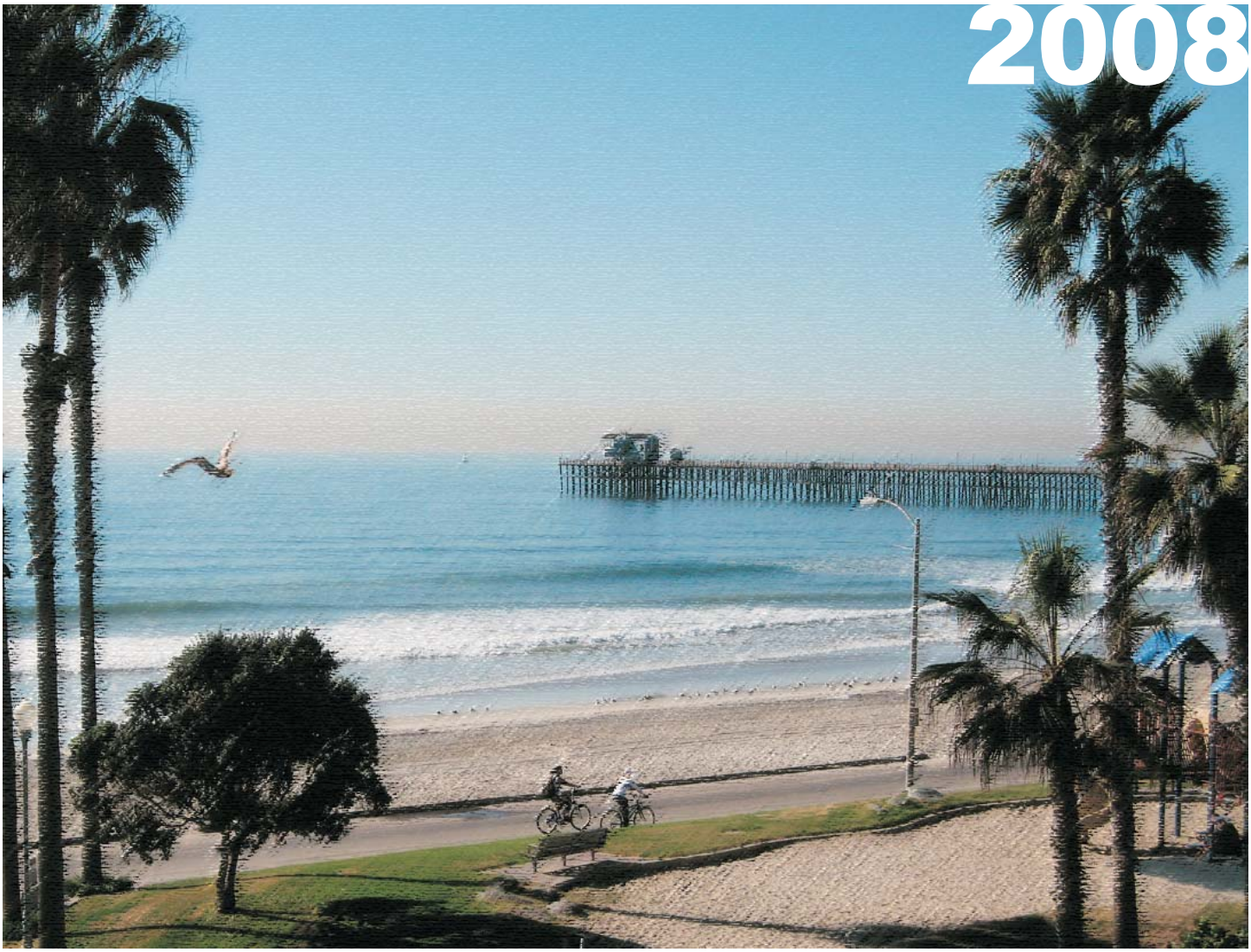
9.10 The City shall monitor traffic signals along major corridors for signal coordination and consider the need for retiming or adjustment every two years.

Appendix A

Bicycle Master Plan

City of Oceanside
Bicycle Master Plan

2008



Prepared by
KTU+A • Planning + Landscape Architecture

In association with
IBI Group • Transportation Planning

for the
City of Oceanside, California

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Executive Summary

Project Scope

This study is a comprehensive update of the 1995 City of Oceanside General Plan Circulation Element and Recreational Trails Element. The city's growth necessitated an update to better address not only local bicycle travel needs, but also to better serve regional long-distance travel and promote tourism. This resulting document should be responsive to any General Plan changes that will affect circulation patterns.

Plan objectives included establishing facility types to be implemented and identifying points where the city's bikeway system could integrate with the existing San Diego County regional bikeway system. The project's scope included documenting and evaluating the City of Oceanside's existing bikeway facility system and its relationship with other systems such as mass transit and recommending improvements wherever appropriate.

This plan sought to maximize the efficiencies offered by multi-modal connections between mass transit and bikeways and to promote a viable alternative to the automobile travel in a climate particularly conducive to bicycle transportation. It also sought to provide a more convenient bikeway system for cyclists who do not have ready access to motor vehicles.

The Cyclist's Perspective

This plan was developed with a "cyclist's perspective" by planners who routinely commute by bicycle and fully understand the implications of bicycle travel. All potential routes were ridden to experience them firsthand, including those routes planners felt would be forbidding to most users due to high motor vehicle speeds and volumes. The planners' "on the ground" familiarity of the City and subsequent thorough analysis resulted in supportable recommendations portrayed in clear text and graphic format.

This plan incorporated the latest in geographic information systems (GIS) technology to support its mapping and planning recommendations. GIS data were used to characterize facility siting factors such as age, commuting, population and employment densities.

Compliance with State Law

Pursuant to California law, this plan is to complement the City of Oceanside's General Plan Circulation Element was used to direct roadway improvements to include bikeway facilities.

By law, cities must adopt their bikeway master plans (termed "Bicycle Transportation Plans" by Caltrans) no earlier than four years prior to July 1 of the fiscal year in which the state's Bicycle Transportation Account (BTA) funds are to be granted. For example, the 2005/2006 fiscal year began on July 1, 2005. Cities applying for 2005/2006 BTA funds must have a bikeway master plan adopted July 1, 2001 or later. This four year cycle should help to make certain that General Plan changes affecting bicycle transportation will be accommodated in a timely manner.

Methodology

The project methodology included a review of applicable documents, field work and geographic information systems (GIS) analysis of the field work data. Oceanside's existing bikeway system was analyzed for a number of factors using both traditional field survey, GIS techniques and with the assistance of the Oceanside Bicycle Committee and City staff.

Literature Review

Applicable sections of documents related to Oceanside's bikeway system are excerpted in Chapter 3: Survey of Existing Bike Maps, Trails and Regional Plans. These include the current City of Oceanside General Plan Circulation Element and Recreation Trails Element as well as neighboring community, regional and state plans and guidelines.

Field Work

During the initial field work, all mapped routes were driven to verify accuracy with respect to existing bikeway mapping data. The consultant also rode many of these routes by bicycle, especially those that did not appear to be consistent with the data. These discrepancies were often discontinuous routes or route extensions that had not been previously digitized.

Community Input

Community involvement consisted of a two public workshops at the Oceanside Public Library. The first was conducted on February 2nd, 2008 in which over 50 people attended. This was the public meeting to introduce the Bicycle Master Plan to the community. The first half hour was dedicated to talking about the Master Plan and existing conditions while the second hour was an open forum for attendees to mark up maps and add comments, suggestions and recommendations. The second workshop was held on May 10th, 2008 in which a little over 20 people attended. This workshop was an open forum with a focus on recommended bicycle facilities and the Four Es: Engineering, Encouragement, Education and Enforcement. Large plots were available for attendees to add additional comments and suggestions.

Project Approach

The overall approach taken in this master plan can be summarized as the following:

- The bicycle master plan should be integrated into all transportation plans, especially if the bicycle will use general purpose roads shared with other forms of transportation.
- An administrative framework and the support of public interest groups is critical for the success of a master plan effort.
- The aim of planning for bicycles should not be focused on any particular product so much as it should be focused on the safe and efficient travel of cyclists. This will generally require both the use of the existing transportation infrastructure and the construction of special facilities for cyclists.
- The maintenance of bicycle facilities and the monitoring and assessment of their performance must ensure continuing safe and efficient travel for cyclists. Planning for cyclists is an on-going process.
- The co-existence of cyclists and drivers on the roads requires that both are sensitive to and recognize a common set of rules. Encouragement, education and enforcement are as important as physical planning and design.
- It is imperative that a "bicycle perspective" guide any planning for cyclists. The bicycle has its own characteristics, constraints and opportunities that the planner must consider. This must be combined with the recognition that cyclists do not form a homogeneous group in terms of age, ability, experience or traffic judgment.

Funding Sources

Appropriate funding for bikeway facilities could come from many sources. An increased emphasis on integrated multi-modal planning has created several federal, state and local funding sources for new bicycle facilities. Understanding the grant program and selection

criteria of these programs can dramatically increase the likelihood of funding. The applicable funding sources will be somewhat dependent on the selected conceptual framework for the bikeway system. (See Chapter 5: Prioritized Projects and Funding.)

Planned bikeway facilities reflect an understanding of budgetary constraints. The planning team's approach was to emphasize solutions for which funding is most readily available, but not to the exclusion of the goals and objectives of the master plan.

Bikeway Continuity

Many existing systems receive less use than projected because the potential users view them as too piecemeal in configuration, and therefore inefficient and unsafe. The creation of an effective bikeway system may be achieved with steps as relatively simple and cheap as re-striping roadways and installing signage, but it will probably also require more costly measures such as the establishment of easements, removal of encroachments, or even the outright purchase of land. The planning team's approach included evaluation of methods for maintaining bikeway cohesiveness, with proposed solutions within the proper conceptual framework.

Understanding Cyclists' Needs

Only a cyclist truly understands the needs of a cyclist. The proper cycling perspective must permeate the bikeway planning process. This issue is fully understood by the planning team members. It has much to do with the team's desire to pursue this planning project; to see it done right. The team's personnel selection was based in part on cycling experience.

Project Goals

The following project goals were developed in close cooperation with City staff. These goals are the fundamental criteria for the City of Oceanside's planned bikeway system.

1. Popular
Bikeway system design and layout will consider all segments of the cycling population.

2. Systemic
The bikeway system will endeavor to be a complete system emphasizing local and regional continuity and connectivity.

3. Destination-Oriented
The bikeway system will be destination-oriented, especially towards employment centers, residential areas and high use activity centers – including access to other modes of local and regional transportation systems.

4. Safe
Safety will be the bikeway system's paramount concern, focusing on maximum visibility for the cyclist, signage, bikeway segment selection and utilizing easily recognized markers to clearly identify paths, lanes and routes.

5. Designed to Standards
The bikeway system will conform to the minimum design standards established by Caltrans. Facilities will endeavor to include, but not be limited to, bike lockers and locking racks.

6. Maintained
The City will regularly maintain bikeway system segments and facilities.

7. Minimize Liability Exposure
Bikeway system design and layout will minimize the City's and adjacent property owners' liability exposure to issues such as trespassing, loss of privacy, damage and property loss associated with bike routes.

8. Minimize Cost
Whenever possible, bikeway system design and layout will minimize potential financial burden to the City by engaging development to implement bike segments, locating segments within the existing right-of-way and minimizing the need for acquisition.

9. Environmentally Sensitive
Whenever possible, the bikeway system will utilize environmentally sensitive routing to minimize environmental impacts.

10. Educational
The bikeway master plan will consider methods not only to promote the benefits of cycling, but also to enhance safety by educating both cyclists and drivers to coexist with an awareness of each other.

Project Definitions

To prevent the confusion that can occur when referring to bikeways, bicycle lanes, bicycle routes, bicycle trails or bicycle paths, the California Department of Transportation (Caltrans) standards for referring to bikeway facility types are used throughout this document. (See photos and Section 1.3: Bikeway Facility Types on pages 1-1 & 1-2.)

Trip Origin and Destination Analysis

Analysis of specific types of bicycle trip origin and destination points are required by Caltrans for its approval of bikeway master plans. The standard Caltrans list includes residential neighborhoods, schools, shopping centers, public buildings and major employment centers (Bicycle Transportation Account Compliance - Code Section 891.2). These were identified and analyzed and further supplemented by additional types of origin and destination points. Other trip origin and destination points included the city hall, hospitals, park and ride lots, train stations, transportation centers, parks, community or visitors center and libraries. (See Chapter 2: Section 2.1 Existing Land Use and Section 2.7Activity Centers.)

Multi-Modal Analysis

Linking the bikeway facility system with other transportation modes can enhance the efficiency of bicycle transportation, especially for commuting cyclists. They can use their bicycles to get to or from a multi-modal transfer point as part of their regular commute. Where transit modes allow bicycles on board, multi-modal transit becomes a very useful transportation option. Whether the other modes allow bicycles to be brought on board or not, they allow for much greater flexibility for persons choosing to commute by modes other than the private automobile. (See Chapter 2, Section 2.12 Access to Transit Site and Inter-Modal Transfer Points)

Safety Analysis

Safety is a primary concern in evaluating an existing bikeway facility system or in proposing new facilities or extensions. The primary lesson learned from the data reviewed for this bicycle master plan and others is that installation of bicycle facilities without careful consideration of their specific attributes and drawbacks can actually exacerbate already problematic safety situations. This is particularly true for facilities that are likely to be used by other types of users such as walkers, runners and skaters, in addition to cyclists. Well designed, attractive, off-street bicycle facilities tend to become mixed use facilities and the other user types do not move with the relative predictability of vehicles. On the other hand, even though they move with more predictability, cyclists using on-street facilities must contend with motor vehicles. Safety concerns vary considerably depending on the type of bicycle facility. (See Chapter 2, Section 2.9 Safety and Security)

Opportunities and Constraints

Most of the bikeways proposed in this bikeway transportation plan update have been proposed in other documents, such as in the existing 1995 General Plan and Recreational Trails

Element as well as the San Luis Rey River Trail: Opportunities and Constraints Study (2005). Whenever possible, routes were proposed to take advantage of opportunities to make connections between bicycle trip origin points and destination points in sections of the city that may not otherwise be accessible via a bikeway facility. This was generally feasible due to overall manageable grades within the city. The opportunities for a viable bikeway system in the City of Oceanside are in place. (See Chapter 4: Recommendations.)

Current Constraints to Cycling

High Motor Vehicle Speeds

Fortunately, the major roads that have high speeds have bike lanes built into them except for North River Road and the western end of State Route 76. Experienced cyclists are generally not concerned with adjacent motor vehicle speeds when on a Class 2 bike lane, but when facilities do not exist it becomes more of a concern. Less experienced cyclists are more likely to find such conditions very uncomfortable and may be less likely to use these high speed roadways.

Freeway Crossings

The City of Oceanside has three freeways travelling through the City. Interstate 5 along the coast and State Routes 76 and 78 which travel east-west in the northern and southern parts of the City. Freeway crossings become a barrier to bicycle travel when bicyclists have to manage high vehicular speeds along off and on ramps. In many cases manuevering through both within about 100 feet. High volume connections to the coast include Mission Avenue, Oceanside Boulevard and State Route 76 which cross over Interstate 5. State Route 78 terminate on Interstate 5 but bicycle access is prohibited on State Route 78.

Narrow Roadways

Many roadways in Oceanside on which Class 2 bicycle facilities are proposed have adequate rights-of-way. However, implementation of some proposed routes may be constrained by the lack of available physical space because the some roadways on which they are proposed may have limited rights-of-way and on-street parking. Providing bicycle facilities such as Class 3 bike routes are the best solutions for connectvity in areas already built out. Oceanside is predominantly residential land use so speeds are relatively low with some streets wide enough to accomodate cyclists without the use of bike lanes.

Recommendations

The recommended routes are intended to take advantage of existing and programmed roadways and existing bicycle facilities to resolve cyclists' concerns for safety and connectivity. The City of Oceanside has a comprehensive system of Class 2 bikeways on its major roadways, but lacks connectivity within existing neighborhoods to attractors such as schools and parks in which Class 3 bike routes are recommended. The Class 1 San Luis Rey River Trail is the only major Class 1 bike path within the City with a few small section of the Costal Rail Trail. The facilities are shown in Figure 2-15: Existing Bicycle Facilities with Recommendations in Chapter 4.

CIPs and Bikeway Funding

The following sections define the recommended bikeway system improvements as CIP projects with basic construction costs. See Figure 5-1: Typical Unit Construction Costs for general bikeway component construction costs. For a brief description of each segment, including estimated costs and segment lengths, see Sections 5-3 through 5-4 Priority Projects. The remaining sections of Chapter 5 describe the funding sources available for bikeway projects, followed by a summary, Figure 5-5: Bikeway Facility Funding Summary.

Bikeway Development Priorities

The factors used in prioritizing the implementation of potential bikeway project types included probable demand, regional significance, transportation efficiency and likely funding sources. With these criteria, Coastal Rail Trail was given the highest priority, followed by routes that would most benefit bicycle transportation.

Note that the segment numbering sequence lists the Class 1 San Luis Rey River Trail connections first, along with separate lists of proposed Class 2 facilities and the Class 3 facilities. This represents the recommended prioritization within facility classes only. It is difficult to prioritize all of the proposed bikeway facilities across the facility classes because several Class 3 routes could be implemented for far less than the cost of a single Class 2 lane, for example. Therefore, it is recommended that the Class 1, 2 and 3 facilities be regarded as parallel lists and be implemented as appropriate funds become available for each type of facility. (See Section 4.2: Recommended Projects)

Class 1 Bikeways Costs

Because they are constructed independently of existing or programmed motor vehicle facilities, Class 1 paths are by far the most expensive of all bicycle facilities. Typical costs per mile can vary a great deal due to possible right-of-way acquisition, bridges and other potential major expenses such as extensive grading. The cost range is primarily due to topography and facility width. For example, a Class 1 facility being converted from a rail roadbed across flat terrain will require far less grubbing, grading and structural enhancements than a facility being constructed through an undeveloped area with hilly topography. For this bikeway master plan, the cost used in Chapter 5 for the rail trail segment was $466 per linear foot, or approximately $2,460,480 per mile, due to potentially extensive construction, grading, bridges and environmental review. A more standardized figure was used for the other Class 1 segments of $190 per linear foot, or $1,000,000 per mile.

Class 2 Bikeways Costs

Class 2 facility costs are approximately $15,000 to $35,000 per mile. This cost includes all necessary lane striping and signage, but does not include widening of roadways or land acquisition, if necessary. The cost used in Table 8-2 was $6 per linear foot, or approximately $32,000 per mile.

Class 3 Bikeways Costs

Class 3 routes costs are the lowest of all facility types because the only physical improvement to be installed is route signage. The cost range is $1,500 to $5,000 per mile. The cost used in Chapter 5 was $0.70 per linear foot, or approximately $3,500 per mile. Shared Lane Symbols or “Sharrows” have already been purchased by the City at a cost of $600 for the stencil. Cost for the installation of each symbol is $75. These Shared Lane symbols are an optional addition to the standard bike route signage along Class 3 routes.

Bikeway Funding Sources

Federal, State and local government agencies invest billions of dollars every year in the nation’s transportation system. Only a fraction of that funding is used in development projects, policy development and planning to improve conditions for cyclists. Even though appropriate funds are limited, they are available, but desirable projects sometimes go unfunded because communities may be unaware of a fund’s existence, or may apply for the wrong type of grants. Also, the competition between municipalities for the available bikeway funding is often fierce.

Whenever Federal funds are used for bicycle projects, a certain level of State and/or local matching funding is generally required. State funds are often available to local governments on similar terms. Almost every implemented bicycle program and facility in the United States has had more than one funding source and it often takes a good deal of coordination and opportunism to pull the various sources together.

According to the FHWA’s publication, *An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels*, where successful local bike facility programs exist, there is usually a full-time bicycle coordinator with extensive understanding of funding sources. Cities such as Seattle, Washington, Portland, Oregon and San Diego are prime examples. Bicycle coordinators are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for cyclists

within their jurisdictions. Much of the information on Federal and State funding sources was derived from the previously mentioned FHWA publication.

Additional Resources

Chapter 6 contains a comprehensive set of bikeway design guidelines.

The appendices contain applicable state and federal bikeway planning publications, guidelines for selecting safe routes to school, and the California Vehicle Code sections on roadway bicycle use. The final appendix is the entire Caltrans H*ighway Design Manual Chapter 1000 – Bikeway Planning and Design*.

Caltrans BTA Compliance

Bicycle Transportation Account Code Section 891.2 Compliance

The Bicycle Transportation Account (BTA) funds projects that improve safety and convenience for bicycle commuters. To be eligible for BTA funds, the bikeway master plan must address items (a) through (k) of Section 891.2 of the California Streets and Highways Code. For reviewer convenience, code text and associated document sections are listed below.

(a) The established number of existing bicycle commuters in the plan area and the estimated increase in the number of bicycle commuters resulting from implementation of the plan.

The established number of bicycle commuters in the plan area is 266. The estimated increase in the number of bicycle commuters resulting from implementation of this plan is five percent, or 279. The figures are substantiated in the following three paragraphs.

Oceanside has a population of approximately 161,029 (from SANDAG Census 2000 Profile, June 2003). According to the Census profile, approximately 60 percent of the population is employed, or 72,108 out of 120,323 people for the City of Oceanside. SANDAG's Census Profile estimates that there are 69,450 people who commute to work and of that, 266 use the bicycle as a means of transportation. Those results indicate that less than 1 percent of the commutes are done by bicycle.

To this number must be added children who ride bikes to school. According to Census Profile, the school age population (5-17 years old) is 28 percent of the overall population, or 44,458. According to surveys conducted at area schools for other similar studies over the last several years, roughly 1.5 percent of school age children ride bikes to school or 667 in Oceanside.

These additional 667 school age bicycle commuters added to the 266 adult commuters yields an estimated City total of 933 bicycle commuters, or less than 1 percent of Oceanside's total population of 161,029. The estimated increase resulting from implementation of this plan is 47, or 5 percent more than the current 933 bicycle commuters in Oceanside, totaling 980. (Note that using SANDAG Census 2000 Profile data likely underestimates bike commuter numbers because the Census only asks for the primary transportation mode to work, missing the once or twice a week bike commuter. Also, more commuters are likely to bicycle in Southern California than the national average.)

(b) A map and description of existing and proposed land use and settlement patterns which shall include, but not be limited to, locations of residential neighborhoods, schools, shopping centers, public buildings and major employment centers.
See Figure 2.1 Existing Land Use and Figure 2.2 Planned Land Use.

(c) A map and description of existing and proposed bikeways.
See Figure 2.15 Existing Bicycle Facilities and Figure3.1 Planned Bicycle Facilities.

(d) A map and description of existing and proposed end-of-trip bicycle parking facilities. These shall include, but not be limited to, parking at schools, shopping centers, public buildings and major employment centers.
See Figure 2.9 Activity Centers.

(e) A map and description of existing and proposed bicycle transport and parking facilities for connections with and use of other transportation modes. These shall include, but not be limited to, parking facilities at transit stops, rail and transit terminals, ferry docks and landings, park and ride lots, and provisions for transporting bicyclists and bicycles on transit or rail vehicles of ferry vessels.
See Figure 2.14 Bus Stop Boarding and Alightings and Figure 2.16 Sprinter and Coaster Station Alignments.

(f) A map and description of existing and proposed facilities for changing and storing clothes and equipment. These shall include, but not be limited to, locker, restroom and shower facilities near bicycle parking facilities.
See Figure 2.9 Activity Centers.

(g) A description of bicycle safety and education programs conducted in the area included in the plan, efforts by the law enforcement agency having primary traffic law enforcement responsibility in the area to enforce provisions of the Vehicle Code pertaining to bicycle operation, and the resulting effect on accidents involving bicyclists.
Bike lanes, bike routes and Yield to Bike signs are used throughout the City of Oceanside to remind motorists to expect bicyclists on the streets. In 2008, the City will be installing additional “Share the Road” signs throughout the City. Free League of American Bicyclists (LAB) Road 1 classes are offered to Oceanside residents through the San Diego County Bicycle Coalition. The plan is to offer the BikeEd Road 1 course to the community next year through the City of Oceanside Parks and Recreation Department. Parks and Recreation provides a children’s coloring book that includes bike safety. Bicycle safety materials are made available to the public through the San Diego County Bicycle Map that includes the Oceanside area and provides Bicycle Rules of the Road. This map is available at City Hall. There are currently thirteen League Cycling Instructors in the County who are authorized to teach this course with two residing in Oceanside, Dolores Wells and Pete Penseyres.

In past years, the City has hosted a pit stop on Bike to Work Day and advertised in the Oceanside Magazine and local television station KOCT. The city will continue to host a pit stop during Bike to Work Day. The City also promotes bicycling through the Oceanside Family Bike Day. This is a ride along the seven mile San Luis Rey Bike Path. The Bike MS Bay to Bay Tour, which is a fundraising event to help the Pacific Coast Chapter of the National Multiple Sclerosis Society (NMSS), will also have a stop in Oceanside at Buccaneer Park. Other bicycling efforts within the City of Oceanside include a yearly triathlon, as well hosting the start of the Race Across America. This race is the longest running bicycle endurance competition in the world.

Opportunities to rent bicycles within the City are provided through the Dasani Blue Bike Program and Cobi Rentals which provides rental bicycles at the beach. Approximately 80 riders per month have been using the Dasani Blue Bike Program.

The local police department is aware of the concerns of the cyclists in the community. The police department traffic sergeant attends and works closely with the Oceanside Bicycle Committee. The police department has been provided with materials to train police officers and the department has committed to officer training in bicycle issues. There are currently seven bicycle officers with the Resource Team that patrols the downtown and beach areas.

(h) A description of the extent of citizen and community involvement in development of the plan including, but not be limited to, letters of support.

Community involvement consisted of the first public workshop on February 2, 2008 at the Oceanside Public Library in which over 50 people attended. This was the public meeting to introduce the Bikeway Master Plan (BMP) to the community. The first hour was dedicated to talking about the BMP, while the second hour presented was used to answer questions and work with attendees on what they would like to see to make Oceanside a more bike friendly community. Some issues raised by the public were the completion of the Coastal Rail Trail and the Inland Sprinter Trail. One of the most common topics attendees mentioned was both driver and cyclist education. Maintenance of existing facilities was also a topic discussed throughout the workshop.

The second workshop was conducted on May 10th at the Oceanside Public Library. Twenty people attended this final workshop to discuss the proposed routes recommended in this plan and to add, remove or alter recommended routes. The four Es were also discussed on presentation board; Education, Enforcement, Engineering and Encouragement. There was no presentation since this workshop was a more open forum where the attendees discuss issues and concerns with the consultant team and City staff.

A total of 157 surveys were compiled throughout the length of the project. Adding more bike lanes and Class 1 bike paths is a priority in most surveys as well as repairing existing streets and intersections and filling in facility gaps. Increasing public education on sharing the road regular maintenance were also high priority issues. An employer providing showers and bike storage facilities was one of the lowest priorities.

Just less than half of the survey participants stated they bicycle for transportation and mostly 2-3 days per week. Most bicycle for exercise and recreation 2-3 days per week and mostly on weekend mornings and afternoons. Bicycling is also a family activity for over 55 percent of the survey participants and is done on a weekly basis mostly during weekend afternoons.

(i) A description of how the bicycle transportation plan has been coordinated and is consistent with the local or regional transportation, air quality or energy conservation plans, including, but not be limited to, programs that provide incentives for bicycle commuting.

The selection of new bikeways proposed in this plan reflects review of regional transportation plans by providing linkages to regional bikeways wherever possible. The City of Oceanside has yet to implement some of the programmed bikeway facilities in the 1995 General Plan and Circulation Element. Segments recommended in this update are intended to fill gaps in the existing system and look at alternatives to programmed and suggested facilities. The remainder is intended to provide school age children with safer routes to elementary and middle schools. This plan also works to make bicycle travel within the City of Oceanside more convenient and safe so that people are encouraged to reduce their motor vehicle travel in lieu of bicycles by providing more direct and consistent routes.

(j) A description of the projects proposed in the plan and a listing of their priorities of implementation.

See Chapter 5: Prioritized Projects and Bikeway Funding.

(k) A description of past expenditures for bicycle facilities and future financial needs for projects that improve safety and convenience for bicycle commuters in the plan area.

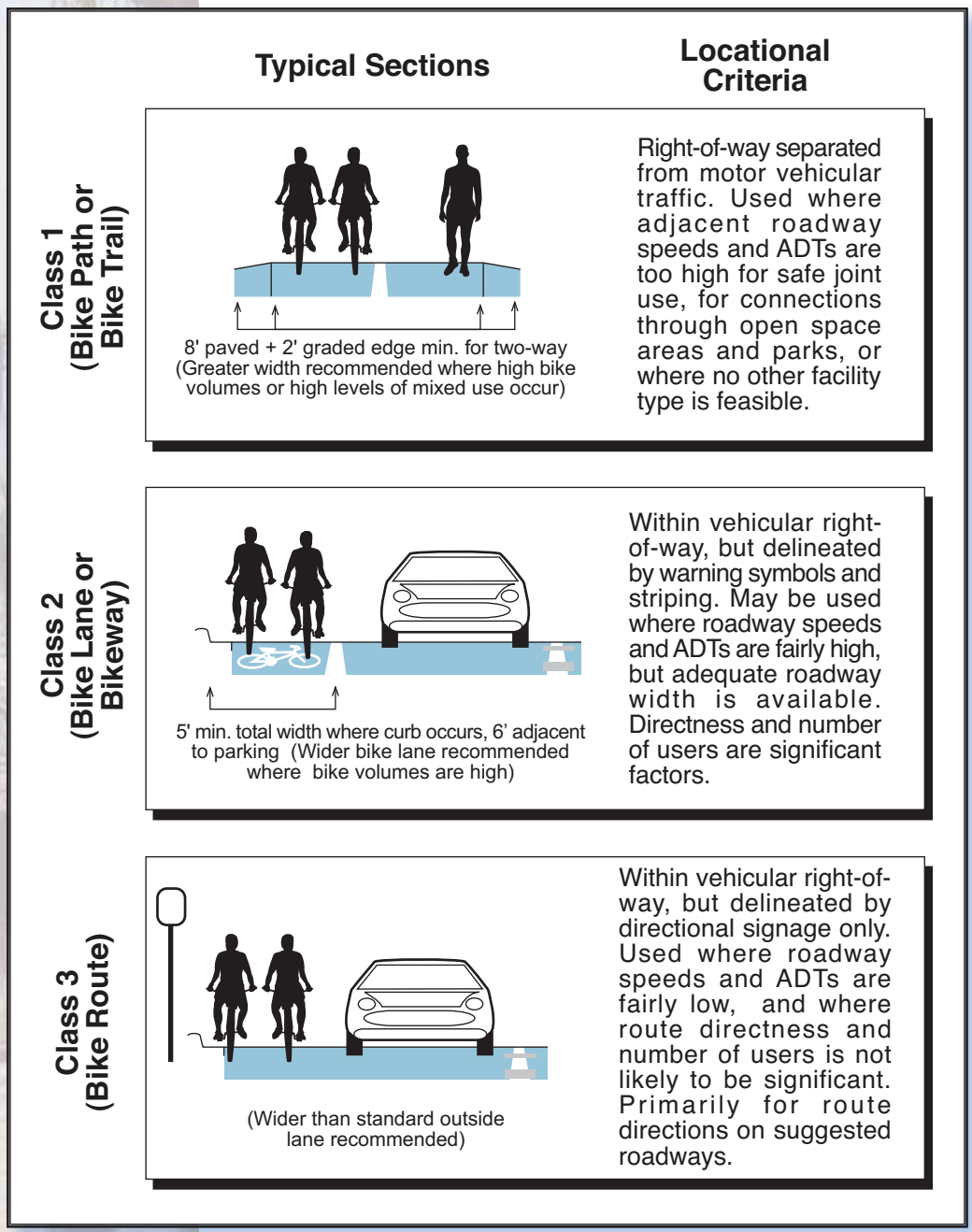
The City of Oceanside currently spends $10,000 a year on sweeping and maintenance on the San Luis Rey River Trail. Sweeping occurs once a month along the length of the path. Street sweeping occurs twice a month. The City just purchased a stencil for the Shared Arrow or "Sharrow" to be painted along the length of Pacific Street. This one time purchase of the stencil was $600. Installation of these stencils is $75 per location with 25 locations planned along Pacific Street. The grand total for the improvement along Pacific Street is $1,875. Phase 2 of the San Luis Rey River Trial extension from College Boulevard to North Santa Fe Road will cost $488,000.

1 Introduction

1.1 Project Scope

The purpose of this plan is to identify the existing conditions, analyse the needs and future growth of the city and develop recommendations to achieve a bicycle friendly atmosphere within the City of Oceanside. This will allow the Bicycle Master Plan to determine the needs and feasibility of proposed projects from the 1995 City of Oceanside General Plan. Included in this report is the current circulation element, existing and proposed land use, existing and proposed bicycle facilities along with collisions, bikeway facility types, activity locations, public transportation and studies and policies related to bicycle facilities. The ultimate goal of the this Bicycle Master Plan is to assisting in designating the City of Oceanside as Bicycle Friendly Community through criteria and improvements set forth by the League of American Bicyclists.

Figure 1.1 Bikeway Facility Types



1.2 Field Work

Field work was conducted in November 2007 through the spring in 2008 under mostly sunny skies and temperatures between 65-80 degrees. Much of the fieldwork consisted of riding these facilities with bicycles to obtain first hand experience on the facilities. Members of the Oceanside Bicycle Committee assisted in field visits to help identify issues throughout the City.

1.3 Bikeway Facility Types

Bikeway facilities considered for this study include Class 1 bike paths, Class 2 bike lanes and Class 3 bike routes. The following text and graphics describe their relative uses and attributes. (See figure at left.)

1.3.1 Class 1 Bike Paths

Class 1 bike paths are hard-surface routes within an exclusive right-of-way physically

separated from vehicular roadways and intended specifically for non-motorized use. They are generally two-way with center striping, with a minimum paved width of eight feet, with an additional two feet of graded edge on each side, for a total of twelve feet. These facilities, although funded and designated as bikeway facilities, are frequently used by other non-motorized users and should be designed to account for them. Where volumes are anticipated to be high, and where significant numbers of other user types will be likely to use the path, additional width should be provided.

1.3.2 Class 2 Bike Lanes

Class 2 facilities are marked bicycle lanes within roadways adjacent to the curb lane, delineated by appropriate striping and signage. Bicycle lanes help to delineate available road space for preferential use by cyclists and motorists, and to promotee more predictable movements by each. Bicycle lane markings can increase a cyclist's confidence in motorists not straying into his/her path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid cyclists on their right.

Class 2 Bike Lane (Lake Boulevard)

Bicycle lanes must be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic. Two-way bicycle lanes on one side of the roadway are unacceptable because they promote riding against the flow of motor vehicle traffic. Wrong-way riding is the primary cause of bicycle crashes and violates the "Rules of the Road" stated in the Uniform Vehicle Code. Bicycle lanes on one-way streets should be on the right side of the street. In unique situations, it may be appropriate to provide a contra-flow bicycle lane on the left side of a one-way street where it will decrease the number of conflicts (e.g., those caused by heavy bus traffic). Where this occurs, the lane should be marked with a solid, double yellow line and the width of the lane should be increased by one foot.

Under ideal conditions, the minimum bicycle lane width is five feet, but certain edge conditions can dictate additional desirable bicycle lane width. However, even where roadway width is available, Class 2 bike lanes should be no wider than eight feet to prevent the appearance of a travel lane that could encourage motorists to drive in them.

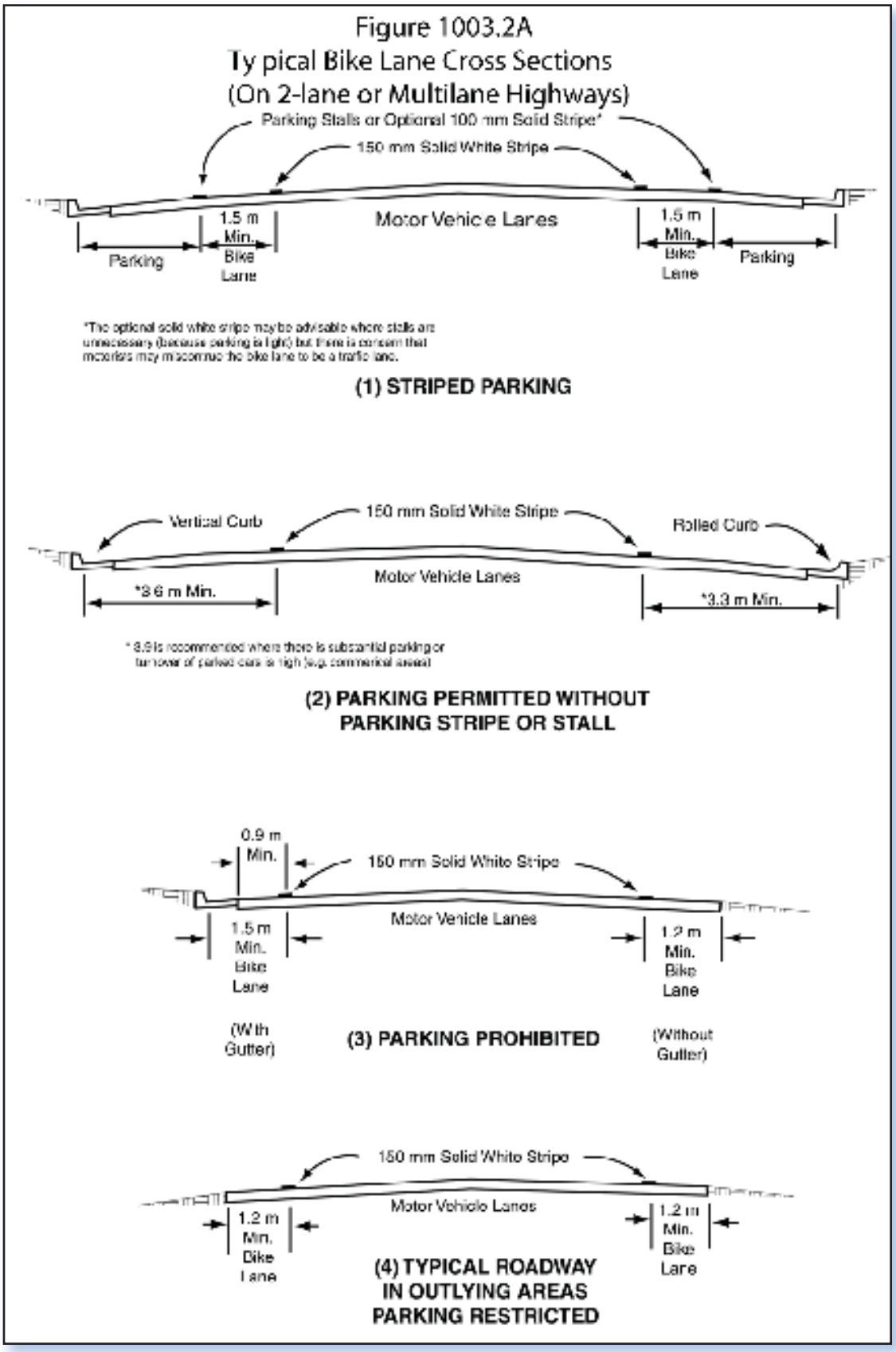
If parking volume is substantial or turnover is high, an additional one or two feet of width is desirable for safe bicycle operation. Bicycle lanes should always be placed between the parking lane and the motor vehicle lanes. Bicycle lanes between the curb and the parking lane can create obstacles for cyclists and eliminate a cyclist's ability to avoid a car door as it is opened. Therefore, this placement should not be considered.

The Caltrans Highway Design Manual depicts four common locations for such facilities in relation to the roadway. (See figure on next page.) The first section depicts bicycle lanes on an urban curbed street where a striped parking lane is provided. The minimum bicycle lane width for this location is five feet.

The second section depicts an urban curbed street where parking is allowed, but without striping for a separate bike lane. This parking lane shared with bicycles should be 11 to 12 feet wide (3.3-3.6 meters). 13 feet (4m) is recommended where parking turnover is high, such as commercial districts. Cyclists do not generally ride near a curb because of the possibility of debris, of hitting a pedal on the curb, of an uneven longitudinal joint, or of a steeper cross slope.

The third section shows a roadway where parking is prohibited. Bicycle lanes in this location should have a minimum width of five feet (1.5m) where a curb occurs (measured from the

Figure 1.2 Typical Class 2 Bike Lane Sections



curb face) and four feet (1.2m) where no curb is used. If the longitudinal joint between the gutter pan and the roadway surface is uneven and falls within five feet of the curb face, a minimum of four feet should be provided between the joint and the motor vehicle lanes.

The fourth section depicts lanes on a roadway without curbs where parking is prohibited.

1.3.3 Class 3 Bike Routes

A Class 3 facility is a suggested bicycle route marked by a series of signs designating a preferred route between destinations such as residential and shopping areas. A network of such routes can provide access to a number of destinations throughout the community. In some cases, looped systems of scenic routes have been created to provide users with a series of recreational experiences. In addition, such routes can provide relatively safe connections for commuting to workplaces or schools.

Class 3 Bike Route with Shared Lane Markings on Pacific Street

The designation of a roadway as a Class 3 facility should be based primarily on the advisability of encouraging bicycle use on that particular roadway. While the roadways chosen for bicycle routes may not be free of problems, they should offer the best balance of safety and convenience of the available alternatives.

In general, the most important considerations are pavement width and geometrics, traffic conditions and appropriateness of the intended purpose. A certain amount of risk and liability exists for any area that is signed as a Class 3 bike route. The message to the user public is that the facility is a safe route. Therefore, routes should not be placed on streets that do not meet appropriate safety standards.

How appropriate a particular roadway is for a bicycle route include directness, connectivity with other bicycle facilities, scenery and available services. Directness is important for cyclists traveling for a purpose, such as commuting, though this is not the case for recreational riders, for whom scenery or fitness may be the primary factor in selecting a route. For recreational riders traveling more than a few miles, services such as food, water, restrooms and pressurized air may be of interest.

According to the *Manual of Uniform Traffic Control Devices* (MUTCD), Bicycle Route Guide (MUTCD Sign Type D11-1) signs should be provided at decision points along designated bicycle routes, including signs to inform bicyclists of bicycle route direction changes and confirmation signs for route direction, distance, and destination. These signs should be repeated at regular intervals so that bicyclists entering from side streets will know that they are on a bicycle route. Similar guide signing should be used for shared roadways with intermediate signs placed for bicyclist guidance. (See below.)

Shared Lane Marking which can be found on Pacific Street

Class 3 Bike Rute Sign

2 Existing Conditions

2.1 Existing Land Use

According to SANDAG's 2006 Existing Land Use, the highest type of land use is single-family residential consisting of 25% of the City. Agriculture and field crops is the second highest land use at 13%, followed by undeveloped land at 10%, open space parks at 9% then multi-family residential at 4%. Agriculture can primarily be found along North River Road in the northeast portion of the City. Larger spans of commercial land use can be found along major arterials such as along Oceanside Boulevard, Coast Highway, Mission Avenue and College Boulevard. Industrial and Business Park centers are primarily along Oceanside Boulevard with a few industrial centers on Mission Avenue.

2.2 Planned Land Use

In 2020, single-family residential will still be the prominent land use as it increases to 32% of the occupied land. A majority of the undeveloped land becomes single-family residential and is scattered throughout the city. Most of the change occurs in the northeast portion of the City. Open space parks and preserves increases slightly to 10% while agriculture and multi-family residential remain the same. One of the larger gains in land use type is the form of industrial parks. Still primarily located along Mission Avenue and Oceanside Boulevard, there is an increase of 3% from 2% in 2006 to 5% in 2020. This increase can be found between Oceanside Boulevard and Mesa Drive to the north and south and Rancho Del Oro Drive and College Boulevard to the east and west. Just to the west of the new industrial area, the park is planned between El Camino Real and Rancho Del Oro in the El Corazon property.

2.3 Bike Commuting

Using 2000 Census information, bike commuting to work was extracted to get an idea of the distribution of bike commuters within the City. Higher densities of bike commuters are on the western end of the City along Interstate 5 where Downtown Oceanside is located and the northwestern end of State Route 76. Scattered throughout the City are pockets of higher density bike commuters along Mission Avenue, Vandergrift Boulevard, Oceanside Boulevard and Lake Boulevard.

2.4 Age Density: Under 16 Years Old

The age of a bicyclist plays a part in the analysis of potential bicycle facilities. Kids under the age of 16, or the age teenagers are able to acquire a driver's license, have a tendency to still be riding bicycles as a means of transportation. Areas of higher densities of children under the age of 16 are taken into consideration to identify potential facilities to provide a safer route to schools, parks and commercial areas. The areas of higher densities of kids under 16 years old is scattered throughout the City. Densities higher than 6 kids per acre can be found near Oceanside High School, just off Interstate 5 and off of Bush Street, just east of the City Hall. Two other areas with similar densities are along Los Arbolitos Boulevard and along North River Road just west of Libby Lake.

2.5 Employment Density

In 2000, higher employment densities are primarily found in the areas of commercial and retail land use along Coast Highway, Mission Avenue, Oceanside Boulevard and Vista Way. In 2030, the pattern of employment densities is similar but increases significantly in these same areas. As planned in 2020, industrial parks increase by 2% thus seeing an increase in employment densities in these planned industrial parks. Most notable increases are the industrial parks along west Mission Avenue and along Oceanside Boulevard from El Camino Real to College Boulevard. The corner of Lake Boulevard and College Boulevard also sees a density increase in 2030.

2.6 Population Density

According to the US Census Bureau, the population of the City of Oceanside is 161,029 people. SANDAG estimates by the 2030, the City's population will increase by 29% to 207,237 people. Population density changes are reflected in neighborhoods, just east of Interstate 5 between State Route 76 and Oceanside Boulevard. Density increases to over 25 people per acre in many areas of these neighborhoods. Other areas that see an increase are along North Pacific Street, Vandergrift Boulevard, Jefferies Ranch, and along Oceanside Boulevard near College Boulevard. The population density increase follows the single-family residential increase patterns throughout the City.

2.7 Activity centers

Activity centers such as shopping centers, parks, recreation centers and schools are dispersed throughout the City of Oceanside. Larger shopping centers are along Vista Way, Oceanside Boulevard, Mission Avenue and College Boulevard. The entire stretch along Coast Highway is predominantly commercial as it travels through downtown Oceanside.

As with many coastal cities, the beaches are one of the most popular destinations for both residents and tourists. Oceanside is no exception as it boasts eight beaches with amenities such as restrooms, picnic tables, playgrounds, barbeque grills and snack bars. Pier View South is Oceanside's most popular beach and holds many events throughout the summer including surfing and body boarding contests.

The City of Oceanside has one junior college, Mira Costa College and three high schools, Oceanside High, El Camino High and Ocean Shores High. Within the City there are eighteen elementary schools, five middle schools and four other educational institutions.

Fifty-two parks and golf courses can be found within the City limits which include some more parks currently in development. Many of these parks are neighborhood parks that attract children and families, which are major attractors for people on bicycles. There are currently two skate parks with two more in development.

Many of these activity centers can be accessed on bicycles. Many provide a place for bicycle parking while some do not.

California Street

2.8 Traffic Volumes

Average Daily Trips (ADTs) were plotted for the entire City to help determine existing conditions on the major roadways. The data was compiled into categories of zero to 5,000 at the lower end to a high end category of more than 40,000 ADTs.

Only four surface street segments routinely support traffic volumes exceeding 40,000 ADTs. Two are College Boulevard between Lake Boulevard and SR-78 and between Olive Drive and Oceanside Boulevard. The other two are a short stretch along Mission Avenue between Fireside Street and El Camino Real and El Camino Real between SR-78 and Via Las Rosas. The street segments that lead up to these sections all have high ADTs ranging from 20,000 to 30,000.

College Boulevard has the most consistently high traffic volumes as it travels in a north-south direction from SR-76 to Lake Boulevard. ADTs for College Boulevard are regularly above 30,000. Other major arterials with ADTs above 20,000 are El Camino Real, Mission Avenue, Oceanside Boulevard, Douglas Boulevard and Coast Highway.

2.9 Safety and security

Based on the City's Collision Report Summary, there have been 139 collisions involving bicyclists between 2004 and July of 2007. Of these collisions, 127 reported injuries with two fatalities. In 2004 there were 38 collisions, 41 in 2005, 42 in 2006 and 18 between January and July of 2007. The streets that have had the most bicycle related collisions are:

Coast Highway - 16
Pacific Street - 15
Mission Avenue - 8
Douglas Drive - 8
College Boulevard - 6
El Camino Real - 5
Oceanside Boulevard - 5
Old Grove Road - 5

These streets, with the exception of some segments of Coast Highway, do have bicycle facilities, mostly bike lanes. Coast Highway has a short segment of bike lane on the southern end of the City and Pacific Street is a Class 3 bike route. Coast Highway and Pacific Street are popular bicycle routes because of their proximity to the beach and commercial areas. Land use along Pacific Street is primarily single- and multi-family residential and a major thoroughfare for weekend bicyclists traveling along the San Diego County coast.

According to the summary, broadside collisions were the most common incidents, about 42 percent of all recorded collisions. An "Other" category is second with 35 percent, but the summary does not go into detail as to what "Other" entails.

The most common cause of collisions is when the motorist violates the bicyclist's right-of-way, which is about 24 percent of the time. "Unknown" and riding on the wrong side of the road are second at 16 percent, but the details of "Unknown" are not available. The City of Oceanside has put together a Bicycle Committee (BC) to oversee aspects of the bicycle master plan and other bicycle related issues in the City. They are also investigating in more detail these collisions from 2004 - 2007. Some preliminary findings are that motorists involved in a bicycle related collision have claimed that they "didn't see the cyclist." A detailed Bicycle Committee summary of the 2004 collisions states that thirty-five (35) of the car/bike collisions that occurred in 2004, fourteen (14) or fifteen (15) were the fault of the motorist and the other twenty (20) were the fault of the bicyclist. Eleven (11) of the collisions involved children under 18, of which eight (8) were the fault of the bicyclist. Twenty-four (24) involved adult bicyclists, twelve (12) of which were the fault of the bicyclists, and eight (8) of those twelve (12) were caused by the bicyclist riding the wrong way and/or on the sidewalk.

Despite the widely perceived danger of being hit from behind, only one (1) of the thirty-five (35) collisions was in this category, and it occurred after the bicyclist merged from the bike lane across two lanes of traffic into a left hand turn pocket.

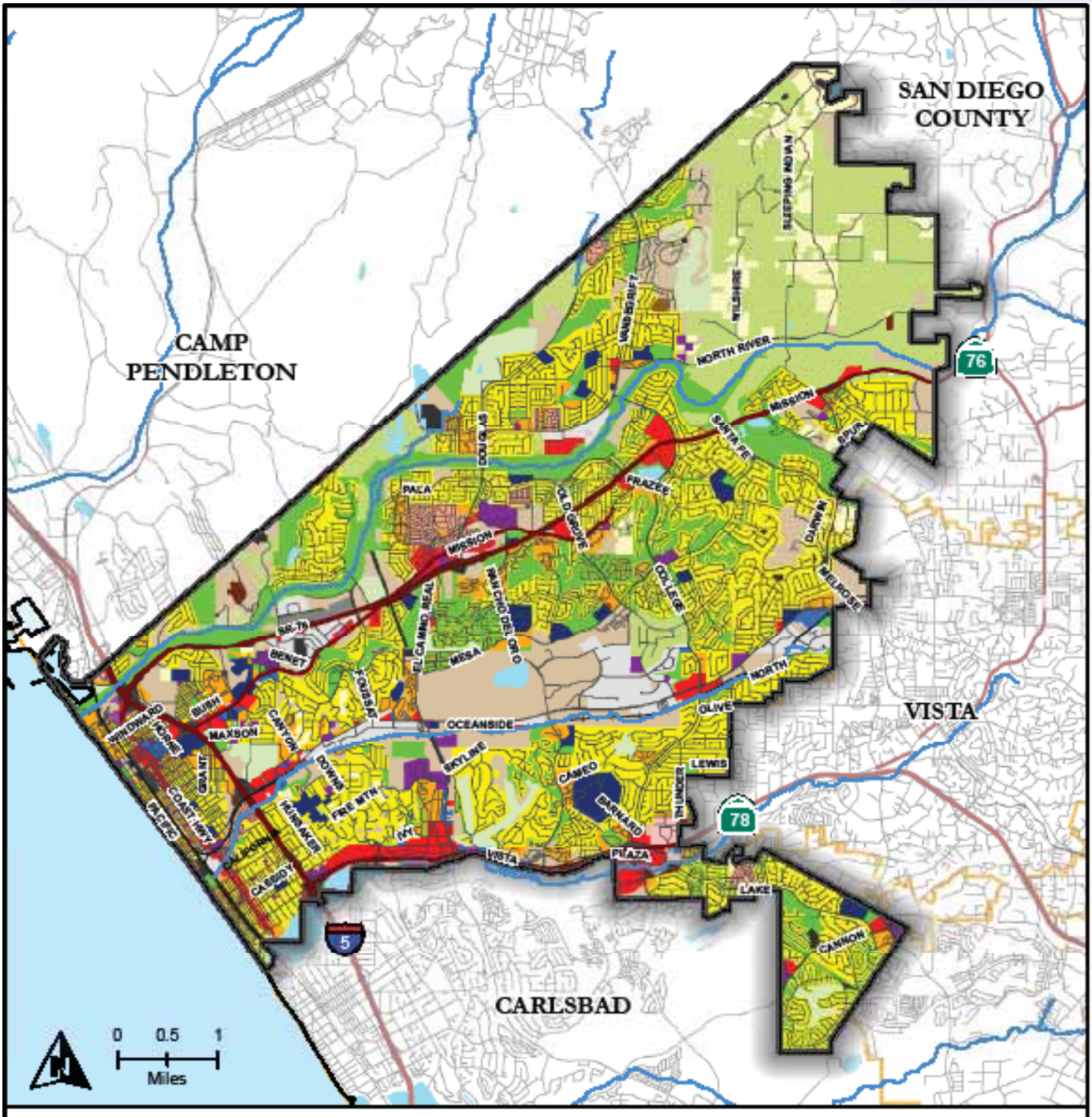


Figure 2.1 Existing Land Use

Existing Land Use (2006)

- Spaced Rural Residential
- Single Family Residential
- Multi-Family Residential
- Mobile Home Parks
- Group Quarters
- Hotel/Motel/Resort
- Light Industry
- Extractive Industry
- Junkyard/Landfill
- Airports
- Other Transportation
- Commercial
- Office
- Public Services
- Hospitals/Health Care
- Military
- Schools
- Recreation
- Parks and Open Space
- Agriculture
- Undeveloped Land
- Water Bodies
- Under Construction

Data Source: SANDAG (2006)

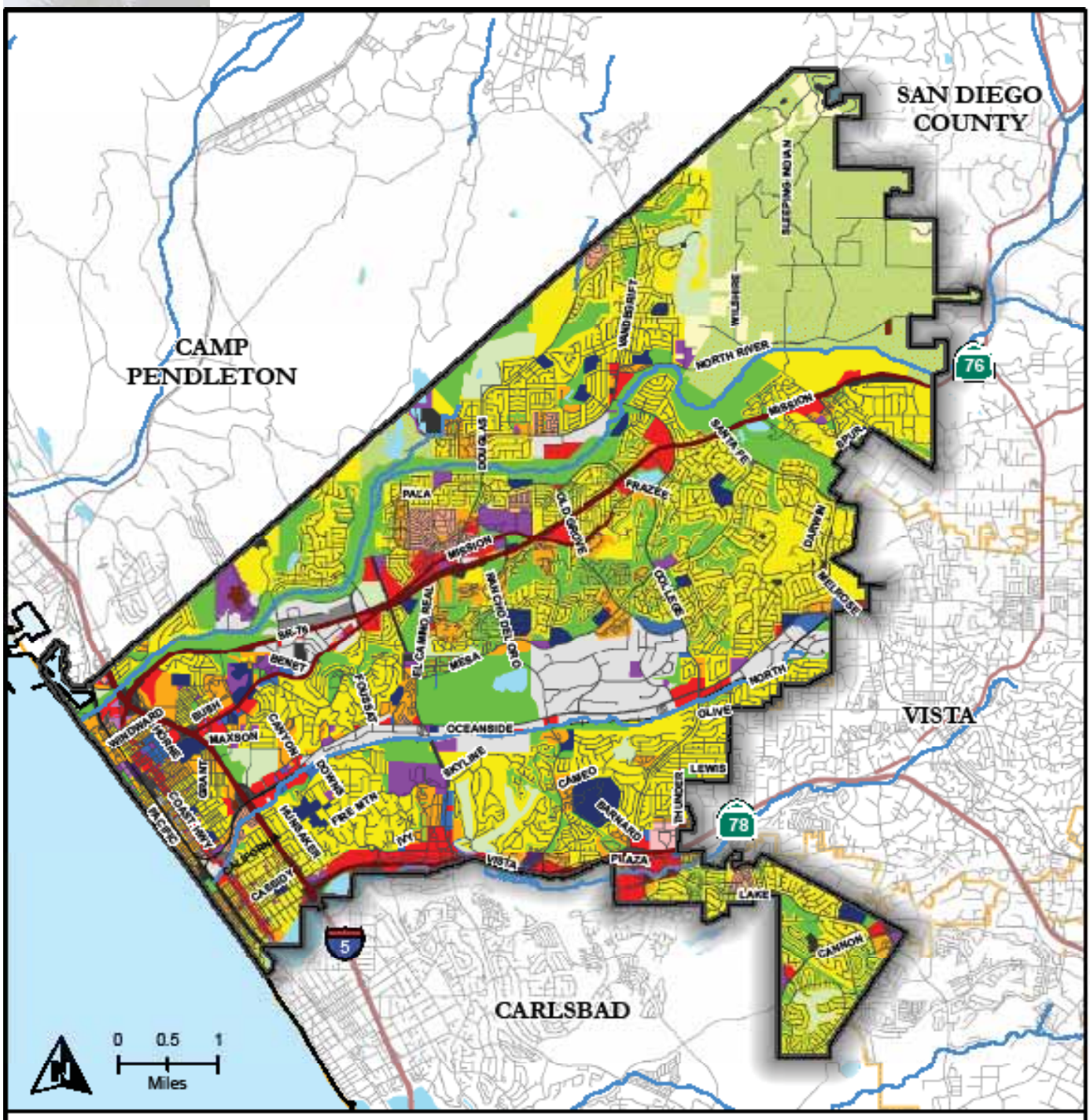


Figure 2.2 Planned Land Use

Planned Land Use

- Spaced Rural Residential
- Single Family Residential
- Multi-Family Residential
- Mobile Home Parks
- Group Quarters
- Hotel/Motel/Resort
- Light Industry
- Extractive Industry
- Junkyard/Landfill
- Airports
- Other Transportation
- Commercial
- Office
- Public Services
- Hospitals/Health Care
- Military
- Schools
- Recreation
- Parks and Open Space
- Agriculture
- Undeveloped Land
- Water Bodies
- Under Construction
- Mixed Use

Data Source: SANDAG (2006)

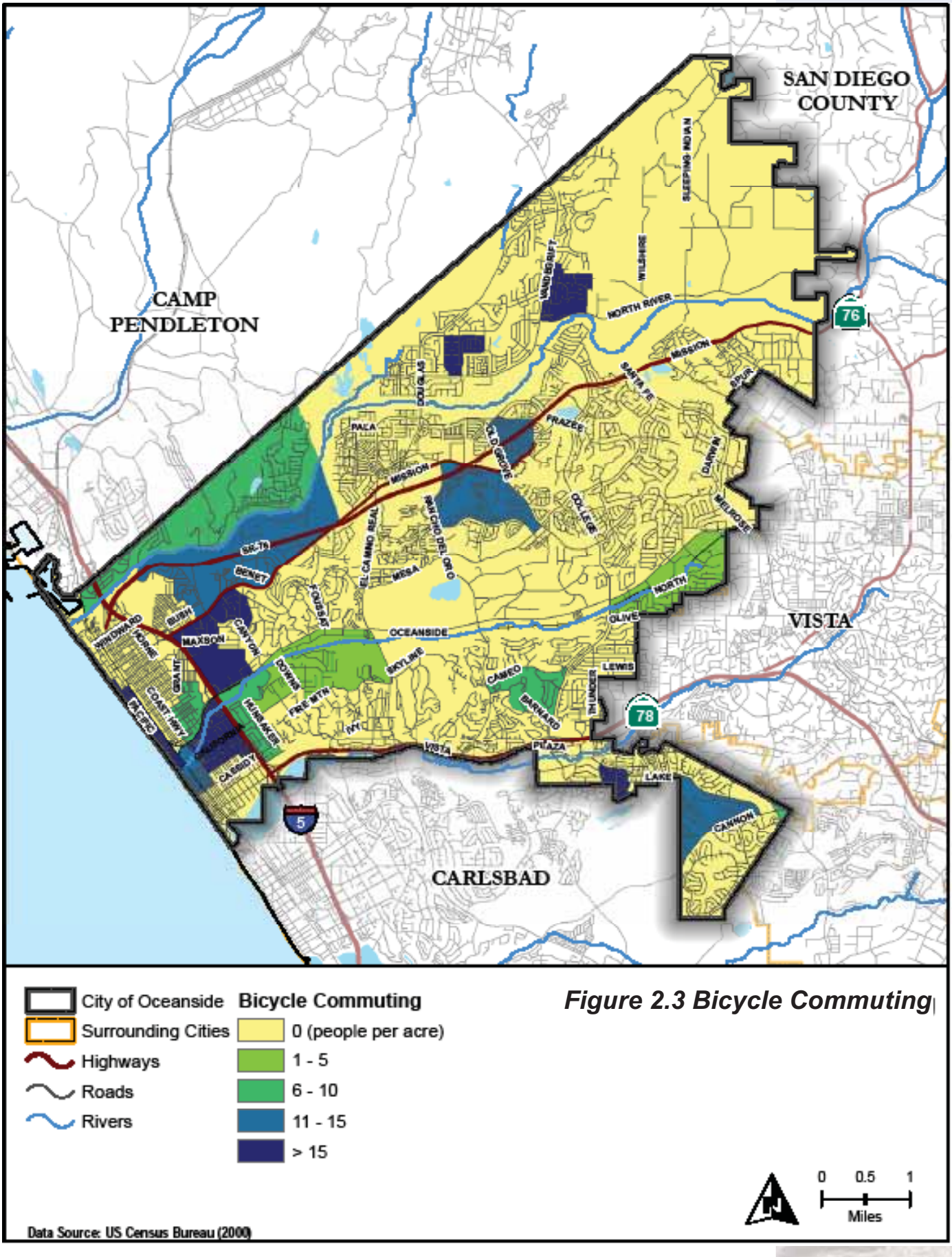


Figure 2.3 Bicycle Commuting

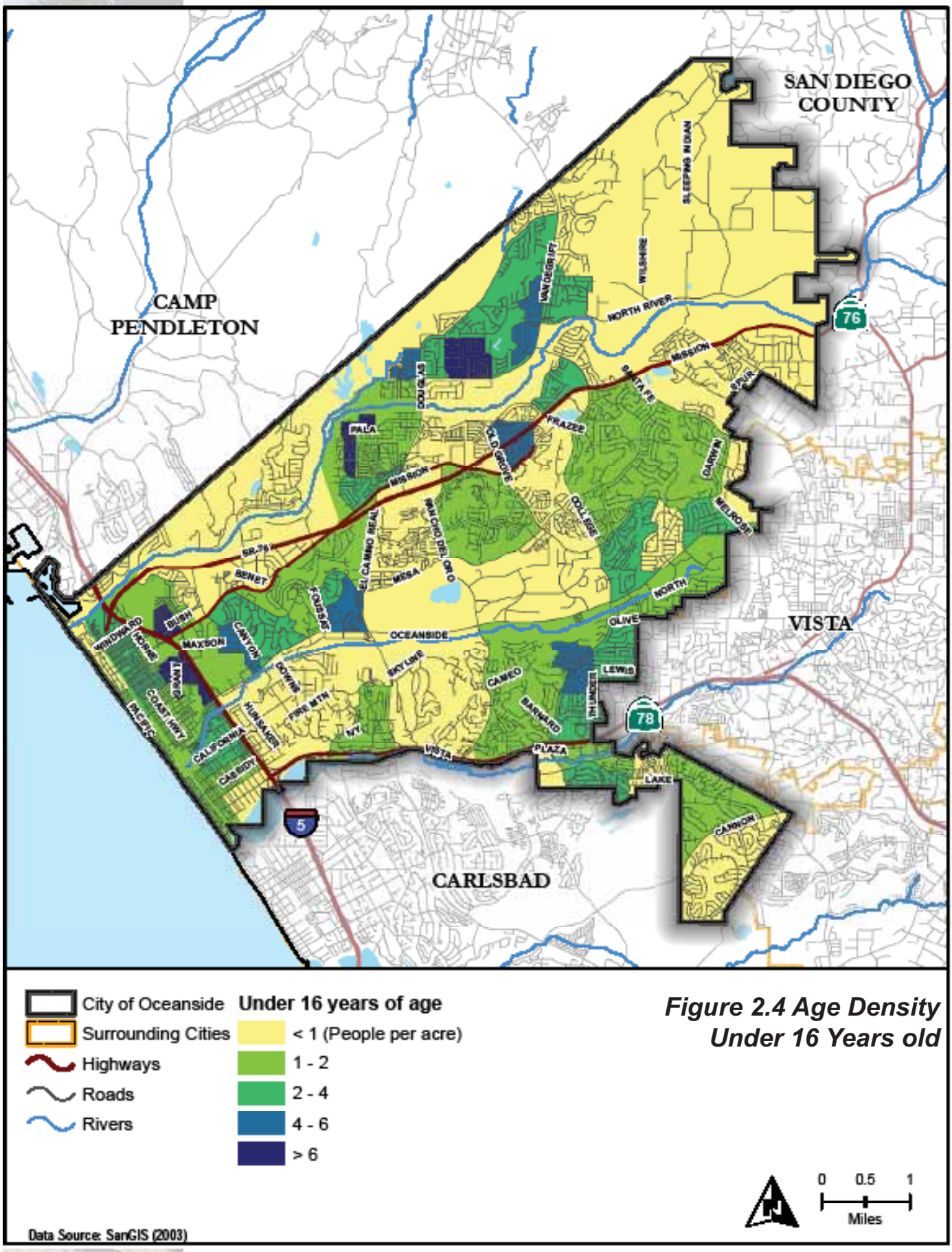


Figure 2.4 Age Density Under 16 Years old

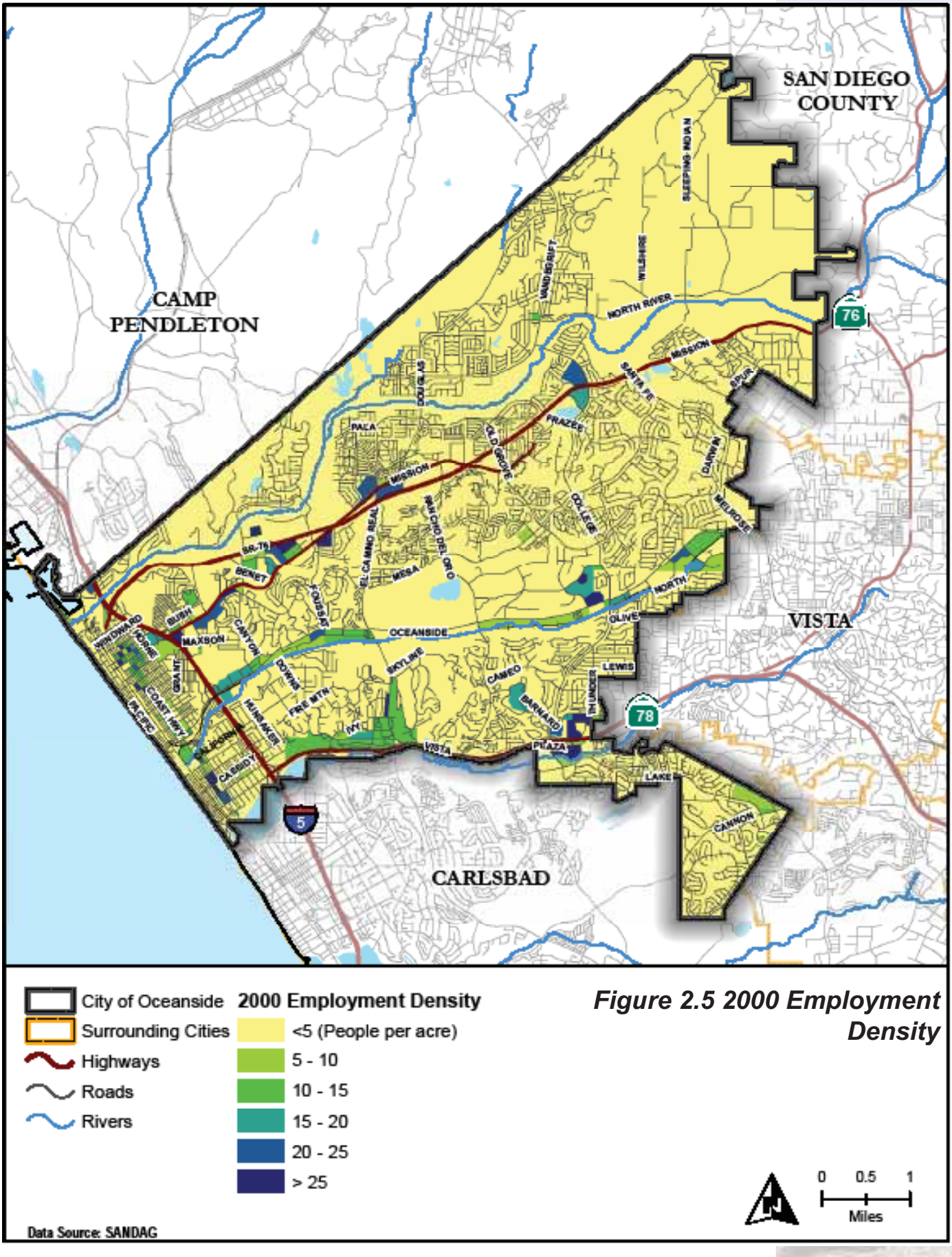


Figure 2.5 2000 Employment Density

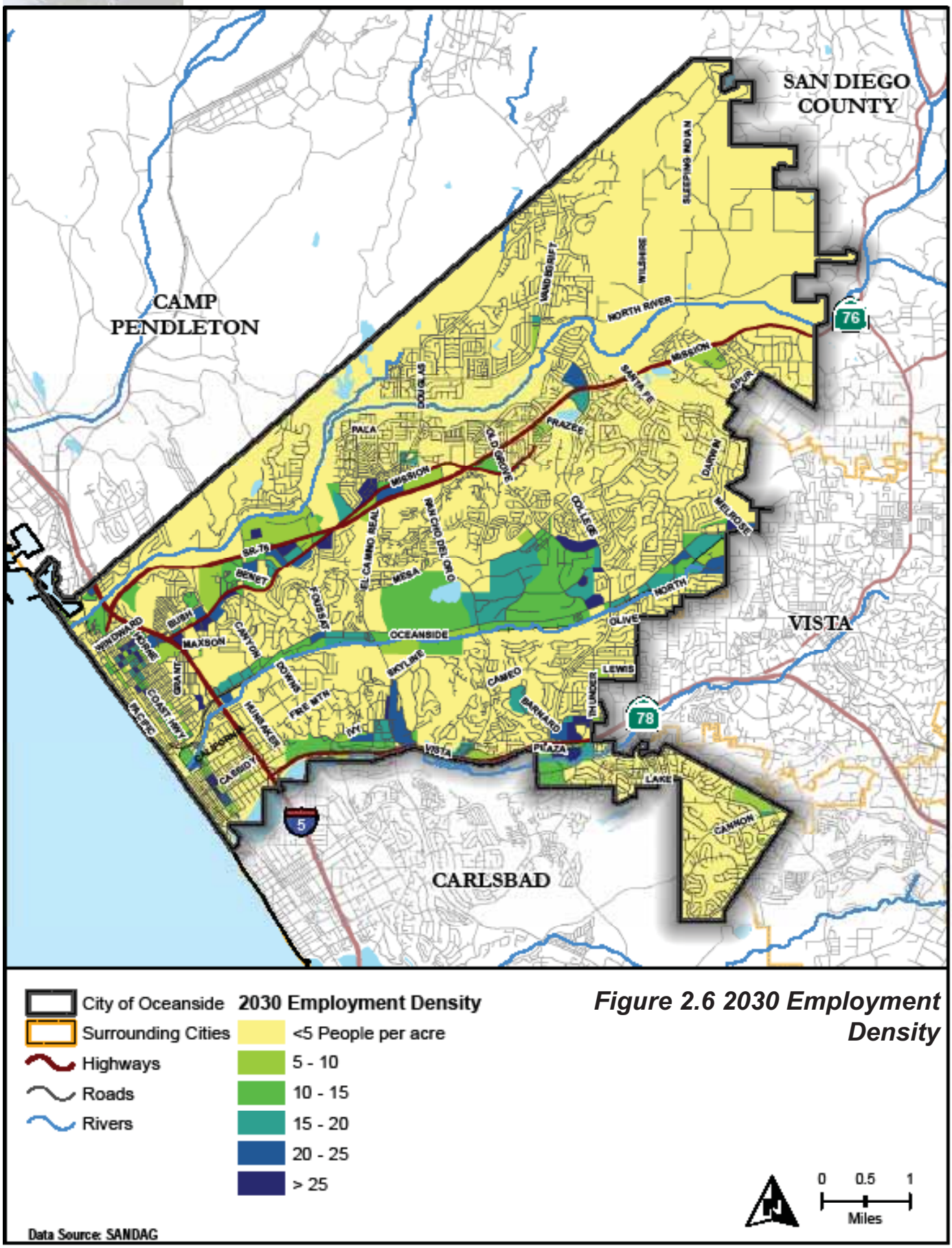


Figure 2.6 2030 Employment Density

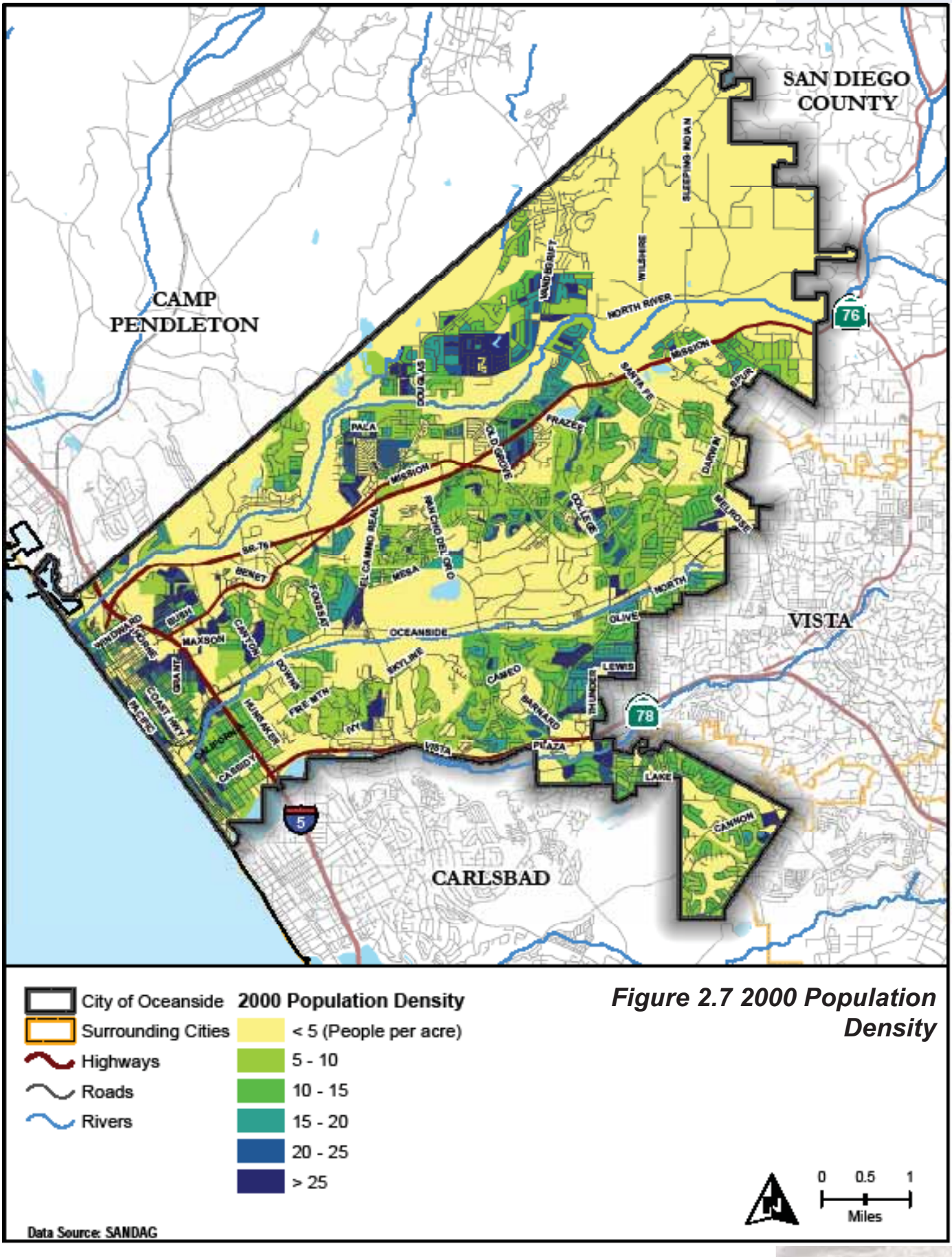


Figure 2.7 2000 Population Density

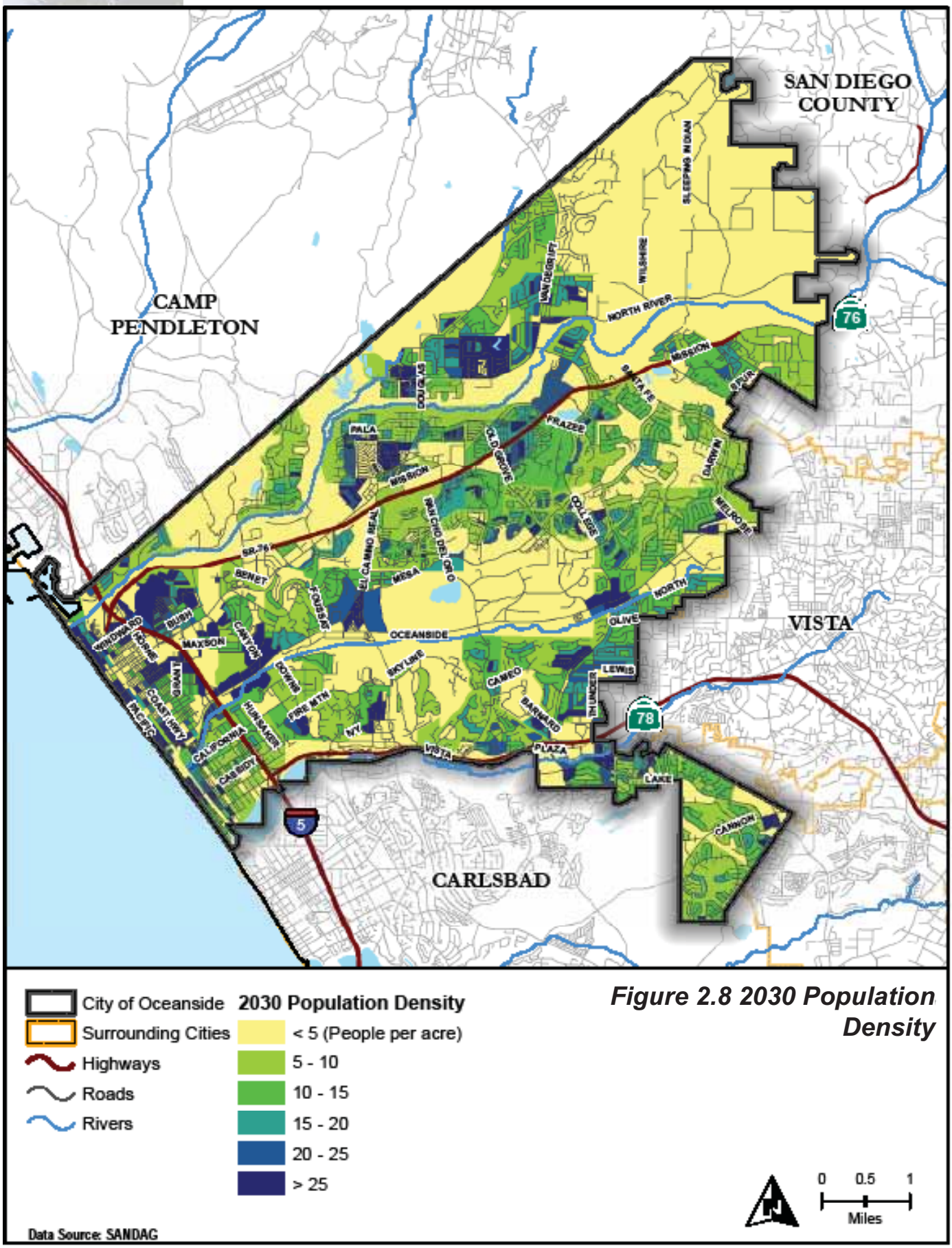


Figure 2.8 2030 Population Density

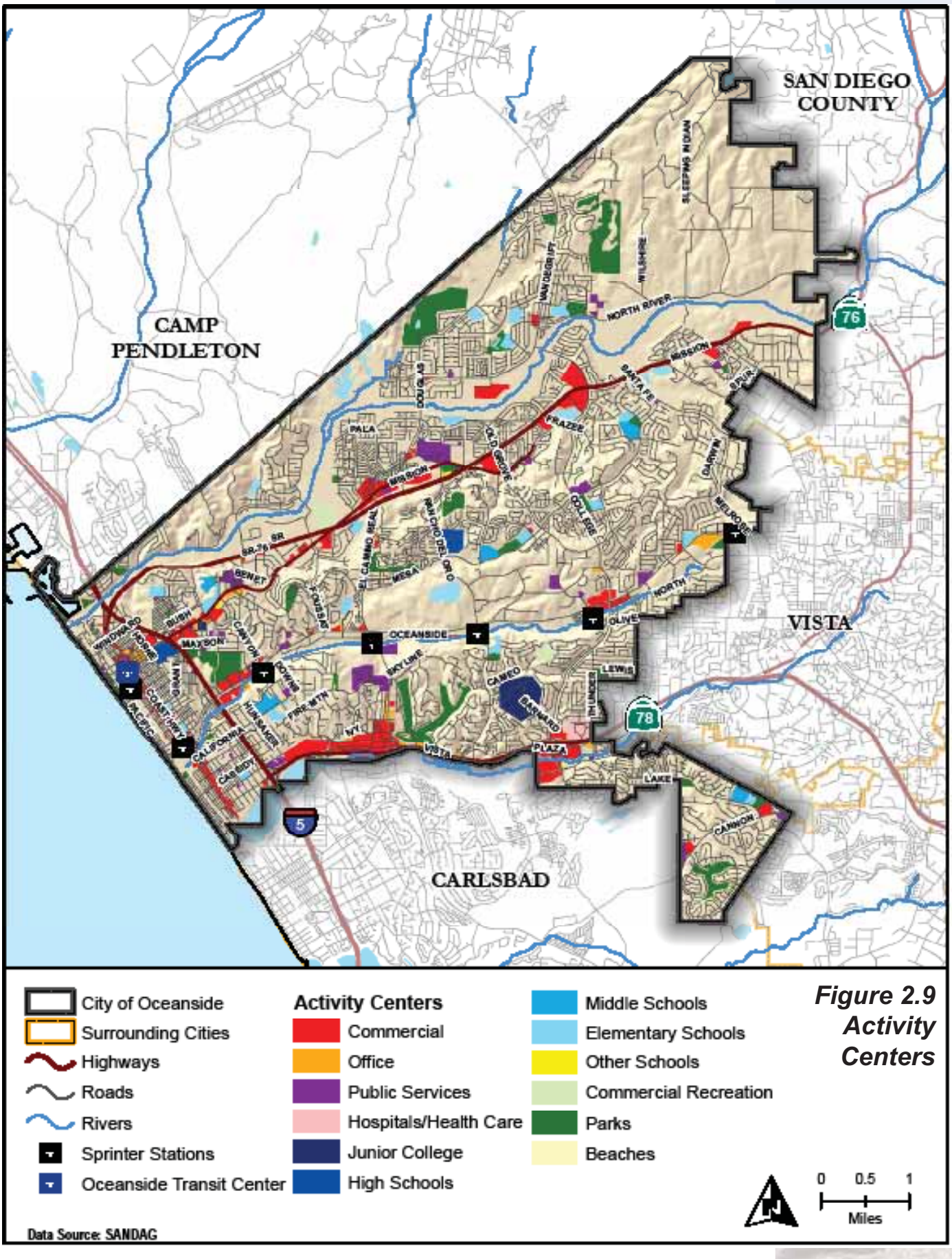


Figure 2.9
Activity Centers

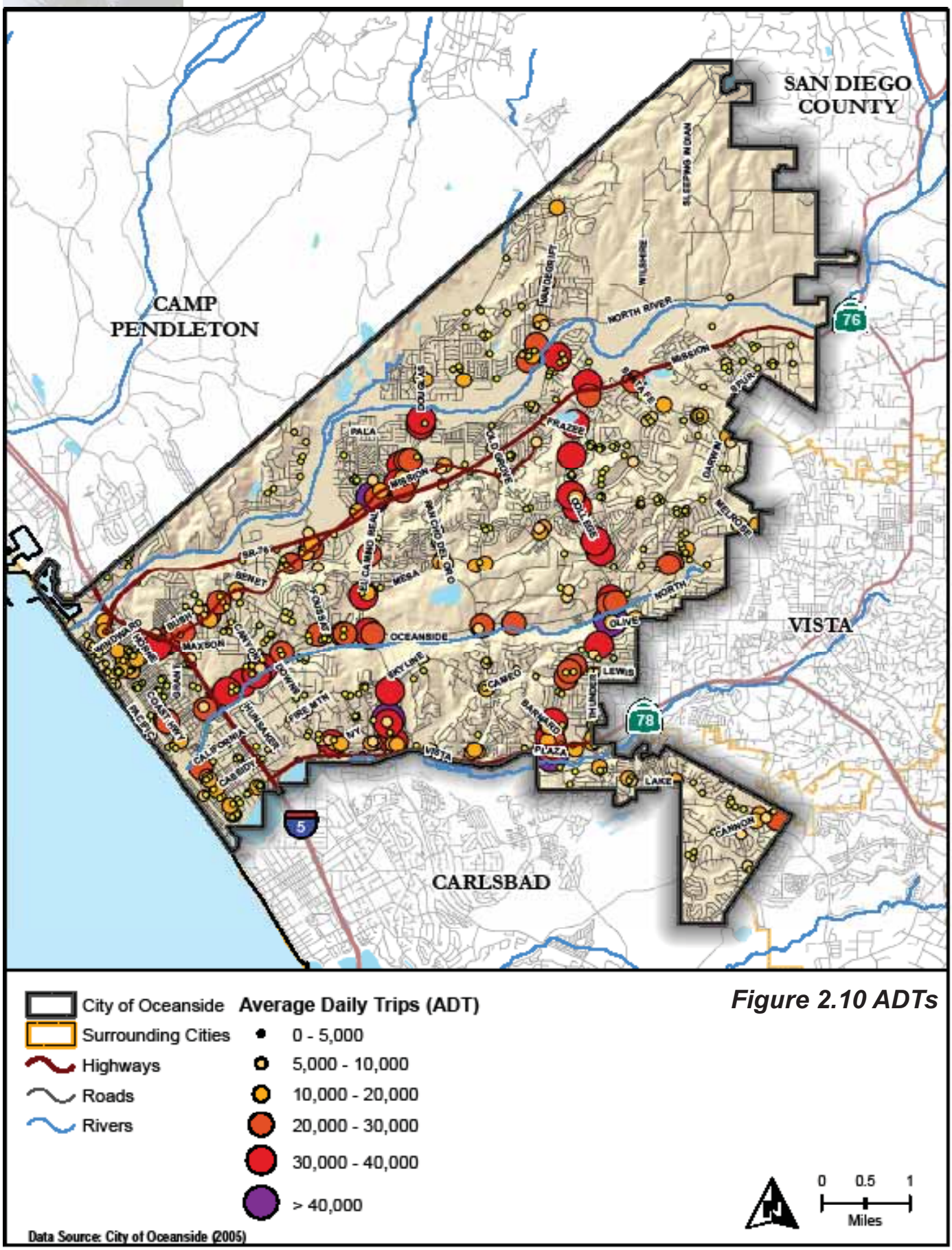


Figure 2.10 ADTs

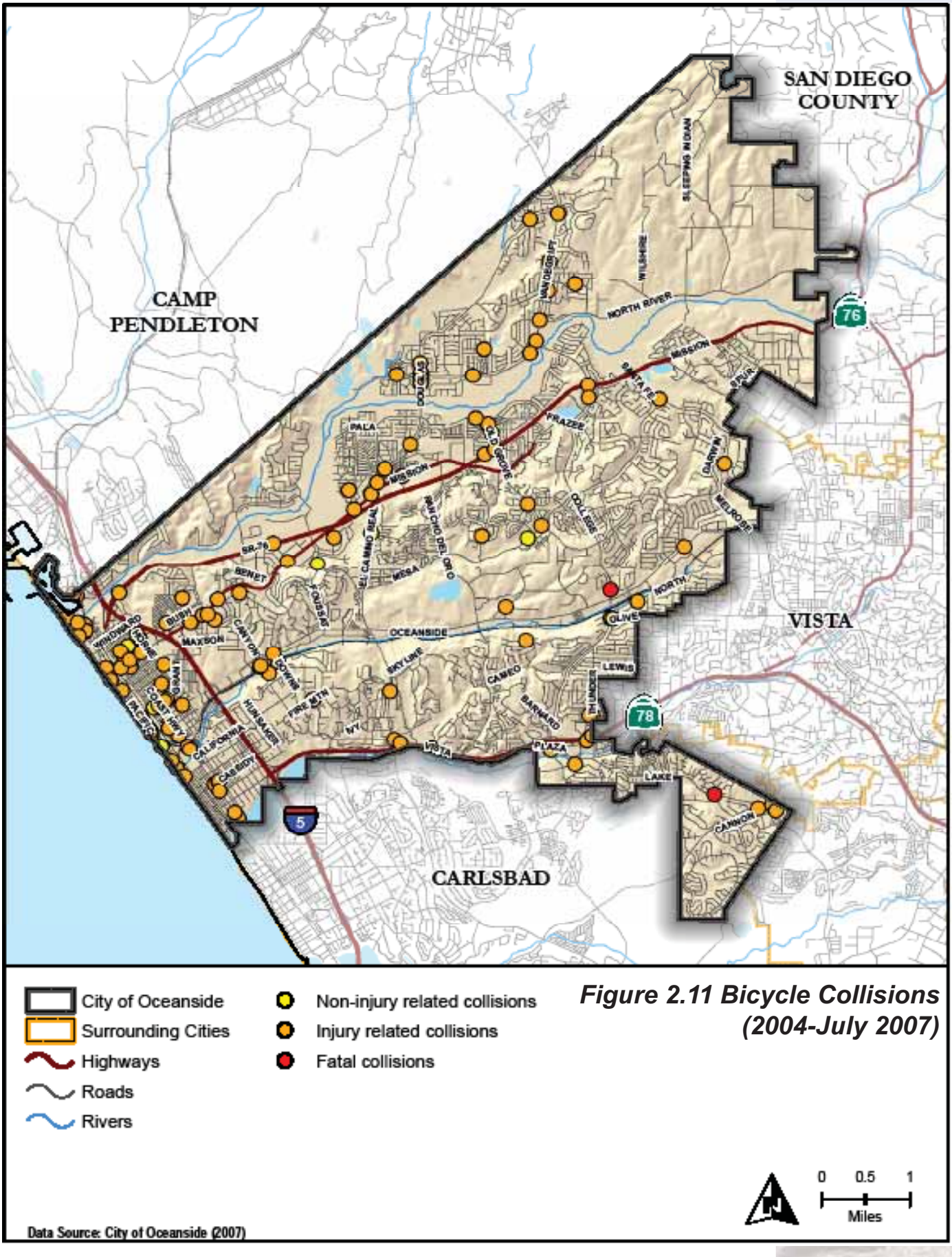


Figure 2.11 Bicycle Collisions (2004-July 2007)

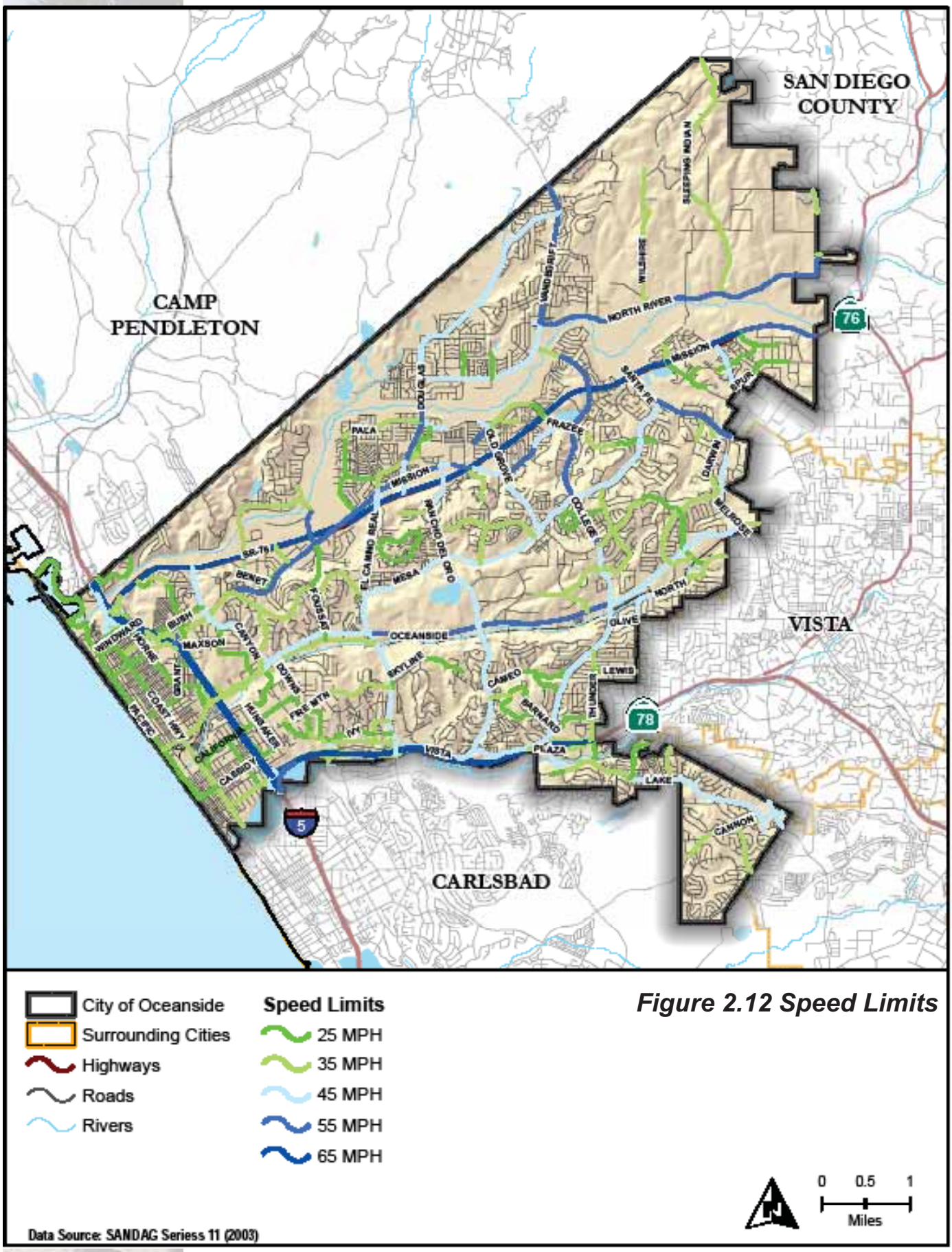


Figure 2.12 Speed Limits

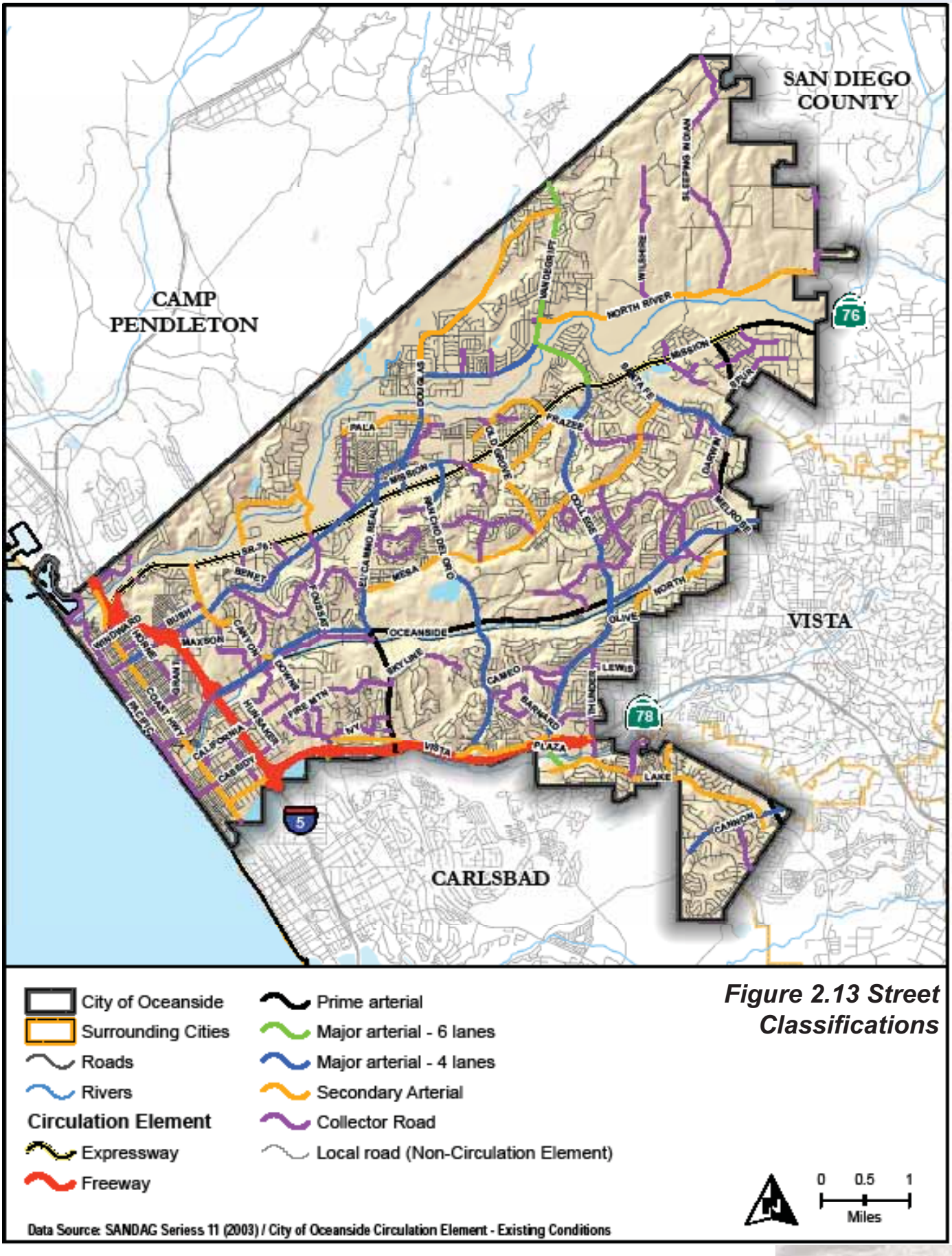


Figure 2.13 Street Classifications

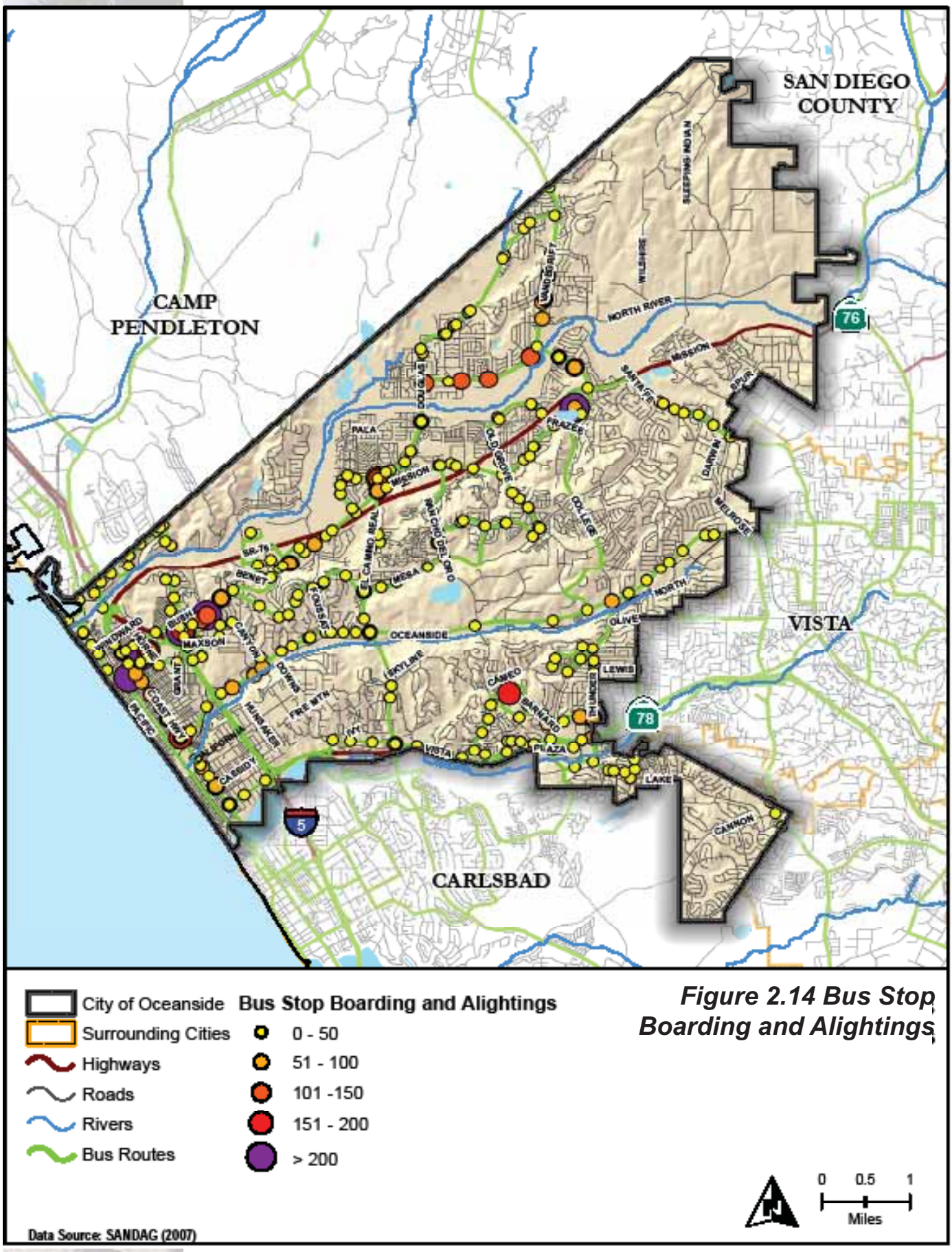


Figure 2.14 Bus Stop Boarding and Alightings

2.10 Existing bicycle facilities and major street segments

2.10.1 Downs Street

Lanes: 2
Existing bicycle facility: Class 3 Bike Route
Adjacent Land Use: Residential
Speed limit: 25-30 mph
Signage is not properly placed at the beginning of the route and there is no directional or destination signage. Downs Street has low traffic volumes with adequate width to accommodate a bike route.

2.10.2 California Street

Lanes: 2
Existing Bicycle Facility: Class 3 Bike Route
Adjacent Land Use: Residential
Speed Limit: 25 mph
Signage is not properly placed at the beginning of the route and there is no directional or destination signage. California Street has low traffic volumes with adequate width to accommodate a bike route and a bridge crossing over I-5 with only a northbound on-ramp.

2.10.3 Morse Street

Lanes: 2
Existing Bicycle Facility: Class 3 Bike Route
Adjacent Lane Use: Residential
Speed Limit: 25 mph
Morse Street is a short segment with no signage at California Street and Coast Highway indicating it is a bike route.

2.10.4 Fire Mountain Drive

Lanes: 2
Existing Bicycle Facility: Class 3 Bike Route
Adjacent Land Use: Residential
Speed Limit: 30 mph
Fire Mountain Drive is primarily adjacent to residential land use with some commercial at the intersection of El Camino Real. Signage is not properly placed at the beginning of the route with no directional or destination signage. It has low traffic with adequate roadway width to accommodate a Class 3 route.

2.10.5 Foussat Road

Lanes: 2
Existing Bicycle Facility: Class 3 Bike Route and a programmed Class 2 bike lane between Mission Avenue and Benet Road.
Adjacent Land Use: Primarily residential with some open space and commercial
Speed Limit: 20-35 mph
There is limited signage and when present, not at the beginning of the route. Primarily low traffic as it's adjacent to mostly residential land use.

Eastbound North River Road

2.10.6 North River Road

Lanes: 2-4
Existing Bicycle Facility: A Class 2 Bike Lane and a Class 3 Bike Route and a programmed Class 2 Bike Lane throughout
Adjacent Land Use: Rural residential and agriculture
Speed Limit: 45-50 mph
Bike lanes exist between Vandergrift Boulevard and Stallion Road before it turns into a bike route. Very little to no shoulder available to

allow a buffer between bicyclists and vehicles except for a few short sections where wider shoulders are present. Speeds are quite high with many blind turns and large trucks traveling this route. This road is a highly utilized route for bicyclists entering Oceanside from Bonsall and SR-76. Road conditions are very poor with glass and potholes on both lanes of the road.

Pacific Street

2.10.7 Pacific Street

Lanes: 2
Existing Bicycle Facility: Class 3 Bike Route
Adjacent Land Use: Primarily residential with some commercial
Speed Limit: 25 mph
Signage exists, but is inadequate since only two intersections (Wisconsin and Surfrider) have bike route signs and no directional signage. The speed of most vehicles is moderate with parallel parking throughout and residential driveways. The lanes are about eight feet wider north of Wisconsin Avenue than south of Wisconsin Avenue. This route is heavily used by bicyclists traveling north-south along the coast and to access the beach and downtown areas. Northbound Pacific Street, as it crosses the San Luis Rey River, is narrow with no shoulder on the blind turn towards the coast. There is not enough room to distance bicyclists from a passing vehicle. A new bridge on North Pacific Street is under construction and will have striped Class 2 bike lanes.

Shared Lane symbols or "Sharrows" have been installed on Pacific Street in addition to the current signage.

2.10.8 Sleeping Indian Road

Lanes: 2
Existing Bicycle Facility: None
Adjacent Land Use: Rural residential and agriculture
Speed Limit: 25 mph
This road is primarily a low speed rural residential road, but is occasionally traversed by larger vehicles such as semi trucks and delivery trucks that access the agricultural areas. Sleeping Indian Road is programmed to be a Class 3 bike route.

The Strand

2.10.9 The Strand

Lanes: 1-2
Existing Bicycle Facility: None
Adjacent Land Use: Beach, residential and some commercial
Speed Limit: 15 mph
The southbound section is only one-way for cars from the Oceanside Pier to Wisconsin Avenue with a speed limit of 15 mph. Numerous bicyclists and pedestrians can be found riding and walking northbound on the lane if cars are not present. From the Pier northwards, it becomes a two-lane road accessing multi-family residential and beach rental property.

2.10.10 Oceanside Boulevard

Lanes: 2-6
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Industrial and commercial
Speed Limit: 25-55 mph
Bike lanes are present throughout with good signage at intersections. Bike lane striping is non-existent on the eastbound lane past the shopping center at the corner of College Boulevard. Signage exists, but the striping does not. Driveways into the shopping center intersect the street where the striping is missing.

2.10.11 Rancho Del Oro Drive

Lanes: 4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Residential, commercial and industrial
Speed Limit: 45 mph
Rancho Del Oro Drive is a north-south arterial through the center of the City. Bike lanes are present throughout except between the Sprinter tracks and Oceanside Boulevard. There is adequate room for bike lanes and striping is all that is needed to connect the bike lane segments. Rancho Del Oro Drive does not connect with SR-78 and terminates at Vista Way. The intersection of Rancho Del Oro Drive and Ocean Ranch Drive does not have appropriate striping for a Class 2 bike lane through the intersection. The bike lane is striped on the right side of the right-turn only lane.

2.10.12 Melrose Drive

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Residential
Speed Limit: 40-45 mph
There are adequate bike lanes throughout until the intersection with Santa Fe Avenue. The bike lanes do not continue to the intersection and instead end at Sagewood Drive approximately a quarter-mile before the intersection. Just south of Oceanside Blvd there seems to be two southbound bike lanes although the inner-most lane is marked as a bike lane while the outer lane is striped like a bike lane as well.

2.10.13 North Santa Fe Avenue

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Residential
Speed Limit: 50 mph
There is a short horse trail adjacent to northbound lanes on Santa Fe Avenue dead ends at Mission Avenue. Guajome County Park Lower Picnic Area is located on Sante Fe Avenue. There are adequate bike lanes throughout this street with residential the primary adjacent land use.

2.10.14 Mission Avenue

Lanes: 4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Mix of residential, industrial and commercial
Speed Limit: 25-50 mph
Mission Avenue has width adequate bike lanes, which end at Saddleridge Road just before the eastern City limit. This road is a major arterial with high speeds and busy intersections and is a major east-west connection.

Mission Avenue and El Camino Real

2.10.15 Mesa Drive

Lanes: 2-4
Existing Bicycle Facility: Class 3 Bike Route and Class 2 Bike Lanes
Adjacent Land Use: Residential
Speed Limit: 30-45 mph
Mesa Drive is a combination of Class 3 bike routes and Class 2 bike lanes. This east-west connection travels through the center of the City and is primarily adjacent to residential land use and some open space. The Class 3 section of this route is located in the western end of the City just south of Mission Avenue and then converts to Class 2 bike lanes at Foussat Road until its terminus at Santa Fe Avenue.

2.10.16 Barnard Drive

Lanes: 2
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Single and multi-family residential
Speed Limit: 25 mph
This segment connects College Boulevard with Mira Costa College.

College Blvd and Waring Rd

2.10.17 College Boulevard

Lanes: 4-6
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Single and multi-family Residential and commercial
Speed Limit: 45+ mph
College Boulevard has bike lanes throughout with a mix of residential and commercial land uses. This road is one of the major north-south connections on the east side of the City. The easternmost access point of the San Luis Rey River Trail is at the northern end of College Boulevard just south of North River Road. Just north of Oceanside Boulevard is an intersection where northbound vehicles have access to the Rancho Del Oro shopping center on the southbound side. A left turn lane allows vehicles to cross the southbound lanes and into the driveway of the Rancho Del Oro shopping center. A "Keep Clear" zone in the southbound lanes allows left turning vehicles to cross the lanes and enter the shopping center. During commuting times, the lanes are full of traffic and cyclists riding the bike lane towards Oceanside Blvd are not visible to oncoming traffic turning into the shopping center. Southbound vehicles block views of the cyclist traveling in the bike lane. The southbound lanes are on a downhill grade and cyclist and motorists can pick up speeds along this section of road.

A cyclist has been killed at this intersection. The undercrossing at SR-78 is quite confusing and signage non-existent as to where the lanes are going. It does not help cyclists to decide ahead of time which lane they need to take to make it across SR-78.

2.10.18 Lake Boulevard

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Residential
Speed Limit: 35+ mph
From College Blvd, the eastbound bike lane actually begins at Esplanade Street while the westbound connects to College Boulevard. There are bike lanes throughout with adjacent street parking on the residential sections of the road. At the Thunder Road intersection the bike lane is currently located on the right side of right-turn-only lane.

Southbound El Camino Real

2.10.19 El Camino Real

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes south of Mesa Drive
Adjacent Land Use: Open space, commercial and residential
Speed Limit: 45+
Bike lanes exist in both northbound and southbound directions between SR-78 and Mesa Drive. A bike lane is present only on the northbound side between Mesa Drive and Mission Blvd. A Class 3 bike route begins at the Douglas Drive intersection and travels through Heritage Park to Old Grove Road. Bike route signs are non-existent throughout this section of El Camino Real, but present through Heritage Park. Between Mission Avenue and Mesa Drive, there are no shoulders to accommodate bicyclists on the southbound lanes and is mostly a climb. Portions of the southbound lanes have a raised curb on the edge of

the road with dirt on the other side before the hillside drops off, leaving little to no room for a safe buffer between vehicles and bicyclists.

2.10.20 Douglas Drive

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Open space, residential and commercial
Speed Limit: 35+ mph
Bike lanes exist throughout Douglas Drive from Mission Avenue to Vandergrift Boulevard. Based on crash data recorded between 2004-2007, there have been four bicycle related collisions at the corner of Douglas Drive and North River Road. The northbound lanes at this intersection have one left, two straight and two right-turn-only lanes with the rightmost turn lane being excessively wide. The bike lane on northbound Douglas Drive before North River Road ends at the beginning of the shopping center parking lot, which is located at this intersection. There is no bike lane to allow bicyclists to travel through the intersection. The bike lanes that travel east, west and south from Douglas Drive all have adequate signage.

2.10.21 Coast Highway

Lanes: 2-4
Existing Bicycle Facility: Some Class 2 Bike Lanes
Adjacent Land Use: Commercial
Speed Limit: 25-45 mph
Northbound from Morse Street to Oceanside Blvd, bike lanes are present which then end and become a wide two lane road with parallel parking. The road is wide enough to potentially add bike lanes to continue until the road narrows. From Wisconsin northward, the road narrows with parallel parking along commercial land use. Coast Highway is a four-lane roadway up to the bridge over the San Luis Rey River where it then becomes two lanes.

2.10.22 Vista Way

Lanes: 2-4
Existing Bicycle Facility: Class 2 Bike Lanes east of I-5, Class 3 Bike Route from Jefferson Street to Magnolia Court
Adjacent Land Use: Residential, commercial and industrial
Speed Limit: 25-45 mph
Vista Way runs parallel to State Route 78 from the coast to the City of Vista. Bike lanes are present between Jefferson Street and the City of Vista. Land use in this section consists of a mix of multi-family residential, shopping malls and some industrial parks. At the intersection of El Camino Real, the bike lanes do not continue through the intersection. Between I-5 and Coast Highway, this section of Vista has high ADTs due to SR-78 terminating on at I-5 and becoming Vista Way. This section is primarily residential with street parking and a median.

Westbound on Jefferson Street, a bike route is designated that travels adjacent to the Pacific Coast Plaza. This 2-4 lane road is primarily access into the shopping center as it terminates into the parking lot. The bike route travels through the shopping center parking lot between Wal-Mart and Best Buy and connects to a paved access road which ends at Magnolia Court. From Magnolia Court, the bike route continues on Bayberry Drive then onto Cassidy where it currently ends.

2.10.23 Vandergrift Boulevard

Lanes: 4
Existing Bicycle Facility: Class 2 Bike Lanes
Adjacent Land Use: Residential, commercial and undeveloped
Speed Limit: 55 mph
Vandergrift Boulevard is a continuation of North River Road as it travels north into Camp Pendleton. Bike lanes exist throughout as it primarily accesses residential neighborhoods and some agriculture. Access to Arrowood Golf Course and Luiseno Park is through Van-

dergrift Boulevard.

2.11 San Luis Rey River Trail

Existing Bicycle Facility: Class 1 Bike Path
Adjacent Land Use: Open Space
Distance: 7.2 miles (one way)

The San Luis Rey River Trail has an excellent surface throughout, but does not have the two foot shoulders required of Class 1 paths because of limited space on the levee. There are five intersections along the San Luis Rey River Trail. There is also neighborhood access to the trail via a bridge from Cypress Road. No shade structures and restroom facilities were present at any of these access points. These intersections or access points are Neptune Way, the westernmost entrance, Benet Road, Foussat Road, Douglas Drive and College Boulevard, the easternmost entrance.

San Luis Rey River Trail at I-5

2.11.1 Access #1: Neptune Way

This neighborhood access point was difficult to find. The lack of signage directing users to the trail head will make it difficult for first time trails users to locate it. An NCTD "No Trespassing" sign at the bike path entrance could lead some to believe they are trespassing and possibly discourage users from getting onto the path as it parallels the railroad tracks. The bike path begins wide and then narrows slightly as it travels alongside the river where striping and arrows are present at blind turns under I-5. An information kiosk is present at this access point.

San Luis Rey River Trail at Douglas Blvd

2.11.2 Access #2: Benet Road

This access point lies just west of the Oceanside Municipal Airport. No parking is available at this location, but an information kiosk, benches and trash receptacle were present.

2.11.3 Access #3: Foussat Road

The Foussat Road access point has a parking lot at the corner of Foussat Road and Alex Road. An information kiosk, trash receptacles and benches are also present at this access point.

2.11.4 Access #4: Douglas Boulevard

On the southbound side of Douglas Boulevard there is an unpaved parking lot with an information kiosk, trash receptacle and a bench. The northbound entrance also has these amenities minus the parking lot. Entrance to the parking lot can only be accessed from the southbound lanes. Access to the parking lot is not available when traveling north. To safely access the lot and trail, users must travel to North River Road, turn around and head south and then turn right into the lot at the Douglas bridge overpass. Entrances onto the bike path are wide and signed appropriately.

2.11.5 Access #5: Cypress Road Bridge

This bridge accesses the neighborhood along Cypress Road between Douglas Boulevard and College Boulevard. There are no amenities at this location since it just acts as an access point to and from the adjacent neighborhood. There is signage notifying bicyclists of the bike trail on Cypress Road.

2.11.6 Access #5: College Boulevard

This easternmost access has a parking lot on the southbound side. Northbound travelers have to drive up to North River Road, left onto North River Road and make a U-turn on Redondo Drive and head back toward College Boulevard to enter the parking lot. A U-turn is not allowed on College Boulevard and North River Road. Currently there are no restroom

facilities, but with the construction of Mance Buchanon Park adjacent to the parking lot, trail users will have access to the park's facilities. Picnic tables are present at this staging area and there is good signage from northbound College Boulevard to inform users of the bike path entrance. A new traffic signal is being installed to provide protected access to a new off-street parking lot for bicyclists and new park users.

In April of 2008, Phase 1 of the San Luis Rey River Trail extension was completed east towards Andrew Jackson Street and Tyler Street. Currently there is no access onto the San Luis Rey River Trail from Andrew Jackson Street. Phase 2 will begin at Andrew Jackson Street, around the corner to the Tyler Street outlot and then to North Santa Fe Road. This entire length will be a Class 1 bike path.

2.12 Access to transit sites and inter-modal transfer points

The Oceanside Amtrak Station is primarily accessed from South Tremont Street and Michigan Ave on the east side of the railroad tracks. Access from the west side of the tracks is from the Myers Street parking lot. An ADA accessible underground crossing at the end of Tyson Street and Myers Street allows users to safely access the transit station on the east side of the tracks. Skateboarders and bicyclists must walk their skateboards and bikes on the ramps. Bicycle amenities include bike lockers and "bike lids."

Oceanside Transit Center

The new Sprinter which runs from Oceanside to Escondido, will have seven stations along the east-west corridor of the Sprinter route. Sprinter locations are located at:

Oceanside Transit Center, Michigan and Tremont Streets
Coast Highway Station, Tremont and Godfrey Streets
Crouch Street Station, Oceanside Blvd and Crouch Street
El Camino Real Station, S. El Camino Real and Industry Street
Rancho Del Oro Station, Oceanside Boulevard and Rancho Del Oro Road
College Boulevard Station, Behind Armstrong Garden Center on College Boulevard and Oceanside Boulevard
Melrose Station, Oceanside Boulevard and Melrose Drive

Currently, Class 2 bike lanes are the primary bicycle facility that accesses these stations. A Class 3 bike route on Crouch Street accesses the Crouch Street Station. No existing bicycle facility accesses the Oceanside Transit Center.

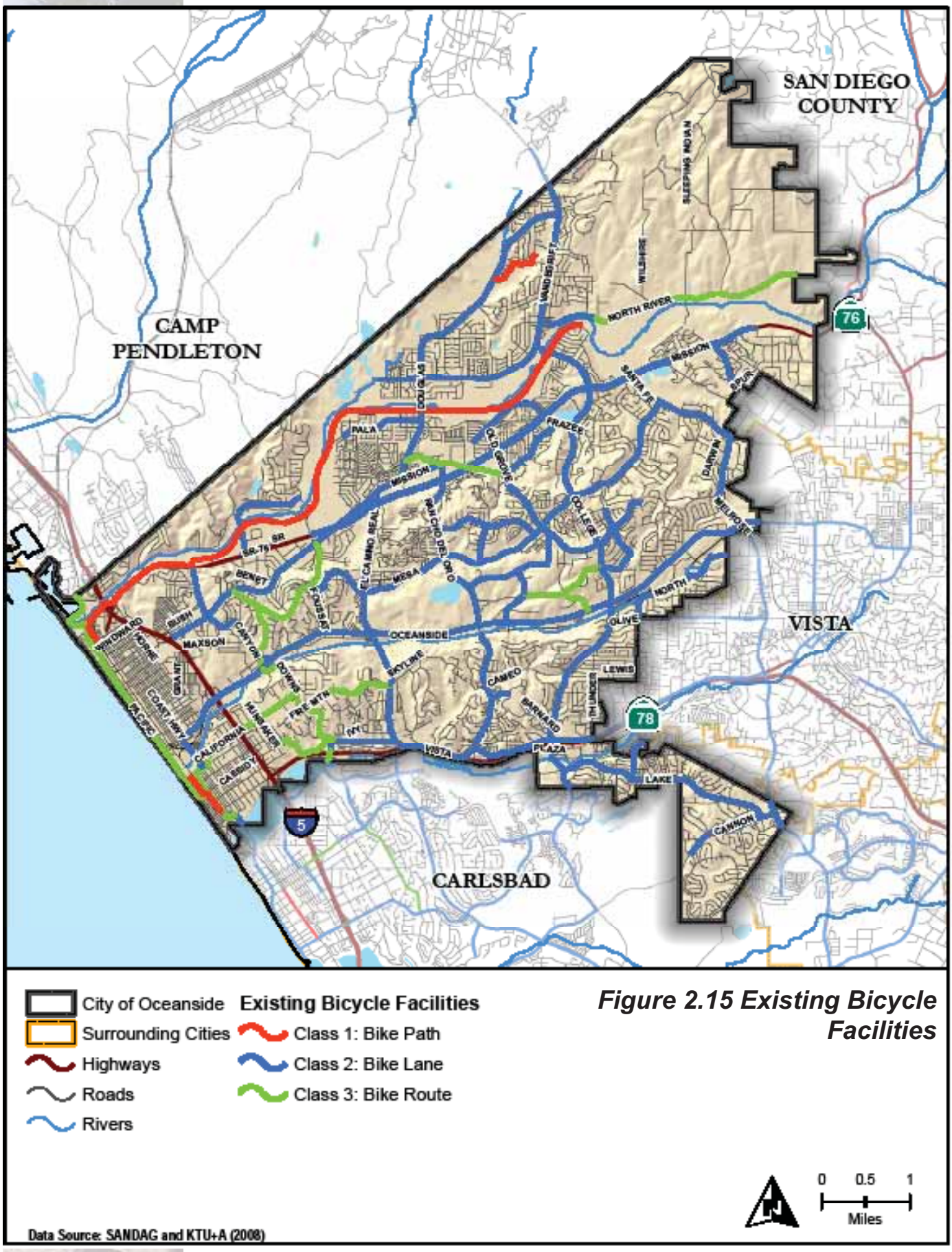


Figure 2.15 Existing Bicycle Facilities

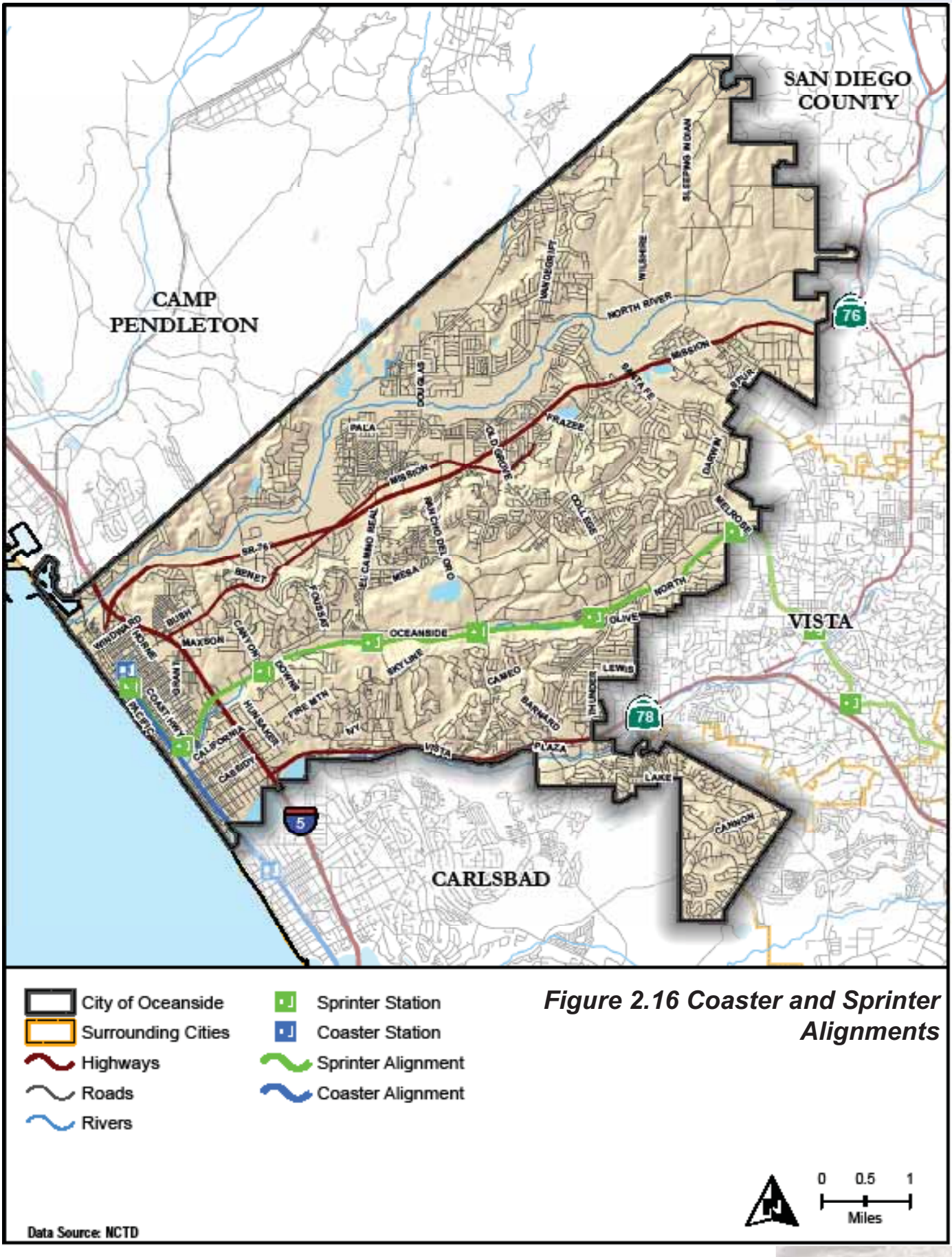


Figure 2.16 Coaster and Sprinter Alignments

2.13 Gaps in existing regional bikeway facilities

- There are a few bike lanes that do not continue to the upcoming intersection due to roadway narrowing as it approaches the intersection. Melrose Drive at Santa Fe Avenue is an example of an incomplete bike lane in the system.

- The San Luis Rey River Trail currently ends at College Boulevard, but plans are in place to extend the trail southeast through Guajome Park and eventually connect with the Oceanside-Escondido Rail Trail.

- Bike lanes are non-existent on El Camino Real between Mission Avenue and Mesa Drive. This stretch of road continues as bike lanes north past Mission Avenue and south past Mesa Drive. Due to the topography and lack of shoulder width, bike lanes have been excluded on this section of El Camino Real, although it is programmed to have bike lanes.

- Bike lanes on westbound Mission Avenue do not continue west of I-5.

- There are no bike lanes on Mission Avenue/SR-76 between Saddleridge Road and the City limit.

- There are no east-west bicycle facilities connecting I-5 and the coast between Oceanside Boulevard and the San Luis Rey River Trail

2.14 Existing bikeway hazards

2.14.1 Highway Crossing Hazards

Cassidy Street at I-5

Cassidy Street and I-5

The Cassidy Street bridge has adequate lane width with on- and off-ramps to southbound I-5 only. There is a sidewalk on south side with high fencing, but only low railing and no sidewalk on north side. There currently are no existing bicycle facilities, but this is programmed to be a Class 3 bike route. The bridge connects single family residential neighborhoods.

College Boulevard and SR-78

Bike lanes continue through this intersection as College Boulevard travels underneath SR-78. This is a very congested intersection with four lanes in each direction on College Boulevard with on- and off-ramps to SR-78. Signage through the underpass is confusing and is too close to the intersection which does not give sufficient time for bicyclists to decide on which lane to take.

Brooks St/Division Street Bridge at I-5

Mission Avenue and I-5

Mission Avenue crosses over I-5 and does have a striped shoulder that is not a bike lane. Bike lanes begin just east of bridge past the northbound off-ramp from I-5.

2.14.2 Highway Crossing Opportunities

Civic Center Drive/Bush Street Bridge and I-5

This overpass has low traffic volumes and adequately wide lanes with sidewalks on both sides with no existing bicycle facilities. The overpass has tall railings and fencing and no freeway on- or off-ramps. It primarily connects two neighborhoods.

Division and Brooks Streets and I-5

This freeway crossing connects to neighborhoods and has low traffic volumes, tall railings and fencing, and adequately wide lanes with a sidewalk on the north side. Currently there are no existing bicycle facilities but is programmed to be a Class 3 bike route. The lack freeway

on- or off-ramps makes this a good crossing opportunity particularly because it connects adjacent neighborhoods to the Boys and Girls Club, Senior Citizen Center, Center City Golf Course and the Ron Ortega Recreation Park.

California Street and I-5
This bridge has a northbound off-ramp onto I-5 only and connects neighborhoods on opposite sides of the highway. There is a sidewalk on the south side/eastbound only and a fog line with a narrow shoulder on the north side/westbound lane. The bridge has tall fencing on both sides. This bridge has low traffic volumes since it primarily connects single family residential neighborhoods.

2.15 Bicycle facility configurations at intersections

The most prominent bicycle facility hazard in the City is at intersections where bike lanes are to the right of right-turn-only lanes.

Examples of intersections with this current configuration are:
Douglas Road at North River Road
Lake Boulevard at Thunder Road
College Boulevard at Waring Road
Oceanside Boulevard at El Camino Real
Foussat Road and SR-76
North River Road at College Boulevard
Old Grove Road at College Boulevard
Vista Way at El Camino Real

Douglas Blvd at North River Road

CALTRANs Chapter 1000 Figure 1003.2C illustrates bike lanes going through the intersection should be on the left side of the right-turn only lane. Bicyclists would travel across the right-turn-only lane to enter the bike lane that allows them to travel through the intersection. Consistency is important and approximately one mile from the Lake Boulevard and Thunder Road intersection is a correct configuration at Lake Boulevard and Cannon Road. Lane width and adequate space are constraints that need to be assessed when re-striping for bike lanes.

2.16 Maintenance of bikeway facilities

Current maintenance of the bicycle facilities includes street sweeping of major arterials weekly and bike paths are swept once a month. The city provides a phone number to the Public Works Department to notify of hazards or repairs needed along City streets. The phone number is (760) 435-4500.

3 Survey of Existing Bike Maps, Trails and Regional Plans

The following are verbatim excerpts from the referenced documents as they relate to the City of Oceanside's bikeway planning efforts. Additional explanatory notes are italicized.

3.1 Carlsbad Bikeway Master Plan (2001)

The Carlsbad Bikeway Master Plan is intended to guide bicycle facility planning for the City of Carlsbad. The process included evaluating existing roadways and bicycle facilities using conventional field techniques, computerized geographic information systems, survey questionnaires and a bicycling suitability formula. The plan recommends revisions to existing facilities, construction of new facilities and an implementation program. The plan also includes general design and engineering guidelines for the development of these facilities.

3.1.3 Implementing Policies and Action Programs

Establish four categories of scenic corridors and designate streets to be included within those categories as follows:

Community Theme Corridors - connect Carlsbad with adjacent municipalities and present the City of Carlsbad to persons entering and passing through the community. Community Theme Corridors include:

- El Camino Real
- Carlsbad Boulevard
- Palomar Airport Road
- La Costa Avenue
- Melrose Drive

Community Scenic Corridors - interconnect major sub¬areas of the present and planned Carlsbad community. Community Scenic Corridors include

- College Boulevard
- Cannon Road
- Carlsbad Village Drive
- Faraday Avenue
- Interstate 5
- La Costa Avenue
- Olivenhain Road/Rancho Santa Fe Road
- Poinsettia Lane/Carrillo Way

Natural Open Space and Recreation Corridors - offer spectacular views of waterscapes, land forms, wildlife, and the Pacific Ocean. Natural Open Space and Recreation Corridors include:

- Adams Street/Park Drive
- Batiquitos Drive
- Jefferson Street (portion adjacent to Buena Vista Lagoon)

Railroad Corridor - presents the City of Carlsbad to people passing through the City by rail. The only Rail Corridor is:

- San Diego Northern Railway

Include roadways as scenic routes which provide significant views of the ocean, lagoons, open space lands, back country and urban activity.

3.4.1 Trails and Community Parks

One of the objectives of the trail system was to connect to the various existing and proposed community parks located throughout the City. The system developed in this plan connects

all the following sites:
• Hosp Grove Park
• Larwin Park*
• Calavera Park
• Veterans Memorial Park*
• Poinsettia Park
• Alga Norte Park*
• Carrillo Ranch
• Stagecoach Park
**Planned - not yet existing*

In addition, Hosp Grove and the area around Lake Calavera (south of Lake Blvd in Oceanside) are under consideration as Special Resource Areas. In both cases, the intent of a trails-oriented Special Resource designation would be to provide an unimproved natural area for hiking and bike use.

3.5.1 Oceanside

With the exception of the north-south linkage along the coastal railroad corridor, there is only one strong trail linkage opportunity between the City of Carlsbad and the City of Oceanside. The physical barriers presented by Route 78 and Buena Vista Lagoon effectively preclude any other possibilities. The one linkage identified by the Open Space Plan, other than the regional link along the railroad right-of-way, connects Lake Calavera with a recently constructed neighborhood park in Oceanside immediately south of Lake Boulevard, just beyond the northeast corner of the City of Carlsbad. Additional linkages between the two cities have tentatively been identified within the rights-of-ways along Coast Highway, Jefferson Street, El Camino Real, Rancho del Oro and within the future alignment of College Boulevard. These will be comprised of bicycle lanes and sidewalks and, as such, would not constitute the type of trail system being considered within the Open Space Plan. It is recommended that the City of Carlsbad ensure that any future planning for bicycle circulation take into account linkages to Oceanside.

3.5.2 Vista

Exhibit “E” of the Bicycle, Hiking and Equestrian Trails Element of the Vista General Plan indicates a number of trail links running north and east from Lake Calavera into Vista. All these alignments (which are shown very conceptually) run through already developed areas of the City of Oceanside. Vista is also conceptually considering a trail linkage westward from Buena Vista Park into the City of Oceanside. In this case, field investigation and assessment of ownership revealed the only physically feasible link would have to run across the top of a steep slope held under seven different ownerships from whom access rights would have to be acquired or dedication made by the property owners. Given that the trail would provide visual access into the homes concerned, this whole linkage seemed very unlikely to succeed. Moreover, with access to Squires Dam limited, and the views of the reservoir from afar being cluttered with large industrial structures, it was not felt that this linkage was worth pursuing. The City of Vista also indicates on Exhibit “E” a link along Melrose Drive.

3.2 City of Carlsbad: Current Conditions

Currently there are approximately 27 miles of unpaved recreational trails located in a variety of open space areas of the City with future plans calling for another 34 miles to be built in the future. In addition to the unpaved multi-use recreational trails, there are currently approximately 48 miles of bike lanes associated with the City’s Roadways.

According to the Carlsbad Citywide Trails Map, Future Unpaved Open Space Trail will make connections with the southeast sector of the City of Oceanside between Lake Boulevard and Cannon Road. College Boulevard and El Camino Real connect to the City of Oceanside with Class 2 bike lanes. The existing Coastal Rail Trail is the westernmost connection as it crosses Buena Vista Lagoon.

3.3 City of Vista's Non-motorized Transportation Facilities Master Plan (2002)

This Master Plan serves as a policy document to guide the development and maintenance of a bicycle network, support facilities and other programs for Vista over the next 20 years. These policies address important issues related to the City's bikeways, such as planning, community involvement, utilization of existing resources, facility design, multi-modal integration, safety and education, support facilities as well as specific programs, implementation, maintenance and funding.

Proposed bikeway projects are selected and ranked by priority using several criteria. These include:
- Regional connectivity
- Closing gaps in the bikeway network
- Connections with major destinations, such as National University, employment centers, major shopping centers, and transit centers
- Completion of the bikeway network
- Availability of street width or right-of-way
- Existing plans the City has to improve and/or widen streets

First Priority Projects*

Street: Oceanside-Escondido Rail Trail
From: Oceanside City limit to eastern Vista city limit
Proposed Class: Class 1 Bike Path
Mileage: 5
Cost: $2,500,000

Second Priority Projects*

Street: North Santa Fe Avenue
From: Oceanside city limit to Bobier Drive
Proposed Class: Class 2 Bike Lanes
Mileage: 1.5
Cost: $75,000

Street: Emerald Drive
From: West Vista Way to Olive Avenue
Proposed Class: Class 2 Bike Lanes
Mileage: 1
Cost: $50,000

Street: Hacienda Drive
From: Oceanside city limit to Vista Village Drive
Proposed Class: Class 3 Bike Route
Mileage: 2
Cost: $20,000

Third Priority Projects*

Street: Shadow Ridge Drive
From: Oceanside city limit to Melrose Drive
Proposed Class: Class 3 Bike Route
Mileage: 1.25
Cost: $12,500

** Projects with connections to the City of Oceanside*

3.4 San Diego County Bicycle Master Plan (2003)

This Bicycle Transportation Plan serves as a policy document to guide the development and maintenance of a bicycle network, support facilities and other programs for the unincorporated portions of San Diego County. These policies address important issues related to the County's bikeways such as planning, community involvement, utilization of existing resources, facility design, multi-modal integration, safety education, support facilities, as well as specific programs, implementation, maintenance, and funding.

Unincorporated areas that have a connection with the City of Oceanside are Bonsall, Fallbrook, Pendleton-Del Luz and North County Metro.

Bonsall

First Priority Projects*

Street: SR-75
From: Oceanside city limit to Fallbrook community boundary
Proposed Class: Class 2 Bike Lanes
Mileage: 3.95

Second Priority Projects*

Street: San Luis Rey River
From: Oceanside city limit to Fallbrook community boundary
Proposed Class: Class 1 Bike Path

Street: North River Road
From: Oceanside city limit to SR-75
Proposed Class: Class 2 Bike Lanes

Street: Via Puerta Del Sol
From: Olive Hill Road to North River Road
Proposed Class: Class 3 Bike Route

** Projects with connections to the City of Oceanside*

There are no proposed connections from the unincorporated areas of Fallbrook, North County Metro and Pendleton-De Luz to the City of Oceanside.

3.5 SANDAG Mobility 2030: A Transportation Plan for the San Diego Region (2003)

Accommodating Bicycling and Walking

People traveling on foot or by bicycle have the same needs as motorists. They want safe and convenient ways to travel, and they need access to most all of the same destinations as motorists. To meet this need, the region's transportation system should be designed and built to accommodate bicyclists and pedestrians. This notion has been established by both federal and state policy. The 1999 federal guidance regarding the bicycle and pedestrian provisions in the Transportation Act for the 21st Century makes clear that accommodating bicycle and pedestrian travel should be a routine part of the planning, designing, construction, and operation of every federally funded transportation project. Likewise, Deputy Directive 64 commits Caltrans to "fully consider the needs of nonmotorized travelers in every aspect of its work." Local and regional agencies need to take the same approach when developing transportation improvements.

Most bicycle and walking trips are relatively short and within a single community. While these community trips may be focused on a neighborhood commercial district, school, or other community service like public transit, the trip origins are widely dispersed. Because of this, the transportation network must accommodate bicycle and pedestrian travel. Transportation

facilities should be designed to encourage bicycle and walking trips, and not be a barrier to those trips. Whether a freeway interchange, local arterial or residential street, the needs of bicyclists and pedestrians should be included in the program from the start and thus, the cost of providing that access can be minimized, especially when compared to the cost of retrofitting an existing facility.

Making Bicycle and Pedestrian Friendly Communities

The region's transportation system needs to provide a full range of transportation choices in a balanced and integrated manner. Sidewalks and streets do not accomplish this alone. A complementary relationship must exist between the transportation system and land uses that it serves.

Access to Public Transit

The principles in Planning and Designing for Pedestrians support the region's goals for improving access to public transit. Mixed land use and network connectivity make it easier for public transit to efficiently take people where they want to go. Well-designed sidewalks and crosswalks make walking to and from transit more attractive. The guidelines show how to do this, and how to incorporate transit stops into pedestrian walkways so there will be room for both.

Bicycle Facilities and Access

Communities that support walking as a means of access usually are bicycle-friendly communities as well. The mix of land uses bring more destinations into easy bicycling range where the bicycle can fill the gap between destinations that can be reached on foot and those that would require a transit or auto trip. Calming traffic on pedestrian-oriented streets usually makes them more attractive places to ride a bike.

Beyond these improvements, bicycle access is improved where the road network provides space for bicyclists and road surfaces are well maintained. Where the street network cannot adequately serve bicyclists, separate bike paths should be built. These bike paths or trails also can provide access for pedestrians. Also important are adequate bike parking and other support facilities and ongoing education and promotional programs.

Bike Parking

Bicycle theft is one of the deterrents to bicycle travel, but it can be overcome by providing quality bicycle parking facilities. Fortunately, good bicycling parking can be provided at a very modest cost. In contrast, poor quality bike parking is often underutilized because it is either inconvenient, does not effectively secure the bike, or both. Through its Bicycle-Pedestrian Advisory Committee, SANDAG has developed bicycle parking guidelines that should be disseminated and adopted around the region. For bicycle commuting trips, employers should be encouraged to provide bike lockers or other high security parking.

On-Demand Bike Lockers

On-demand bicycle lockers allow bicycle commuters to use any locker at a given site on a first-come, first-serve basis. Such lockers are being pilot tested for consideration for new and replacement installations of the region's existing bicycle lockers. These state-of-the-art lockers use electronic keys, allow multiple users the opportunity to use the same locker, and have the ability to provide information about utilization and demand. The potential benefits of the on-demand lockers include reduced program administration costs, reduced inappropriate usage of the lockers, and increased utilization. In addition, the total number of lockers required at any given site may be reduced as the number of lockers required only needs to meet the peak demand. Currently a locker is provided for every registered user, regardless of how often that person uses it. Upon successful completion of the pilot program, the entire system could be converted as old lockers reach the end of their useful life.

Support Facilities

Support facilities such as clothing lockers and showers greatly enhance the experience of bicycling to and from the workplace and also serve to encourage employees to consider bicycling as a viable commute choice. Where employment density warrants, local agencies should consider policies that encourage building owners and employers to provide clothing lockers and showers for their employees to accommodate longer bike trips.

Bicycle Education

The most frequently cited reason for not riding a bicycle is concern for personal safety. This is understandable since bicyclists are very vulnerable in collisions with motor vehicles. However, education on proper bicycle riding can significantly improve the bicyclist's safety, which in turn can help to overcome some of this resistance. Since there is no region-wide bicycle safety education program, efforts should be made to make bicycle safety information available to both adults and children. Bicycle education for children should be provided through the schools. Instituting an ongoing program in the schools will likely require development of a teacher training program. Effective programs that can serve as a model have been instituted in Texas and Nevada. Opportunities also may exist to distribute bicycle safety materials to adults in conjunction with campaigns that promote alternatives to driving alone, but a program will have to be developed and funding sources will have to be identified for such an effort. To further encourage both bicycling and walking, the Plan also recommends continued support for RideLink's annual Bike to Work Day and support for events like the annual Walk Your Child to School Day.

Bicycle and Pedestrian Program Funding

Financing bicycle and pedestrian projects, and providing incentives for community designs that support these modes, is one of the challenges facing the region. Often, no separate funding for these improvements is required when bicycle and pedestrian infrastructure improvements are included as part of a larger transportation project.

However, there are many communities in the region that would benefit from improved bicycle and pedestrian facilities that do not anticipate new construction or major redevelopment. Financing improvements in these areas is often difficult. The annual revenues from the Transportation Development Act for bicycle and pedestrian projects (currently about $2.5 million), and the $1 million in annual TransNet funds set aside for bicycle projects, provide less than half the funds requested in each annual funding cycle.

No accurate estimates exist for needed pedestrian infrastructure improvements, but based on existing bicycle transportation plans and additional estimates provided by local jurisdictions, current bicycle project needs for the region are at least $200 million. Additional funding will be required to support a significant near term effort to implement the nonmotorized component of the Plan.

MOBILITY 2030 fills some of this funding gap by doubling annual bike and pedestrian funding levels.

3.6 San Diego Region Bike Map (2007) - SANDAG

The San Diego Region Bike Map connects North Harbor Drive to Interstate 5 just north of the City limits. According to SANDAG, the north and southbound lanes have freeway shoulder bike access. Some freeway shoulders are open to bicyclists. Use of freeway shoulders by inexperienced bicyclist is not recommended. Obey all regulatory signs and exit the freeway when required.

Another connection from North Harbor Drive is to Vandergrift Boulevard/Stuart Mesa Road which travels into Camp Pendleton. This stretch of road is a Reduced Speed or Restricted Access Path. This path is where access is restricted or where speed limits are posted due to congestion or other safety considerations.

3.7 NCTD Short Range Transportation Plan

Bicycle Facilities

In addition to promoting the use of mass transit, NCTD often promotes the use of alternative transportation modes, such as bicycling. Bicycle racks are provided on the front of each fixed route vehicle and designated bicycle storage space is provided on the Coaster. In addition, storage racks and bicycle lockers are provided at most of the transit centers and Coaster stations.

Although the District provides a large number of bicycle storage facilities, some of the racks and lockers have deteriorated and are in need of replacement. In addition, the demand for bicycle lockers exceeds the supply at a number of stations.

In order to continue to promote bicycling in North County, the District has developed a program aimed at increasing and upgrading the bicycle facilities on the buses and at each of our transit centers. The Bicycle Facility Improvement Program was has been presented to the Board of Directors as well as SANDAG's Bicycle and Pedestrian Advisory Committee (BPAC). Both groups felt that the program would positively impact the transit system and encouraged planners to continue with the improvements.

Currently the Sprinter cars have designated areas for bicycles. At each Sprinter Station, bike lockers are available.

3.8 City of Oceanside General Plan: Recreational Trails Element (2002)

The 2002 Recreation Trails Element (RTE) describes some of the issues relating to the existing bicycle and trail system including; the extensive system of planned bikeways within the City, but only a fragmented system of constructed trails, the extreme danger of the City's transition to Camp Pendleton and destination support, i.e. bicycle racks, showers, rest areas and drinking fountains are rare on routes and at destinations.

Mission Statement

To provide a safe and efficient system of bicycle, equestrian, and pedestrian trails throughout the City, creating a non-motorized connection to recreational and commuting destinations.

GOAL:

1. Encourage safe multiple use trails within the City that provide a variety of experiences.

OBJECTIVES:

The City should:

1.1 Encourage the development of Class I (off-street) trails for multiple use.

1.2 Encourage incorporation of pedestrian use within the north-south rail-trail during the planning and design process.

1.3 Where feasible, design trails to the maximum width to safely accommodate multiple trail users.

1.4 Design the trail on the north side of the San Luis Rey River to accommodate pedestrian uses, including running events and other organized activities.

1.5 Organize a volunteer advisory committee of users to periodically review implementation of this plan and adjust priorities of capital expenditures.

1.6 Design trails which are aesthetically pleasing, incorporating landscaping, buffering, scenic overlooks, and historic elements where possible to provide a variety of experiences.

Bicycle System

ISSUES:

• The City has an extensive system of planned bikeways within the City, but only a fragmented system of constructed trails.

• The transition to Camp Pendleton is currently extremely dangerous.

• The City has three major regional corridors that encourage Class I use: San Luis Rey River. and two rail corridors (east-west and north-south).

• Destination support, i.e. bicycle racks, showers, rest areas and drinking fountains, are rare on routes and at destinations.

GOAL:

2. A safe, interconnected network of bicycle facilities within Oceanside.

OBJECTIVES:

The City should:

2.1 Implement the Bicycle Circulation Master Plan.

2.2 Coordinate with Caltrans in developing a Class II bike lane along the length of Highway 76.

2.3 Coordinate with the U.S. Army Corps of Engineers in developing a paved Class I trail on the southern San Luis Rey River levee.

2.4 Prioritize pavement maintenance on Class II bike lanes to promote safe usage.

2.5 Design Class II bikeways (bike lanes) on all prime major and secondary arterials and collector streets that function as links for the bicycle network. In such cases. The City should reduce hazards to cyclists on collector streets by eliminating on-street parking.

2.6 Follow Caltrans Highway Design Manual Section 7-1000 for Class I/II bikeways.

2.7 Prioritize the development of the three major Class I trails: the San Luis Rey River, north-south rail-trail, and east-west rail-trail.

2.8 Encourage existing and future bicycle destinations (parks, schools, commercial and employment centers, etc.) to incorporate bicycle facilities and provide safe and convenient bicycle access. To this end, development should provide secured bicycle parking and storage facilities such as bicycle racks, pedestal posts, rental bicycle lockers, and shower and locker facilities per City standards.

2.9 Provide bicycle parking at all major bus, rail and park-and-ride facilities.

2.10 Continue to pursue and monitor private, local and federal funding sources for bikeway and other trail improvements.

2.11 Develop a Bicycle Facilities Master Plan to identify and plan for bicycle support facilities (lockers, showers, etc.) throughout the City.

GOAL:

3. A safe transition from Oceanside to the Camp Pendleton bike trail.

OBJECTIVES:
The City should:
3.1 Petition Caltrans to allow cyclists to use the 76 bypass-San Luis Rey River bridge on I-5 to access Camp Pendleton from the east and south.

3.2 Pursue the potential for a connection to Camp Pendleton via the planned north-south rail-trail corridor, utilizing the free public parking lot in the harbor as a staging area.

3.3 Investigate connection to Camp Pendleton through the residential streets north of the San Luis Rey River.

3.4 Fund a design study of the 1-5 transition to Camp Pendleton to investigate long term improvements and prioritize the implementation of recommended improvements.

GOAL:
4. Safe bicycle use within the City for recreational and commuter users.

OBJECTIVES:
The City should:
4.1 Calibrate traffic signal control loops to sense bicycle riders and/or provide curbside push button controls.

4.2 Sponsor community-wide safety and education programs to encourage citywide bicycle use.

4.3 Implement a comprehensive signage program for all classifications of bikeways.

4.4 Prioritize the lane striping of Class II bike lanes.

Please refer to the City of Oceanside Recreational Trails Element for further details on these topics.

3.9 City of Oceanside General Plan: Circulation Element (2002)

The 2002 Circulation Element does not clearly state any recommended facilities needed to complete the bicycle system. Instead, there is a list of general objectives to apply to bicycle facility needs and a Bicycle Circulation Master Plan Map. In comparison with existing facilities, the following are the planned facilities that have yet to be completed:

Class 1
• Oceanside-Escondido Rail Trail
• Connection between San Luis Rey River Trail to the Oceanside-Escondido Rail Trail through Guajome Park.
• Coastal Rail Trail

Class 2
• Foussat Road between Benet Road and Mission Avenue
• El Camino Real between Douglas Boulevard and Mesa Drive
• Fireside Street between Los Arbolitos Boulevard and Mission Avenue
• Los Arbolitos Boulevard between Pala Road and Fireside Street
• Emerald Drive between Lake Boulevard and City limit
• Cannon Road between Mystra Drive and City limit
• SR-76 between Saddleridge Road and City limit
• North River Road between Stallion Drive and City limit
• Mission Avenue between Rancho Del Oro Drive and Old Grove Road

Class 3
- Brooks Street between Mission Avenue and I-5
- Division Street between I-5 and Grant Street
- Grant Street between Division Street and Wisconsin Avenue
- Wisconsin Avenue between Grant Street and Pacific Street
- Hunsaker Street between California Street and Cassidy Street
- Cassidy Street between Hunsaker Street and Broadway
- Sleeping Indian Road between North River Road and City limit
- Sky Haven Lane between Lake Boulevard and Azure Lado Drive

Current and proposed bicycle plans, inventories and policies

The 2002 City of Oceanside Circulation Element states that the objective of the bicycle facilities is to "Provide an integrated bicycle circulation system which includes facilities to promote the environmental and social benefits of commuter and recreational bicycling. The bicycle circulation system and associated bicycle facilities shall provide mobility and safety to all persons and areas within the City of Oceanside." The current policies are:

A. Class II Bikeways (on-street bike lanes) shall be planned into all primary, major, and secondary arterials.

B. Collector streets, which are identified to function as links for the bicycle circulation system, should be provided with Class II Bikeways (bike lanes). In such cases, the City shall accommodate cyclists on these identified streets by widening the street or eliminating on-street parking wherever possible.

C. The City shall cooperate with other governmental agencies to provide connection and continuation of the Pacific Coastal Bicycle Corridor and the San Diego-Anza Borrego Bicycle Corridor as identified in the Regional Transportation Plan of San Diego County.

D. The utilization of land shall integrate the bicycle circulation system with auto, pedestrian, and transit systems.

E. Development shall provide short-term bicycle parking and long-term bicycle storage facilities, such as bicycle racks, pedestal posts, and rental bicycle lockers. Provision of bicycle storage facilities shall apply to medium- and high-density residential developments as well as to commercial and industrial developments.

F. Development shall provide safe and convenient bicycle access to high activity land uses, such as schools, parks, and shopping, employment, and entertainment centers.

G. The City shall continue seeking funds at the private, local, State, and federal levels for bicycle circulation system expansion.

H. Development of the Bicycle Circulation System shall be consistent with the implementation of the City's Recreational Trails Element.

3.10 San Luis Rey River Trail: Opportunities and Constraints (2005)

The January of 1996, the City of Oceanside adopted a Recreational Trails Element. This document is a sub-element of the Circulation Element of the City's General Plan and provides the vision and the guidance for subsequent trail planning efforts. The Recreational Trails Element calls for the constructed trails to create linkages along several logical corridors, including the San Luis Rey River and railroad rights-of-way.

Through City efforts and opportunities provided by the Army Corps of Engineers, the San Luis Rey River Trail now stretches 7.2 miles from Oceanside Harbor to College Boulevard. This document examines the feasibility of connecting the existing trail terminus at College Boulevard east 2.8 miles to Melrose Drive via North Santa Fe Drive. The proposed Class I alignment is broken down to two segments:

1. College Boulevard to North Santa Fe Drive Reach
2. North Santa Fe to Melrose Drive Reach ultimately connecting into the future Hi Hope Ranch Development.

The College Boulevard to North Santa Fe segment is roughly 1.6 miles. The North Santa Fe to Melrose Drive (Hi Hope Ranch) portion is approximately 1.4 miles with a parallel equestrian trail connecting to Guajome Regional Park via an existing undercrossing of Mission Ave (SR 76).

Currently a half mile section just east of College Boulevard has been repaved as part of the connection to North Santa Fe Road. This section currently extends to Andrew Jackson Street and Polk Street. No access to the San Luis Rey River Trail is available at this intersection.

3.11 Survey of Planned Local Bikeways

The following lists the programmed bicycle facilities yet to be completed according to a survey of existing facilities and the 1995 Circulation Element of the General Plan.

3.11.1 Class 1 Bike Paths

Class 1 Bike Paths

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations
1	13,966	2.6	Coastal Rail Trail	Portions have been completed between Vista Way and Morse Street. Not enough room along the track north of the transit center to complete the trail system.	San Luis Rey River Trail, City of Carlsbad, Commercial, Residential
2	37,850	7.2	Oceanside-Escondido Inland Rail Trail	The trail terminates at College Boulevard from Vista and users have to use Oceanside Boulevard to access the beach or downtown Oceanside. Wetland and easement space issues along the rail line still need to be resolved.	Beaches, City of Vista, Commercial, Residential
3	5,828	1.1	San Luis Rey River Trail Extension	Extension from College Boulevard to North Santa Fe Road. A half-mile section has already been constructed from College Boulevard along Andrew Jackson Street and Polk Street	San Luis Rey River Trail, Guajome Park, Residential
4	3,332	0.63	Hi Hope Ranch Bike and Equestrian Tra	Proposed Melrose Drive connection, planned San Luir River Rey connection	Currently conditioned in the development plans
Totals	**60,976**	**11.5**			

3.11.2 Class 2 Bike Lanes

Class 2 Bike Lanes

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations
1	3,248	0.6	Foussat Road between Benet Road and Mission Avenue	To complete the Class 2 connection between Benet Road and Mission Avenue	San Luis Rey River Trail, SR-76, Pacific View Charter School, Residential
2	9,191	1.7	El Camino Real between Douglas Blvd and Mesa Drive	Bike lanes exist on the northbound lanes between Mesa Drive and Mission Avenue. Southbound bike lanes need to be installed. Bike lanes programmed to continue to Douglas Boulevard from Mission Avenue	Heritage Park, Commercial, Residential
3	2,777	0.5	Fireside Street between Los Arbolitos Boulevard and Mission Avenue	Complete connection between Los Arbolitos Boulevard and Mission Avenue	Residential
4	2,479	0.5	Los Arbolitos Boulevard between Pala Road and Fireside Street	Complete connection between Pala Road and Fireside Street	Residential
5	17,876	3.4	North River road between Stallion Drive and east City limit	Currently an existing Class 3 bike route with high speed traffic	Melba Bishop Recreation Center, Bonsall, SR-76, Agriculture
6	3,700	0.7	Mission Avenue between Melrose Drive and the eastern City limit	Complete the connection to the City limit	Bonsall, SR-76, Residential
7	3,939	0.7	Mission Avenue between Rancho Del Oro Drive and Old Grove Road	Currently an existing Class 3 bike route	Heritage Park, Old Mission Montessori, Commercial, Residential
8	2,115	0.4	Emerald Drive between Lake Boulevard and City limit	Complete Oceanside's portion of Emerald Drive of Class 2 bike lanes with the programmed bike lanes of the City of Vista	City of Vista, Residential
9	1,294	0.2	Cannon Road between Mystra Drive and City limit	Complete the connection to the City limit	City of Carlsbad, Residential
10	5,439	1.0	Pala Road between Los Arbolitos and Foussat Road	Completes the connection along the south side of the San Luis Rey River	Residential
Totals	**52,057**	**9.9**			

3.11.3 Class 3 Bike Routes

Class 3 Bike Routes

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations
1	25,861	4.9	SR-76 between Foussat Road and North Coast Highway	Width exists to make this facility Class 2 bike lanes. Coordination with Caltrans is necessary as this section is defined as a highway	Oceanside Municipal Airport, I-5, Commercial
2	7,609	1.4	Brooks Street/Division Street/Grant Street/Wisonsin Avenue between Mission Bouelvard and Pacific Street	Utilizes residential streets and an I-5 crossing without on/off ramps to connect Mission Boulevard to the beach area	Brooks Street Swim Center, Park & Ride, Senior Citizens Center, St Mary Star of the Sea Elementary, Beaches, Coastal Rail Trail, Residential
3	7,095	1.3	Hunsaker Street and Cassidy Street between California Street and Broadway	Utilizes residential streets and an I-5 crossing with only a southbound on/off ramp to connect California Street to the Coastal Rail Trail	Coastal Rail Trail, I-5, Beaches, South Oceanside Elementary, Residential
4	16,566	3.1	Sleeping Indian Road between North River Road and City limit	Connects North River Road to northern City limits	Rural Residential, Fallbrook, Agriculture
5	1,968	0.4	Sky Haven Lane between Lake Boulevard and Azure Lado Drive	Connection from Lake Boulevard to Calaveras Lake trails	City of Carlsbad, Residential, Calaveras Lake
Totals	**59,099**	**11.2**			

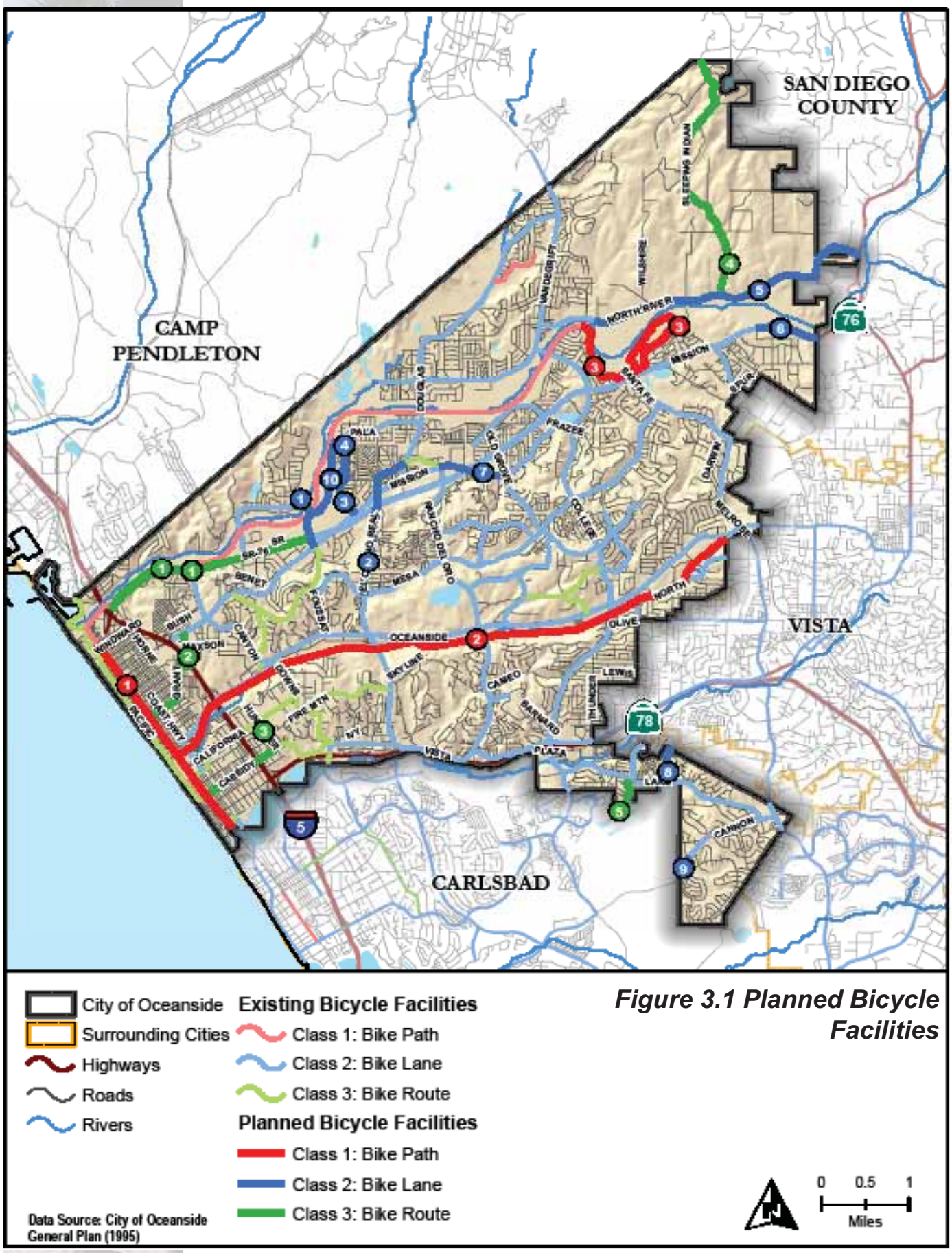


Figure 3.1 Planned Bicycle Facilities

SHARE
THE
ROAD

4 Recommendations

4.1 Recommended Bikeway Facilities

The existing bikeway system mapping was derived from SANDAG's regional bikeway GIS data and extensive field analysis. The following planned and recommended facilities represent all three types of proposed bikeways.

4.1.1 Class 1 Facilities

Class 1 bikeways (frequently referred to as bike paths) are facilities with exclusive right-of-way for bicycles and pedestrians with cross flows by motor vehicles kept to a minimum. They are physically separated from motor vehicle routes.

Class 1 Bike Path (San Luis Rey River Trail east of College Boulevard)

A wide physical separation is recommended where a Class 1 facility parallels a motor vehicle route. Any separation of less than five feet from the pavement edge of a motor vehicle route requires a physical barrier to prevent cyclists from encroaching onto the roadway. Anywhere there is the potential for motor vehicles to encroach onto a Class 1 bicycle facility, a barrier should be provided. Class 1 routes immediately adjacent to a street are not recommended because many cyclists will find it less convenient to ride on this type of facility as compared to streets, especially for utility trips such as commuting. Other reasons that Class 1 routes immediately adjacent to a street are not recommended is because they can encourage wrong way riding on the street and can create safety problems at intersection crossings.

Unlike on-street facilities that already have defined minimum design speeds, the minimum design speed of Class 1 facilities is a factor to consider. In general, the minimum design speed should be 20 MPH. Speed limits may also be implemented and are generally 15 MPH.

The opportunity exists for the installation of Class 1 facilities that would not only provide the relaxed recreational atmosphere associated with an off-street facility, but could also improve commuter connections. The proposed Class 1 routes would be designed for multipurpose use. The paths should be wide enough (Caltrans requirements call for 8 feet minimum with two feet of clear space on each side) to accommodate multiple user types and should include an unpaved side path (two four 4 feet) for users who prefer a softer trail. Also, adding two feet of additional width to these facilities to make them 10 feet wide helps prevent edge damage from full size maintenance vehicles.

4.1.2 Class 2 Facilities

Class 2 bikeways (often called bike lanes) are one-way facilities placed next to the curb or parking lane for the preferential use of bicycles within the paved area of streets. They are designated by striping, pavement markings and signage. Class 2 facilities must be at least five feet wide where no parking occurs and six feet wide where parking does occur. Class 2 facilities are in place primarily throughout the major arterials. Class 2 lanes may be used where roadway speeds and ADTs are fairly high, but adequate roadway width is available. Directness and number of users are significant factors.

4.1.3 Class 3 Facilities

Class 3 routes are within the vehicular right-of-way, but delineated by directional signage only and in some cases by Shared Lane Markings or "Sharrows" such as on Pacific Street. They are recommended where roadway speeds and ADTs are fairly low, and where route directness and the number of users is not likely to be significant. Class 3 routes are also

used to designate alternate routes to avoid congested areas that may be less stressful, especially for inexperienced cyclists, such as Safe Routes to School.

4.1.4 Recommended Projects in Caltrans Right-of-Way

The following projects have been separated from the Prioritized Projects in Chapter 5 because the facilities described are located in Caltrans rights-of-way. Getting these projects funded and built will take close coordination with Caltrans and further studies may be needed. Although they are technically outside the City's jurisdiction, they are critical in providing a complete bikeway system within the City of Oceanside and therefore are being included in this Master Plan. (See Figure: 4-4: Recommended Projects in Caltrans Rights-of-Way)

Recommended Class 1 Projects on CALTRANs Rights-of-Way

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes
1	8,233	1.56	North of Mission Avenue from Melrose Drive to city limit	Bonsall, Hi Hope Ranch Development, Jefferies Ranch	Coordinate with Caltrans to see if feasible

Recommended Class 2 Projects on CALTRANs Rights-of-Way

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes
1	29,646	5.61	SR-76 between Foussat Road and North Coast Highway	Oceanside Municapal Airport, I-5	Bike lane space is available
2	3,700	0.7	Mission Avenue between Melrose Drive and the eastern City limit	Bonsall, SR-76, Residential	Complete the connection to the City limit
Totals	**33,346**	**6.32**			

4.2 Recommended Projects

The following tables are recommended projects based on field observations, analysis, input from the workshops, the Oceanside Bicycle Committee and City staff. They are in no particular order or level of priority.

4.2.1 Class 1 Bike Paths

Recommended Class 1 Bike Paths

Segment Numbers	Length (ft)	Length (miles)	Class 1 Bike Paths	Destinations	Notes
1	17,495	3.31	Mission Avenue to Inland Rail Trail	Guajome Park, Inland Rail Trail, new Vista park	Coordinate alignment with City of Vista and San Diego County Guajome Park. Coordination with NCTD on connection with Inland Rail Trail.
2	2,797	0.53	Spur Avenue to Melrose Drive and North Santa Fe Avenue	Rural residential, Guajome Park	Possible connection with Melrose Drive extension project
3	3,619	0.69	Douglas Drive and Manteca Drive	Residential	Paving exists. Trailheads and signage needed to complete the bike path designation.
4	3,085	0.58	Between Harbor Drive and Capistrano Drive	Residential, Oceanside Harbor	To avoid the I-5 interchange at Camp Pendleton. Bike path users would travel underneath I-5 onto Capistrano Drive wich would take them to San Rafael Drive and onto the base
Totals	**35,229**	**5.1**			

4.2.2 Class 2 Bike Lanes

Recommended Class 2 Bike Lanes

Segment Numbers	Length (ft)	Length (miles)	Class 2 Bike Lanes	Destinations	Notes
1	1,856	0.35	Los Arbolitos between Fireside Street to El Camino Real	Residential	
2	566	0.11	Rancho Del Oro between Sprinter tracks and Oceanside Boulevard	Sprinter Station	To fill in the gap of missing bike lanes
3	712	0.13	Old Grove Road between Ocean Ranch Blvd and Mesa Dr	Industrial	Eastbound bike lane missing. Westbound bike lanes exist.
4	1,527	0.29	Melrose Drive between Old Ranch Road and Spur Avenue	Mission Meadows Elementary	Class 2 bike lanes exist on northbound Melrose but are missing on southbound Melrose from Seattle Slew to Spur Avenue.
5	1,730	0.33	Olive Drive between College Blvd and City of Vista	City of Vista, Olive Elementary	
6	4,933	0.93	Avenida Del Oro between Old Grove Road and Oceanside Boulevard	Industrial	
7	964	0.18	El Camino Real between Vista Way and City of Carlsbad	SR-78, City of Carlsbad	Overpass over SR-78 to complete bike lanes into/from the City of Carlsbad
8	2,981	0.56	Melrose Drive between North River Road and SR-76	Planned Hi Hope Ranch trail system	Can be condition into new development
9	1,368	0.26	North Old Grove Road between Nichols Elementary and Frazee Road	Nichols Elementary School, residential	
10	1,525	0.29	Avenida De La Plata between Mesa Drive and Avenida Empressa	Empressa Elementary School, residential	
11	520	0.10	Frazee Rd	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	Frazee Rd does not currently extend out to Academy Road
12	847	0.16	Douglas Blvd between Mission Avenue and SR-76	Commercial, Public Storage	Connects the existing Class 2 bike lanes on Mission Avenue and SR-76
13	6,913	1.31	Avenida De La Plata between Corporate Centre Drive and College Boulevard	Industrial, Commercial	
Totals	**26,442**	**5.0**			

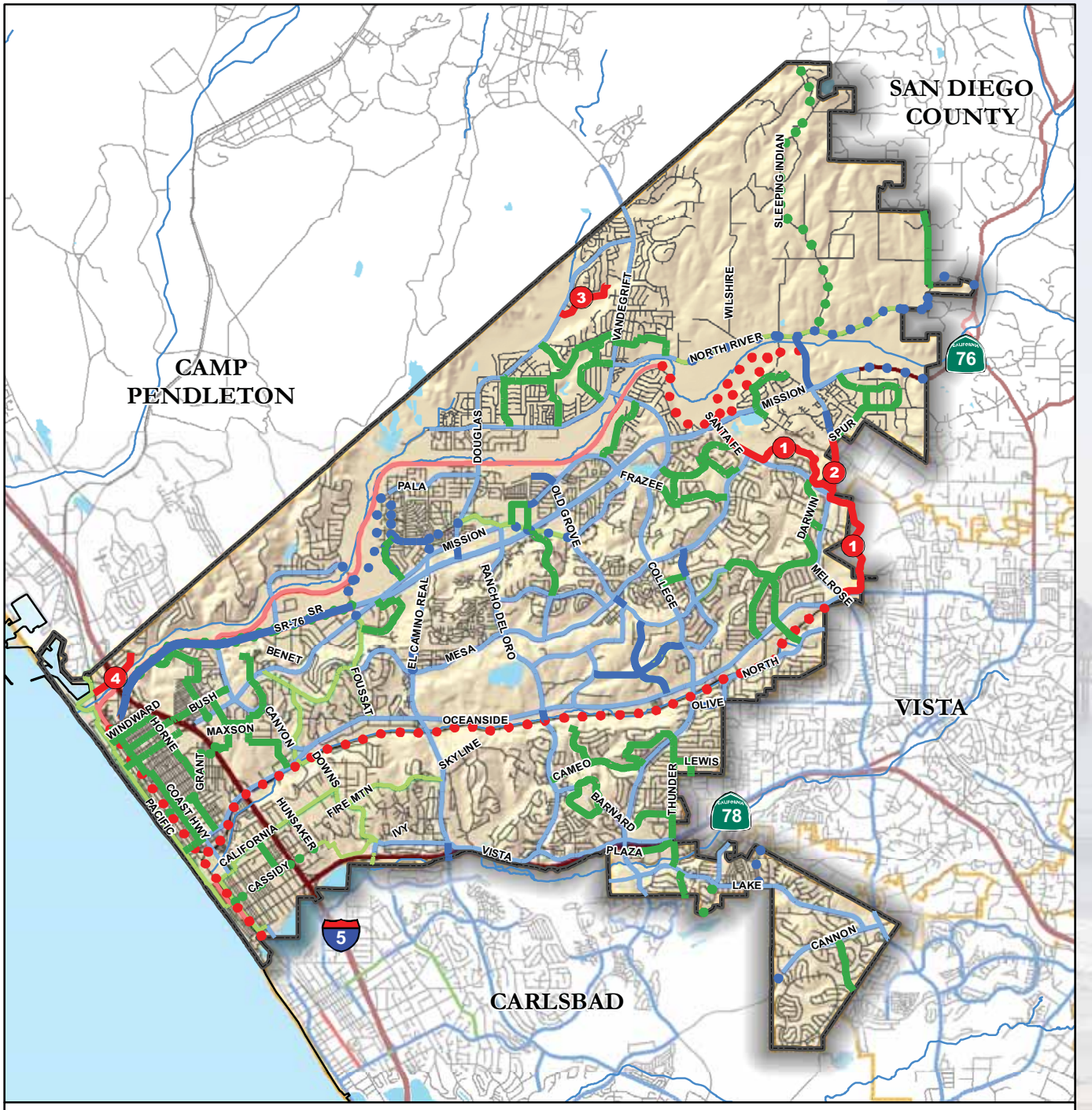
4.2.3 Class 3 Bike Routes

Recommended Class 3 Bike Routes

Segment Numbers	Length (ft)	Length (miles)	Class 3 Bike Routes	Destinations	Notes
1	8,047	1.52	North Cleveland Street/Seagaze Street/South Tremont Street between Neptune Way and Oceanside Boulevard	Oceanside Transit Center, San Luis Rey River Trail, commercial, Regal Cinemas	Move stops signs at Missouri St and Wisconsin Ave onto the aforementioned streets to create a continuous route along Tremont Street
2	2,190	0.41	South Ditmar Street between Wisconsin Avenue and Oceanside Boulevard	Ditmar Elementary,Mary Star of the Sea Elementary, residential	
3	4,454	0.84	Horne Street between Surfrider Way and Grant Street	Oceanside High School, residential	
4	5,943	1.13	San Diego Street/Bush Street/Civic Center Drive/Archer St between North Cleveland Street and Canyon Drive	Oceanside Public Library, City Hall, commercial, residential	
5	7,861	1.49	Loretta Street/Langford Street/Laurel Street/San Diego Street between SR-76 and Canyon Drive	SR-76, Joe Balderrama Recreation Center, Laurel Elementary, residential, commerical	
6	6,491	1.23	Willow Avenue/Carey Road/Foster Street/Grace Street/Dixie Street/Barnes Street/Maxson St/Country Club Ln between Jefferson Middle School and Mission Avenue	Jefferson Middle School, Burgener Academy, Challenges Community Day, Oceanside Unified School District office, Senior Citizens Center, Victory Christian School, School of Business and Technology and a Park and Ride	
7	4,840	0.92	Frontier Drive/Hacienda Drive/Flaminog Drive/Las Vegas Drive between Mission Avenue and Foussat Road	Park and Ride, Pacific View Charter, residential	
8	3,308	0.63	Academy Road/Private Rd/Via Santa Maria along Mission Avenue	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	If Frazee Rd will connect in the future, this route will allow access to the school from adjacent neighborhoods. Via Santa Maria is primarily a narrow road to access the Montessori from Mission Avenue.
9	21,337	4.04	Moonstone Bay Drive/Marblehead Bay Drive/Calle Montecito/Claire Drive/Monica Circle/Macario Drive/Roja Drive/Cardiff Bay Drive/ Elaine Avenue/Redondo Drive/Calle De Palo/Festival Dr/Gold Drive between Douglas Drive and North River Road and Vandergrift Boulevard	Reynold Elementary, Pacifica Elementary, Kids of the Kingdon, Libby Elementary, Libby Lake Skate Park, residential	Bicycle access issues on Monica Cr towards Macario Dr. Bollards block the sides of the lane forcing bicycles to go over speed bumps going both uphill and downhill.
10	4,169	0.79	Gold Drive/Barry Street/Leon Street between Vandergrift Boulevard and North River Road	Melba Bishop Recreation Center, Del Rio Elementary, residential, commercial	
11	3,936	0.75	Oleander Drive/Gardenia Street/Adams Street between College Boulevard and Frazee Road	Cesar Chavez Middle School, Mance Buchanon Park, San Luis Rey River Trail, residential	
12	9,728	1.84	Jeffries Ranch Road/Wagon Wheel Drive/Spur Avenue/Buckboard Drive/Del Mar Road between SR-76 and Melrose Drive	Mission Meadows Elementary, residential	
13	14,313	2.71	Silver Bluff Drive/Masters Drive/Corona Drive/Alamosa Park Drive/Rio Plata Drive/Robinwood Drive/Muirwood Drive/Summerhill Drive/Sagewood Drive between College Boulevard and Mesa Drive	Alamosa Park Elementary, Roosevelt Middle School, Alamosa Park, residential	
14	7,009	1.33	Temple Heights Drive between Pine Ridge Road and North Avenue	Sprinter line, Temple Heights Elementary, residential	

Recommended Class 3 Bike Routes (continued)

Segment Numbers	Length (ft)	Length (miles)	Class 3 Bike Routes	Destinations	Notes
15	1,389	0.26	Avenida Empresa between College Boulevard and Avenida De La Plata	Empresa Elementary, residential	
16	7,205	1.36	Thunder Road/Lewis Road/Cedar Road between College Boulevard and Vista Way	John Landes Recreation Center, Childrens Hospital, residential	Thunder Road is a heavily travelled road parallel to College Blvd access primarily residential and some commerical offices. Lots of stop signs along this stretch. Some stop signs can be placed on the incoming streets to allow bicycles a continuous route along Thunder Road.
17	12,301	2.33	Cameo Drive/Brandeis Drive/Kelton Drive/Marvin Street/Sherbourne Road/Thunder Road between Rancho Del Oro and College Boulevard	McAuliffe Elementary, Sherbourne Park	Brandeis Drive is a steep climb from Cameo Drive
18	4,049	0.77	Plaza Drive and Thunder Road between College Boulevard and Lake Boulevard	City of Vista, Tri-City Crossroads, College Plaza	
19	2,957	0.56	Shadowridge Drive between Cannon Road and City of Vista	City of Vista, residential	
20	4,304	0.82	Via Puerta Del Sol between North River Road and Bonsall	Rural residential	
21	2,012	0.38	Stewart St between California Street and Cassidy Street	Residential	
22	4,800	0.91	Maxson Street/Grace Street and Greenbrier Drive between Country Club Lane and Oceanside Boulevard	Senior Citizens Center, Victory Christian School and a Park and Ride	
23	4,191	0.79	Mission Gate Drive between Via Rancho Road and Mission Avenue	Residential	
24	11,883	2.25	Darwin Drive and Peacock Boulevard between Oceanside Boulevard and North Santa Fe Avenue. Sagewood Drive	Residential	
25	5,753	1.09	Barnard Drive around Mira Costa College	Mira Costa College	
26	2,892	0.55	Waring Road between College Boulevard and Thunder Road	Residential	
27	1,493	0.28	Mira Monte Drive between Lake Boulevard and city limit	Residential	
28	2,776	0.53	Fireside Street between Los Arbolitos Blvd and Mission Avenue	Residential	Planned Class 2 but roadway configurations and on-street parking won't allow bike lanes
29	2,580	0.49	Surfrider Way between Pacific Street and Horne Street	Residential, commercial, motels	
30	1,012	0.19	Oceanside Boulevard between Coast Highway and Pacific Street	PCH 101, Alan's Family Bike Shop	Contiues the Class 2 bike lanes to the recommended bike route on Tremont Street
31	4,076	0.77	Cranberry Street and Guajome Lake Rd	Guajome Park	
32	3,571	0.68	Mission Avenue between I-5 and Pacific Street	Beaches, commercial	Completes a bike facility from I-5 to the beach. Sharrows recommended due to high traffic volumes and on-street parking
Totals	**182,870**	**34.6**			



Existing Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Planned Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

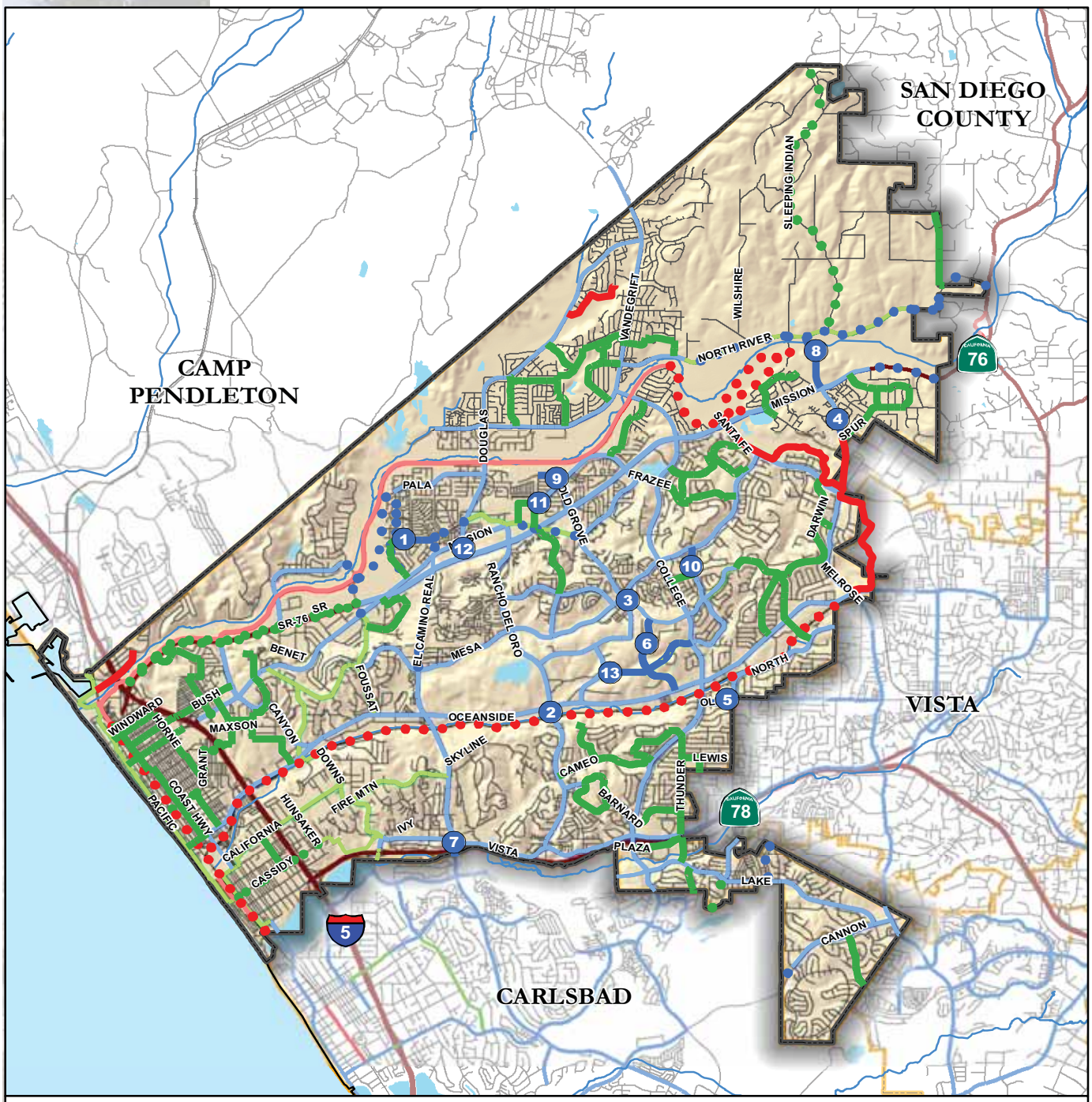
Recommended Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Data Source: City of Oceanside General Plan (1995) & KTU+A (2008)

0 0.5 1 Miles

Figure 4.1 Class 1 Bike Path Recommended Projects



Existing Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Planned Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

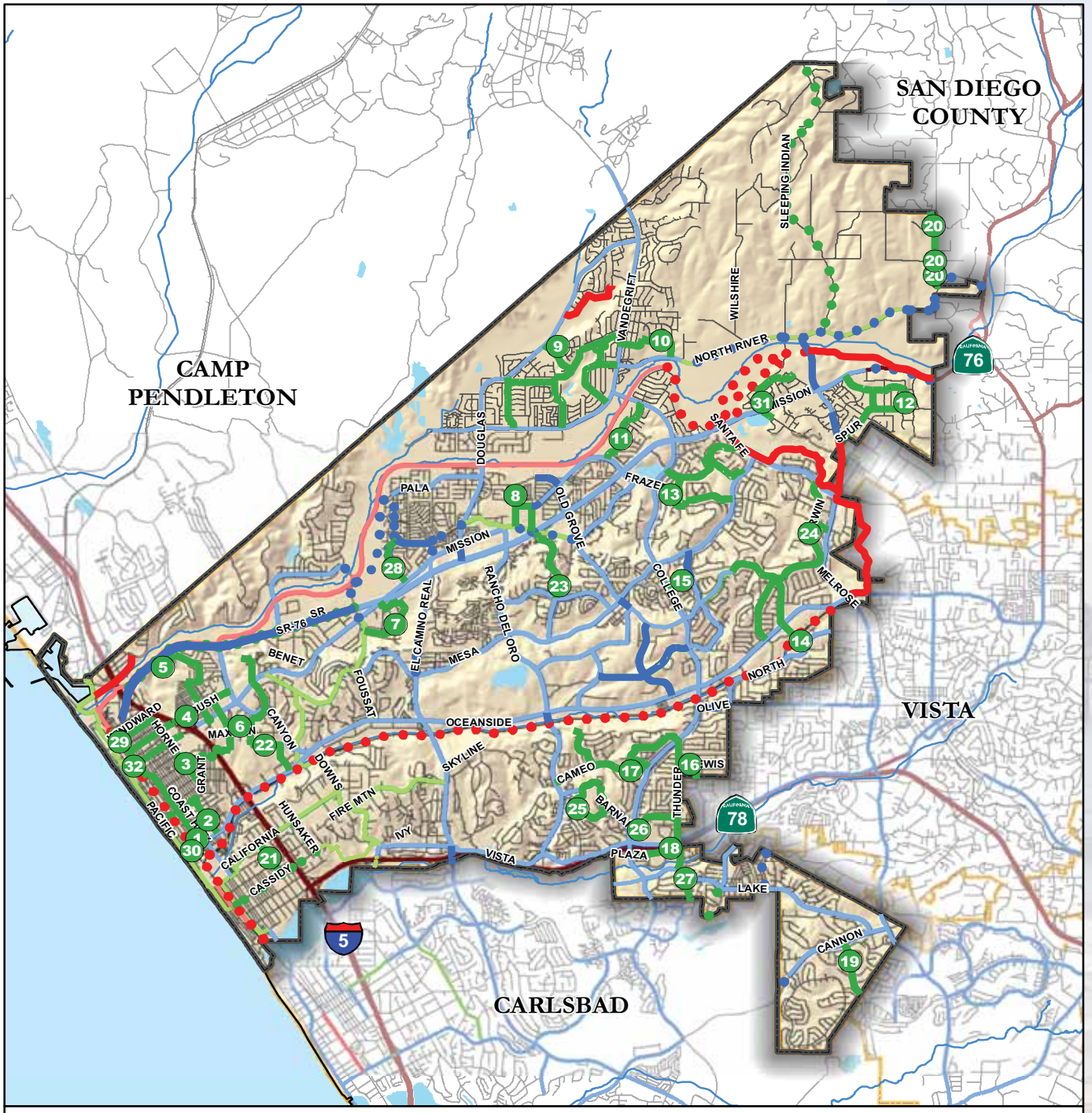
Recommended Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Data Source: City of Oceanside General Plan (1995) and KTU+A (2008)

0 0.5 1 Miles

Figure 4.2 Class 2 Bike Lane Recommended Projects



Existing Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Planned Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Recommended Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Data Source: City of Oceanside General Plan (1995) and KTU+A (2008)

0 0.5 1 Miles

Figure 4.3 Class 3 Bike Route Recommended Projects

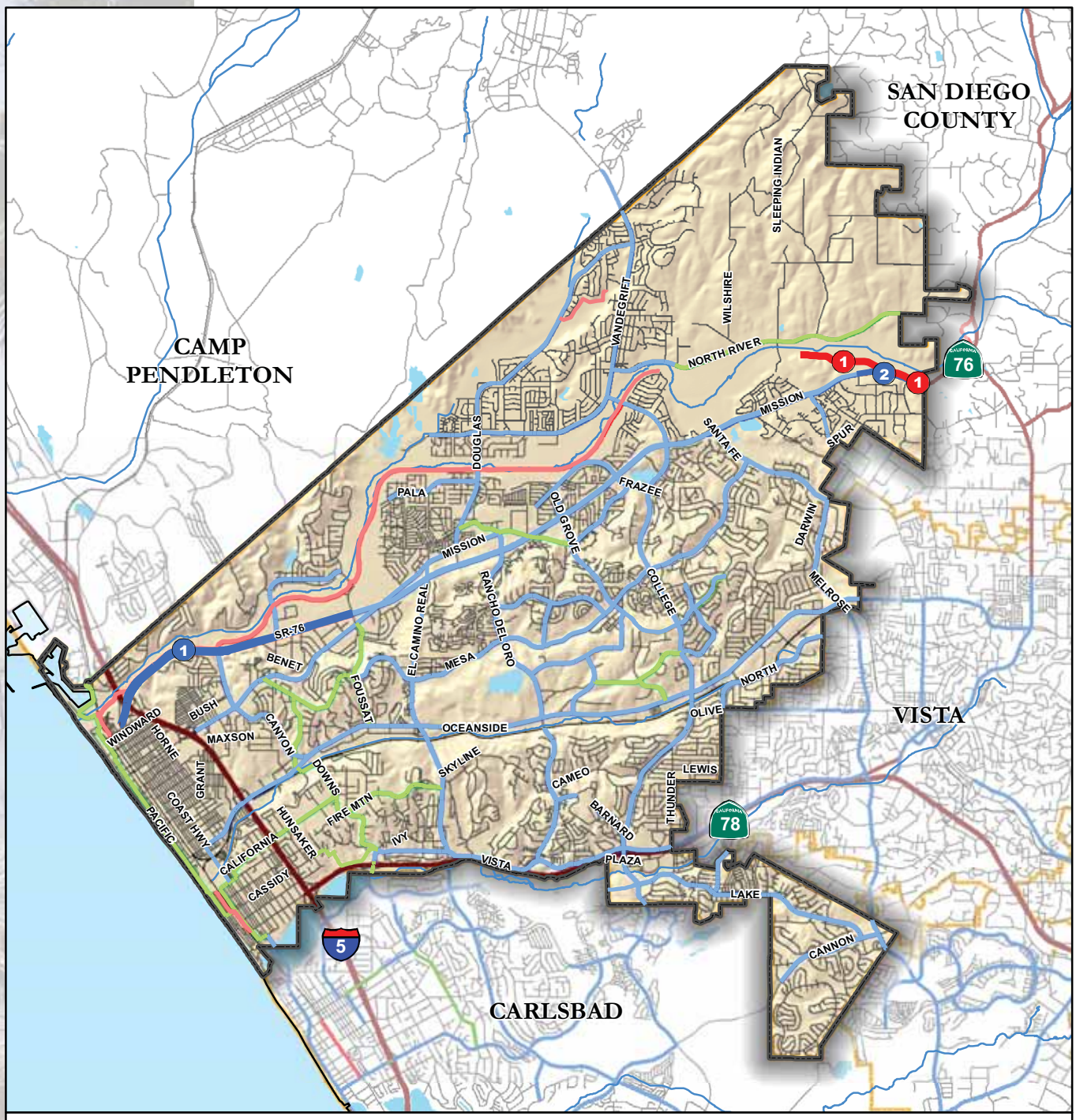


Figure 4.4 Recommended Projects on Caltrans Rights-of-Way

4.3 Additional Recommended Improvements

4.3.1 Bicycle facilities configurations at intersections

The most prominent bicycle facility hazard in the City is at intersections where bike lanes are to the right of right-turn-only lanes.

Examples of intersections with this current configuration are:

Douglas Road at North River Road
Lake Boulevard at Thunder Road
College Boulevard at Waring Road
Oceanside Boulevard at El Camino Real
Foussat Road and SR-76
North River Road at College Boulevard
Old Grove Road at College Boulevard
Vista Way at El Camino Real

CALTRANs Chapter 1000 Figure 1003.2C illustrates bike lanes going through the intersection should be on the left side of the right-turn only lane. Bicyclists would travel across the right-turn-only lane to enter the bike lane that allows them to travel through the intersection. It is recommended that intersections that deviate from this configuration be re-striped to conform to CALTRANs standards. Consistency is important and approximately one mile from the Lake Boulevard and Thunder Road intersection is a correct configuration at Lake Boulevard and Cannon Road. Lane width and adequate space are constraints that need to be assessed when re-striping for bike lanes.

Two right-turn only lanes with no bike lanes at the intersection (Douglas Drive at North River Road)

A correctly installed bike lane (Lake Boulevard at Cannon Road)

4.4 Mountain Bike and Trail Opportunities

There is an estimated 3,200 acres of open space and public land within the community in which three miles of natural surface trails are open to mountain bikes. Coordinating with trail advocacy groups such as the San Diego Mountain Biking Association to site and develop a system that could include singletrack trails would be a beneift to the City. Development of bike skills parks or pump tracks will also help encourage bicycle riding throughout the city. There are currently no BMX tracks, velodromes or mountain bike centers within the community.

The following seven sites have been identified as opportunities for bike skills parks and trail opportunities. See Figure 4.5 Mountain Bike Trail and Bike Park Opportunities.

1. Ron Ortega Recreation Park (15 acres on Division Street and Brooks Street)
2. El Corazon (Oceaniside Bouelvard and El Camino Real)
3. Oak Riparian Park (Lake Boulevard and Ridge Road)
4. Tulle Canyon (off of Benet Road)
5. Whelan Ranch Bird Sanctuary
6. City designated open space canyon behind Joseph Sepulveda (17 acres at the ends of Wooster Drive and Colgate Drive)
7. West of Fireside Park (Fireside Street)

Donating helmets to children at a local fair

4.5 The Five Es of a Bicycle Friendly Community

The City of Oceanside is in the process of applying for a Bicycle Friendly Community designation from the League of American Bicyclists. In 2007, the City was given an Honorable Mention for their efforts in improving the City's bicycle community through the "Five Es": Engineering, Education, Encouragement, Enforcement and Evaluation and Planning. The City must demonstrate achievements in each of the five categories to be considered for an award. Communities with more significant achievements in these areas receive superior awards, called Bronze, Silver, Gold and Platinum. The following are the League of American Bicyclists' Five Es recommended actions needed to improve bicycling throughout the City.

4.5.1 Engineering

Communities are asked about what is on the ground; what has been built to promote cycling in the community. For example, questions in this category inquire about the existence and content of a bicycle master plan, the accommodation of cyclists on public roads, and the existence of both well-designed bike lanes and multi-use paths in the community. Reviewers also look at the availability of secure bike parking and the condition and connectivity of both the off-road and on-road network.

Recommended Actions:

1. Consider adopting a "complete streets" policy.
Every street should accommodate bicyclists, pedestrians, motorists and transit users. A complete streets policy will enhance the effectiveness of bicycle use throughout the City by having facilities that will accommodate bicycle travel as well as pedestrian use and motorists.

2. Continue to expand the bicycle network connectivity.
On-street improvements and expanding the trail system will increase use and improve safety. More facilities within the bicycle network will encourage bicycle use as a transportation and recreation mode. Motorists will note increased bicycle use throughout the City, thus informing them to share the road.

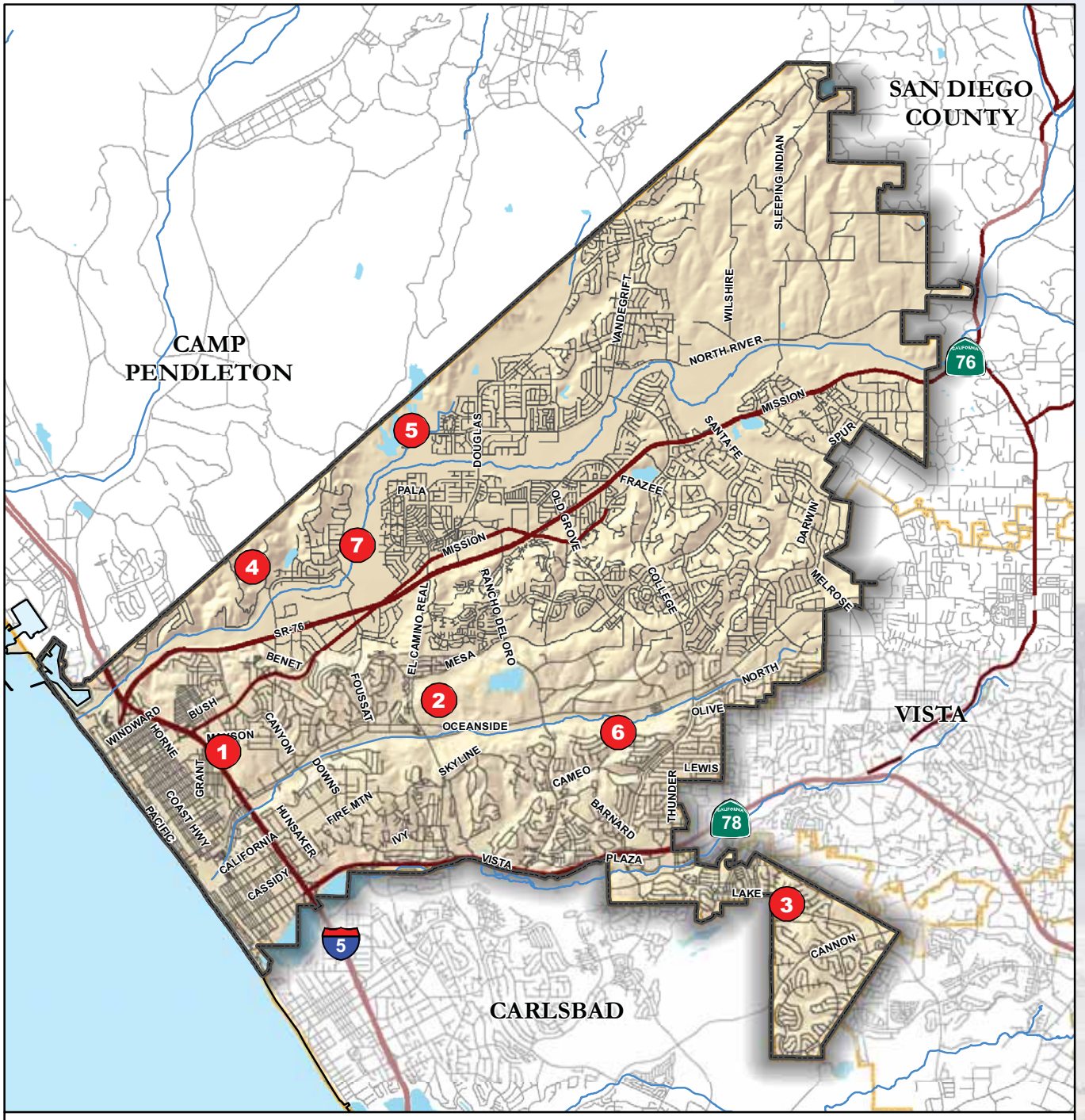


Figure 4.5 Mountain Bike and Bike Park Opportunities

Data Source: SanGIS and KTU+A (2008)

3. Provide training opportunities for engineering, planning staff and law enforcement on how to accommodate bicyclists.
Host an education course for City staff to better understand cyclists' needs and behavior, their right to use City streets, as well as multi-use paths for transportation.

4. Increase the amount of secure bicycle parking.
Increasing bike parking especially in areas of high bicycle traffic will encourage the use of bicycles and give the cyclists a safe place to park their bikes. Increase bicycle parking such as lockers or even a secured/fenced off area near or in areas of high employment densities. If there is a safe place to park their bicycles, employees may be more inclined to commute by bicycle to work.

BikeEd Road 1 Course

4.5.2 Education

The questions in this category are designed to determine the amount of education available to both cyclists and motorists. Education includes teaching cyclists of all ages how to ride safely in any area, from multi-use paths to congested city streets, as well as teaching motorists how to share the road safely with cyclists. Some things that reviewers look for are the availability of cycling education for adults and children, the number of League Cycling Instructors in the community, and other ways that safety information is distributed to both cyclists and motorists, including bike maps, tip sheets, and as part of driver's education manuals and courses.

Recommended Actions:

1. Expand motorist education efforts.
Install additional "Share the Road" signage and include the "Share the Road" message in local driver's education classes. Educating motorists and bicyclists alike is an important tool for the safety of those using the roads. The more people that know the rights and rules each party has, the less potential there is for conflict and incidents.

Network signage needs to be improved. Signage particularly on Class 3 Bike Routes need to be improved and placed where they belong, near an intersection and throughout the route to direct bicyclists who are traversing that route. Direction and destination signage should be placed to inform cyclists of the route to their destination or nearby landmark.

2. Get bicycling motorist education messages added to routine local activities.
Increased education for motorists and cyclists is needed. Getting more people on bikes will also help modify motorists' behavior. As of now, the primary method of education being used to reach both motorists and bicyclists is the LAB's BikeEd Road 1 course. More educational opportunities such as bike rodeos, public service announcements and increased education at schools are opportunities to be investigated to increase awareness within the city and to demonstrate to more people that bicycling to work or for recreation is easy, safe and fun. Oceanside's focus is to continue improving all types of facilities and providing connections between them.

3. Expand the Safe Routes to School program and encourage all schools to get involved.
Encouraging schools to participate in the Safe Routes to School Program may increase the number of children that ride their bikes or walk to school. Inactivity among children is a health issue, one that must be taken seriously. In the age of computers, the Internet and enhanced video games, outdoor activity has taken a back seat to indoor entertainment. Bicycling to school is a way to get children active and to introduce exercise into their daily routine. Many parents feel that riding a bike on the street is unsafe and do not allow their children to ride to school. Bicycle safety education is important and can be incorporated into after- school activities for both children and parents.

4.5.3 Encouragement

This category concentrates on how the community promotes and encourages bicycling. This can be done through Bike Month and Bike to Work Week events as well as producing community bike maps, route finding signage, community bike rides, commuter incentive programs, and having a Safe Routes to School program. In addition, some questions focus on other things that have been built to promote cycling or a cycling culture such as off-road facilities, BMX parks, velodromes, and the existence of both road and mountain bicycling clubs.

Bike to Work Day station

Recommended Actions:

1. Expand encouragement efforts during Bike Month.
Have the Mayor and/or the City Council proclaim May as Bike Month and participate in Bike to Work Week events. Continue hosting pit stops during Bike to Work weeks and Days. Continue advertising through the Oceanside Magazine and the local television station KOCT.

2. Develop a series of short (2-5 mi.) loops rides around Oceanside.
Provide way-finding signage. Integrate these rides into local bike map. Continue with the City of Oceanside Historic Bike Tour, the Race Across America (RAAM) start and hosting triathlons. Start local races that showcase Oceanside's landmarks. Local races can draw attention to the City and at the same time encourage cycling as a fun and healthy sport.

3. Improve bicycle route wayfinding markers.
Signage needs to be improved because directional signage along Class 3 Bike Routes is almost non-existent. Installation of the signs will allow new cyclists and tourists alike to find their way to their destination or nearby landmark.

4.5.4 Enforcement

The enforcement category contains questions that measure the connections between the cycling and law enforcement communities. Questions address whether or not the law enforcement community has a liaison with the cycling community, if there are bicycle divisions of the law enforcement or public safety communities, if the community uses targeted enforcement to encourage cyclists and motorists to share the road safely, and the existence of bicycling related laws such as those requiring helmet or the use of side paths.

Recommended Actions:

1. Encourage the Police Department to use targeted enforcement to encourage motorists and cyclists to share the road.
This could be in the form of a brochure or tip card explaining each user's rights and responsibilities. Inform the Police Department to warn and educate cyclists about breaking the laws, the rules of the road and safety procedures. This will help educate law enforcement, motorists and cyclists.

4.5.5 Evaluation and Planning

Here the community is judged on the systems that they have in place to evaluate current programs and plan for the future. Questions are focused on measuring the amount of cycling taking place in the community, crash and fatality rates, and ways that the community works to improve these numbers. Communities are asked about whether or not they have a bike plan, how much of it has been implemented and what the next steps for improvement are.

Recommended Actions:

1. Improve access to public lands for mountain bicyclists.
Improve bicycle network connectivity to open space. Connections to off-road trail heads would expand bicycle use within the City as mountain bikers can access trail heads through on-street facilities.

2. Work with the mountain biking community to develop a plan for off-road access.
Increase opportunities for single-track riding within the City. Increasing the number of trails and access to them is another way to improve the recreational aspects of the City and will allow a mixed use of hikers and cyclists alike to explore the City's opens space areas. Work with organizations such as the San Diego Mountain Biking Association to plan and build sustainable trails through available open space. Experienced members of this organization can assist in planning and developing bike parks as well.

3. Integrate development of the cycling network into larger land use planning and development projects.
Future developments such as office complexes, parks and neighborhoods need to take into account bicycles as a mode of transportation, thus incorporating facilities to meet their needs. Bike racks, bike lockers and even secured parking are a few examples of incorporating facilities within new developments, along with bike paths and bike lanes.

4.6 Additional Recommendations

4.6.1 Canyon Drive and Oceanside Boulevard

This recommendation is to reconfigure the intersection to eliminate the sweeping right turn and allows the placement of traffic signals or stop signs as appropriate.

Figure 4.6 depicts existing conditions overlaid with the recommended solution to the problem.

4.6.2 Melrose Drive and North Santa Fe Road

This is a "T" intersection where northbound Melrose Drive terminates at North Santa Fe Road. There are two left-turn-only lanes and one right-turn-only lane on Melrose Drive onto North Santa Fe Road. Bike lanes between Sagewood Drive, the nearest cross street to the south, and North Sante Fe Road do not exist, creating a gap in the system. Once at the intersection, cyclists must maneuver into the appropriate lane that allows them to continue onto their destination. Cyclists wanting to turn right can remain to the right within the single right–turn-only lane and make the turn without impeding motor vehicle traffic. However, cyclists wanting to turn left must navigate across the right-turn-only lane and only the most experienced are likely to be aware that they should maneuver to a position in the right third of the rightmost left-turn-only lane.

A bike lane between the rightmost left-turn-only lane and the right-turn-only lane is recommended to complete the connection. The recommendation is to follow the Caltrans standard in which bike lanes passing through an intersection are to be on the left of right-turn only lanes. In this case, the bike lane passing through will be a left-turn-only bike lane onto North Santa Fe Drive. Right turning cyclists can continue to use the right-turn-only lane.

Figure 4.7 depicts existing conditions overlaid with the recommended solution to the problem.

Figure 4.6 Canyon Drive and Oceanside Boulevard

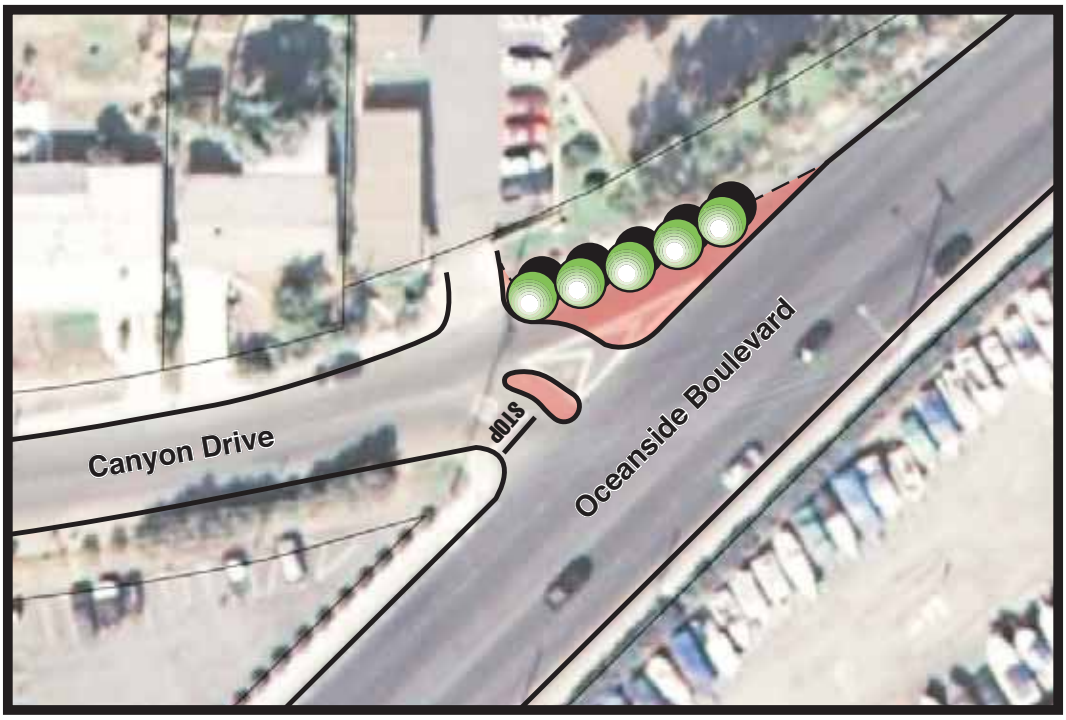
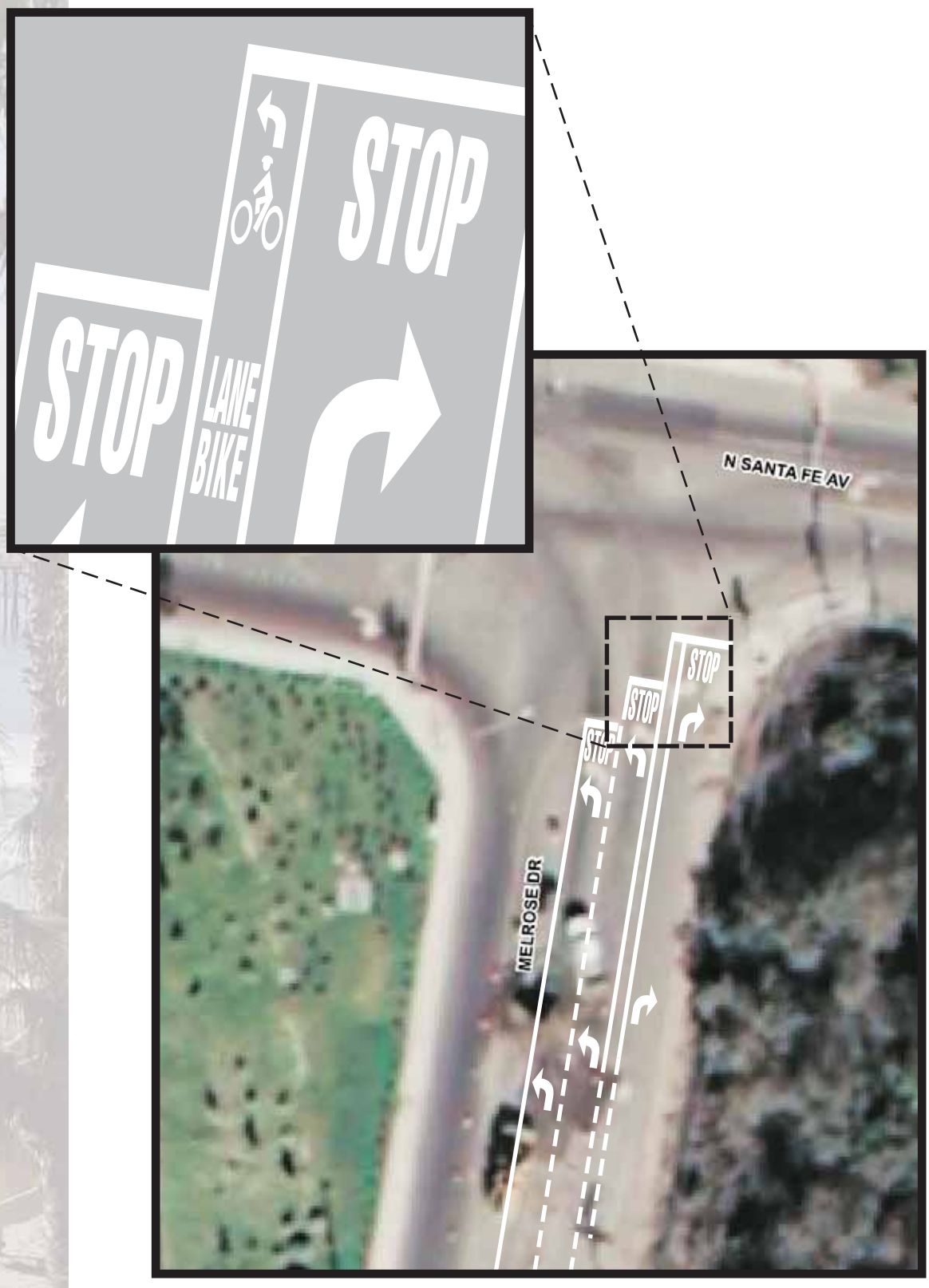


Figure 4.7 Melrose Drive and North Santa Fe Road



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THE
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5 Prioritized Routes and Bikeway Funding

5.1 Facility Priority Criteria and Implementation

The projects in this chapter are a combination of planned and recommended bicycle facilities. Since the planned projects have yet to be implemented, prioritizing them with recommended projects subjects all the projects to the same criteria for priority and implementation. These projects were itemized into two categories: Top Priority and Second Priority. Top Priority Projects are those that will have a significant impact in the existing bikeway system such as closing major gaps and extending or developing bike paths, lanes or routes along major transportation corridors. Second Priority Projects are projects that will significantly enhance the safety and bikeway system throughout the City as well as fill in minor gaps. The recommended projects followed the following prioritization criteria to help identify which routes are likely to provide the most benefit to the City bikeway system:

The numbering used to identify projects within each bikeway facility class in the following sections does not necessarily imply priority. Bikeway facility implementation has no specific time line, since the availability of funds for implementation is variable and tied to the priority of the City's capital projects.

Mobility and Access (total of 12 points)

1. Volume of existing or potential bicycle traffic: 1 - 3 points
- High volume - 3
- Moderate volume - 2
- Little to no volume - 1

2. Provides access to major bicycle traffic generators: 1 - 3 points
- Provides access to areas of high bicycle traffic generation - 3
- Moderately access to areas of high bicycle traffic generation - 2
- Low access to areas of high bicycle traffic generation - 1

3. Closes gap in significant route: 1 - 3 points
- Closes a gap in an existing high bicycle traffic facility - 3
- Closes a gap in a non-existent high bicycle traffic facility - 2
- Closes a gap to connect facilities with little bicycle use - 1

4. Adequate access to activity centers and transit sites: 1 – 3 points
- Provides direct access to an activity center and/or transit center - 3
- Provides indirect access to an activity center and/or transit center - 2
- Route is not near an activity center and/or transit center - 1

Safety (total of 9 points)

5. Remedies or improves specific obstacles: 1 - 3 points
- Directly improves bicycle safety - 3
- Moderately improves bicycle safety - 2
- Slightly improves bicycle safety but is important to the bikeway system - 1

6. Improves locations where bicycle crashes have occurred: 1 - 3 points
- Bicycle collisions have occurred directly on this route - 3
- Bicycle collisions have occurred on near this route - 2
- No collisions have occurred on this route - 1

7. Improves routes with high vehicular traffic volumes: 1 - 3 points
- Improves routes with high average daily trips - 3
- Improves routes with moderate average daily trips - 2
- Improves routes with low average daily trips - 1

Existing Conditions (total of 6 points)

8. Route a continuous right-of-way: 1 – 3 points
- The route has very few stop signs and/or is continuous on one street - 3
- The route has moderate stop signs and/or continues on no more than 2-3 streets - 2
- The route has many stops signs and/or continues along numerous streets - 1

9. Roadway able to accommodate bikeways: 1 – 3 points
- Roadway currently can accommodate the recommended facility with no construction and/or redesign - 3
- Roadway can accommodate the recommended facility with some construction and/or redesign - 2
- Roadway will need significant construction and/or redesign to accommodate the recommended facility - 1

Regional Significance (total of 6 points)

10. Route has regional significance in the bikeway system: 1 – 3 points
- High significance, connects major bicycle facilities and activity centers - 3
- Moderate significance, connects some routes and activity centers - 2
- Little significance, does not directly connect to activity centers, bicycle trip generation, but is still important in the bikeway system - 1

11. Route has aesthetic attributes: 1 – 3 points
- Most of the route has significant aesthetic attributes, such as visible open space, waterway corridors, parks, beaches, etc - 3
- Some of the route has moderate aesthetic attributes, such as visible open space, waterway corridors, parks, beaches, etc - 2
- Little to none of the route benefits from open space, waterway corridors, parks, beaches, etc - 1

Ability to Implement (total of 6 points)

12. Route or project has full or partial funding, or is likely to be funded: 1 - 3 points
- Route is important to the bikeway system and can get funding based on cost and priority - 3
- Route is important to the bikeway system and has some obstacles, such as priority, cost, construction and further studies - 2
- The route is important to the bikeway system but has many obstacles such as environmental reviews, ownership issues, construction and total cost - 1

13. Route or project is contained in a specific plan: 1 - 3 points
- Route already in a City Plan - 3
- Route in a City Study - 2
- New Route not in a City Plan or Study - 1

The maximum possible score is 39 points. Proposed projects can be rated periodically at whatever interval best fits funding cycles or to take into consideration the availability of new information, new funding sources, updated crash statistics, etc. Bikeway facility prioritization and implementation should be fine-tuned and adjusted accordingly based on future circumstances.

Top Priority Projects = 30-39 points
Second Priority Projects = 13-29 points

The cost of each project will always be a consideration. For example, if two projects with a high cost differential score within five points of each other based on the priority criteria, it may make sense to implement the lower cost project ahead of the higher cost project. See Figure 5-2: Top Priority Projects and Figure 5-3: Second Priority Projects for maps of the prioritized projects.

5.2 Typical Construction Costs

Bikeway facility construction costs vary widely depending on facility type. A list of typical unit construction costs in dollars is shown in Figure 5-1. Though useful for preliminary cost estimates, they do not reflect potential special circumstances such as the long bridges that would be needed to span rail lines or freeways, for instance. The following sections provide generalized costs per mile for each class of bicycle facility, as well as what these costs cover, and just as importantly, what they do not. Because typical cost references often do not accurately reflect local construction cost realities, these cost estimates were based on comparisons of bikeway facility projects recently completed in the San Diego County metropolitan region.

Figure 5-1 Typical Construction Costs

Description	Unit	Unit Cost
Clearing and Grubbing	Linear Foot (LF)	$10.00 - $30.00
Excavation	Cubic Yard (CY)	$30.00 - $40.00
Asphalt Pavement (4")	Square Foot (SF)	$1.20 - $1.50
Polymer-Stabilized Soil	Square Foot (SF)	$1.00 - $2.50
Bike Lane Striping	Linear Foot (LF)	$0.60 - $0.80
Pavement Markings	Each (EA)	$40.00 - $50.00
Fencing (Chain Link)	Linear Foot (LF)	$16.00 - $20.00
Guardrail	Linear Foot (LF)	$20.00 - $25.00
8' Steel or Concrete Bridge	Linear Foot (LF)	$1,200 - $1,500
36" Retaining Wall (Concrete)	Square Foot (SF)	$32.00 - $40.00
Relocate Signs/Fencing	Linear Foot (LF)	$1.00 - $2.00
Drainage	Linear Foot (LF)	$1.00 - $5.00
Traffic/Bike Path Signage	Linear Foot (LF)	$2.40 - $3.00
Lighting	Each (EA)	$500.00
Traffic Control	Linear Foot (LF)	$0.20 - $0.40
Clean Up	Linear Foot (LF)	$0.10 - $0.20

To subtotal above, add 20% for contingencies, 10% for engineering and design, 5% for administration and 7% for construction management

Source: 2005 estimates from San Diego County Projects (Kimley-Horn & Associates, Inc)

5.2.1 Class 1 Bike Path Facilities

Because they are constructed independently of existing or programmed motor vehicle facilities, Class 1 paths are by far the most expensive of all bicycle facilities. Typical costs per mile can vary a great deal due to possible right-of-way acquisition, bridges and other potential major expenses such as extensive grading that can result from hilly topography and facility width. For example, a Class 1 facility being converted from a defunct rail roadbed across flat terrain will require far less grubbing, grading and structural enhancements than a facility being constructed through an undeveloped area with hilly topography. The cost used to determine Class 1 priority was $326 per linear foot, or approximately $1,722,507 per mile. This cost came from a previous project that included extensive construction, grading, bridges and environmental review. (Source: City of Encinitas.)

5.2.2 Class 2 Bike Lane Facilities

Class 2 facility costs are approximately $15,000 to $35,000 per mile. This cost includes all necessary lane striping and signage, but does not include roadway widening. The cost variation is primarily due to the amount of striping and signage installed. For example, costs will be higher where substantial re-striping is needed, or right-of-way acquisition required. The cost used in the Class 2 priority lists was $6 per linear foot, or approximately $32,000 per mile.

5.2.3 Class 3 Bike Route Facilities

Class 3 routes costs are the lowest of all facility types because the only physical improvement to be installed is route signage. The cost range of $1,500 to $5,000 per mile is due to the distance between signs, which can vary considerably depending upon factors such as horizontal and vertical curvature, the number the intersections and curb cuts, and how often the route changes direction onto different roadways. The cost used in the Class 3 priority lists was $0.70 per linear foot, or approximately $3,500 per mile. For the City of Oceanside, Shared Lane Markings have already been implemented at a cost of $75 per symbol. The Class 3 priority tables also calculate how many markings would be needed along the route and an associated cost. Markings are to be painted on the street at no more than 250 foot intervals along the length of the route.

5.2.4 Bikeway Bridge Improvements

The following information concerns bridges designed to serve bicycle facilities in locations other than planned or programmed roadway bridges. Typical roadway bridges are constructed of reinforced concrete to withstand the enormous stresses of motor vehicle traffic and seismic activity. Bridges intended for non-motorized uses do not need to be as robust or as costly as bridges designed for regular motor vehicle use.

Bridges costs depend on design load and foundation, and to a lesser extent, length, width and materials. Bridges must be designed to carry the same loads as the bikeway facility they serve. On Class 1 facilities, for example, where patrol, emergency or maintenance vehicles are expected to use the bridge, it must be able to support at least the gross weight of the heaviest anticipated vehicle. Bridges intended to support motor vehicles will require much sturdier construction and increased width, both of which will increase costs.

Unstable soil conditions will require any bridge to be built with more expensive foundations in the form of larger footings or piers. Wooden bridges tend to be less expensive than metal bridges, though their useful life may be shorter. Bridge costs increase almost exponentially as their height increases due to increased structural complexity. Finally, prefabricated bridges are generally cheaper and less environmentally damaging to install than constructed-in-place bridges. For bridge preliminary cost estimates, $1,500 to $1,750 per linear foot is adequate.

Cypress Street bridge connecting to the San Luis Rey River Trail

5.3 Top Priority Projects

Top Priority Class 1 Bike Path Projects

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Estimated Costs
1	13,966	2.6	Coastal Rail Trail	Portions have been completed between Vista Way and Morse Street. Not enough room along the track north of the transit center to complete the trail system.	San Luis Rey River Trail, City of Carlsbad, Commercial, Residential	$4,600,000
2	37,850	7.2	Oceanside-Escondido Inland Rail Trail	The trail terminates at College Boulevard from Vista and users have to use Oceanside Boulevard to access the beach or downtown Oceanside. Wetland and easement space issues along the rail line still need to be resolved.	Beaches, City of Vista, Commercial, Residential	$12,000,000
3	5,828	1.1	San Luis Rey River Trail Extension	Extension from College Boulevard to North Santa Fe Road. A half-mile section has already been constructed from College Boulevard along Andrew Jackson Street and Polk Street	San Luis Rey River Trail, Guajome Park, Residential	$1,900,000
4	17,495	3.31	Mission Avenue to Inland Rail Trail	Guajome Park, Inland Rail Trail, new Vista park	Coordinate alignment with City of Vista and San Diego County Guajome Park. Coordination with NCTD on connection with Inland Rail Trail.	$5,700,000
Totals	**75,139**	**14.2**				**$24,200,000**

*Cost have been rounded

Top Priority Class 2 Bike Lane Projects

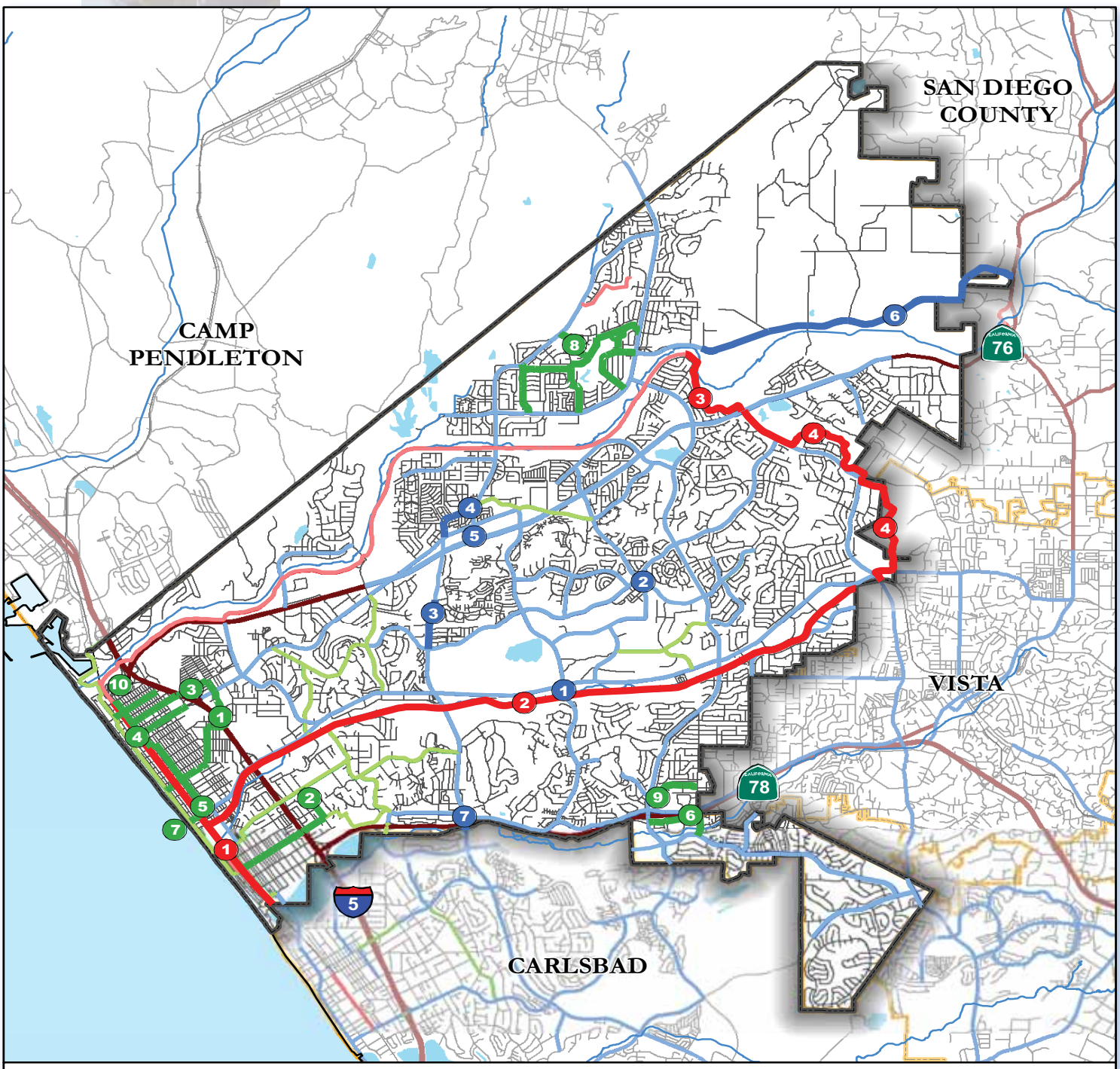
Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Estimated Costs
1	566	0.11	Rancho Del Oro between Sprinter tracks and Oceanside Boulevard	Sprinter Station	To fill in the gap of missing bike lanes	$3,400
2	712	0.13	Old Grove Road between Ocean Ranch Blvd and Mesa Dr	Industrial	Eastbound bike lane missing. Westbound bike lanes exist.	$4,300
3	2,778	0.5	El Camino Real between Vista Oceana and Mesa Drive	Commercial, Residential	Bike lanes exist on the northbound lanes between Mesa Drive and Mission Avenue. Southbound bike lanes need to be installed. Bike lanes striping needed in this section	$17,000
4	2,831	0.5	El Camino Real between Mission Avenue and Douglas Drive	Commercial, Residential	Bike lanes exist on the northbound lanes between Mesa Drive and Mission Avenue. Southbound bike lanes need to be installed. Bike lanes striping needed in this section	$17,000
5	847	0.16	Douglas Blvd between Mission Avenue and SR-76	Commercial, Public Storage	Connects the existing Class 2 bike lanes on Mission Avenue and SR-76	$5,100
6	17,876	3.4	North River road between Stallion Drive and east City limit	Melba Bishop Recreation Center, Bonsall, SR-76, Agriculture	Currently an existing Class 3 bike route with high speed traffic. Two-foot shoulders would enhance safety if this continues to be a signed bike route.	$110,000
7	964	0.18	El Camino Real between Vista Way and City of Carlsbad	SR-78, City of Carlsbad	Overpass over SR-78 to complete bike lanes into/from the City of Carlsbad	$5,800
Totals	**26,574**	**5.03**				**$162,600**

*Cost have been rounded

Top Priority Class 3 Bike Route Projects

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Cost with Standard Sigange	Cost of Shared Lane Sumbols	Number of Painted Shared Lane Symbols	Total Cost with Standard Signage and Shared Lane Symbols
1	7,609	1.4	Brooks Street/Division Street/Grant Street/Wisonsin Avenue between Mission Bouelvard and Pacific Street	Utilizes residential streets and an I-5 crossing without on/off ramps to connect Mission Boulevard to the beach area	Brooks Street Swim Center, Park & Ride, Senior Citizens Center, St Mary Star of the Sea Elementary, Beaches, Coastal Rail Trail, Residential	$5,000	$2,300	30	$7,300
2	7,095	1.3	Hunsaker Street and Cassidy Street between California Street and Broadway	Utilizes residential streets and an I-5 crossing with only a southbound on/off ramp to connect California Street to the Coastal Rail Trail	Coastal Rail Trail, I-5, Beaches, South Oceanside Elementary, Residential	$4,700	$2,100	28	$6,800
3	5,943	1.13	San Diego Street/Bush Street/Civic Center Drive/Archer St between North Cleveland Street and Canyon Drive	Oceanside Public Library, City Hall, commercial, residential		$3,900	$1,800	24	$5,700
4	3,571	0.68	Mission Avenue between I-5 and Pacific Street	Beaches, commercial	Completes a bike facility from I-5 to the beach. Sharrows recommended due to high traffic volumes and on-street parking	$2,400	$1,100	14	$3,400
5	8,047	1.52	North Cleveland Street/Seagaze Street/South Tremont Street between Neptune Way and Oceanside Boulevard	Oceanside Transit Center, San Luis Rey River Trail, commercial, Regal Cinemas	Move stops signs at Missouri St and Wisconsin Ave onto the aforementioned streets to create a continuous route along Tremont Street	$5,300	$2,400	32	$7,700
6	4,049	0.77	Plaza Drive and Thunder Road between College Boulevard and Lake Boulevard	City of Vista, Tri-City Crossroads, College Plaza		$2,700	$1,200	16	$3,900
7	1,012	0.19	Oceanside Boulevard between Coast Highway and Pacific Street	PCH 101, Alan's Family Bike Shop	Continues the route to the recommended bike route on Tremont Street	$670	$300	4	$970
8	21,337	4.04	Moonstone Bay Drive/Marblehead Bay Drive/Calle Montecito/Claire Drive/Monica Circle/Macario Drive/Roja Drive/Cardiff Bay Drive/ Elaine Avenue/Redondo Drive/Calle De Palo/Festival Dr/Gold Drive between Douglas Drive and North River Road and Vandergrift Boulevard	Reynold Elementary, Pacifica Elementary, Kids of the Kingdon, Libby Elementary, Libby Lake Skate Park, residential	Bicycle access issues on Monica Cr towards Macario Dr. Bollards block the sides of the lane forcing bicycles to go over speed bumps going both uphill and downhill.	$14,000	$6,400	85	$21,000
9	2,892	0.55	Waring Road between College Boulevard and Thunder Road	Residential		$1,900	$870	12	$2,800
10	2,580	0.49	Surfrider Way between Pacific Street and Horne Street	Residential, commercial, motels		$1,700	$770	10	$2,500
Totals	**64,135**	**12.15**				**$42,270**	**$19,240**	**257**	**$62,070**

*Cost have been rounded



Existing Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Top Priority Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

0 0.5 1
Miles

Data Source: KTU+A (2008)

Figure 5-2 Top Priority Projects

5.4 Second Priority Projects

Second Priority Class 1 Bike Path Projects

Segment Numbers	Length (ft)	Length (miles)	Class 1 Bike Paths	Destinations	Notes	Estimated Costs
5	3,085	0.58	Between Harbor Drive and Capistrano Drive	Residential, Oceanside Harbor	To avoid the I-5 interchange at Camp Pendleton. Bike path users would travel underneath I-5 onto Capistrano Drive wich would take them to San Rafael Drive and onto the base	$1,000,000
6	2,797	0.53	Spur Avenue to Melrose Drive and North Santa Fe Avenue	Rural residential, Guajome Park	Possible connection with Melrose Drive extension project	$910,000
7	3,332	0.63	Hi Hope Ranch Bike and Equestrian T	Proposed Melrose Drive connection, planned San Luir River Rey connection	Currently conditioned in the development plans	$1,100,000
8	3,619	0.69	Douglas Drive and Manteca Drive	Residential	Paving exists. Trailheads and signage needed to complete the bike path designation.	$1,200,000
Totals	**12,833**	**2.43**				**$4,210,000**

*Cost have been rounded

Second Priority Class 2 Bike Lane Projects

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Estimated Costs
8	2,981	0.56	Melrose Drive between North River Road and SR-76	Planned Hi Hope Ranch trail system	Can be condition into new development	$18,000
9	4,933	0.93	Avenida Del Oro between Old Grove Road and Oceanside Boulevard	Industrial		$30,000
10	1,368	0.26	North Old Grove Road between Nichols Elementary and Frazee Road	Nichols Elementary School, residential		$8,300
11	6,913	1.31	Avenida De La Plata between Corporate Centre Drive and College Boulevard	Industrial, Commercial		$42,000
12	1,294	0.2	Cannon Road between Mystra Drive and City limit	Complete the connection to the City limit	City of Carlsbad, Residential	$7,800
13	5,439	1.0	Pala Road between Los Arbolitos and Foussat Road	Completes the connection along the south side of the San Luis Rey River	Residential	$33,000
14	3,248	0.6	Foussat Road between Benet Road and Mission Avenue	To complete the Class 2 connection between Benet Road and Mission Avenue	San Luis Rey River Trail, SR-76, Pacific View Charter School, Residential	$20,000
15	1,730	0.33	Olive Drive between College Blvd and City of Vista	City of Vista, Olive Elementary		$10,000
16	3,939	0.7	Mission Avenue between Rancho Del Oro Drive and Old Grove Road	Currently an existing Class 3 bike route	Heritage Park, Old Mission Montessori, Commercial, Residential	$24,000
17	1,527	0.29	Melrose Drive between Old Ranch Road and Spur Avenue	Mission Meadows Elementary	Class 2 bike lanes exist on northbound Melrose but are missing on southbound Melrose from Seattle Slew to Spur Avenue.	$9,300
18	1,525	0.29	Avenida De La Plata between Mesa Drive and Avenida Empressa	Empressa Elementary School, residential		$9,200
19	2,479	0.5	Los Arbolitos Boulevard between Pala Road and Fireside Street	Complete connection between Pala Road and Fireside Street	Residential	$15,000
20	2,115	0.4	Emerald Drive between Lake Boulevard and City limit	Complete Oceanside's portion of Emerald Drive of Class 2 bike lanes with the programmed bike lanes of the City of Vista	City of Vista, Residential	$13,000
21	520	0.10	Frazee Rd	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	Frazee Rd does not currently extend out to Academy Road	$3,200
22	1,856	0.35	Los Arbolitos between Fireside Street and El Camino Real	Residential		$11,000
Totals	**41,866**	**7.93**				**$253,732**

*Cost have been rounded

Second Priority Class 3 Bike Route Projects

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Cost with Standard Sigange	Cost of Shared Lane Sumbols	Number of Painted Shared Lane Symbols	Total Cost with Standard Signage and Shared Lane Symbols
11	7,009	1.33	Temple Heights Drive between Pine Ridge Road and North Avenue	Sprinter line, Temple Heights Elementary, residential		$4,600	$2,100	28	$6,700
12	7,205	1.36	Thunder Road/Lewis Road/Cedar Road between College Boulevard and Vista Way	John Landes Recreation Center, Childrens Hospital, residential	Thunder Road is a heavily travelled road parallel to College Blvd access primarily residential and some commerical offices. Lots of stop signs along this stretch. Some stop signs can be placed on the incoming streets to allow bicycles a continuous route along Thunder Road.	$4,800	$2,200	29	$6,900
13	3,936	0.75	Oleander Drive/Gardenia Street/Adams Street between College Boulevard and Frazee Road	Cesar Chavez Middle School, Mance Buchanon Park, San Luis Rey River Trail, residential		$2,600	$1,200	16	$3,800
14	2,776	0.53	Fireside Street between Los Arbolitos Blvd and Mission Avenue	Residential	Planned Class 2 but roadway configurations and on-street parking won't allow bike lanes	$1,800	$830	11	$2,700
15	5,753	1.09	Barnard Drive around Mira Costa College	Mira Costa College		$3,800	$1,700	23	$5,500
16	4,454	0.84	Horne Street between Surfrider Way and Grant Street	Oceanside High School, residential		$3,000	$1,300	18	$4,300
17	6,491	1.23	Willow Avenue/Carey Road/Foster Street/Grace Street/Dixie Street/Barnes Street/Maxson St/Country Club Ln between Jefferson Middle School and Mission Avenue	Jefferson Middle School, Burgener Academy, Challenges Community Day, Oceanside Unified School District office, Senior Citizens Center, Victory Christian School, School of Business and Technology and a Park and Ride		$4,300	$1,900	26	$6,300
18	4,169	0.79	Gold Drive/Barry Street/Leon Street between Vandergrift Boulevard and North River Road	Melba Bishop Recreation Center, Del Rio Elementary, residential, commercial		$2,800	$1,300	17	$4,000
19	4,191	0.79	Mission Gate Drive between Via Rancho Road and Mission Avenue	Residential		$2,800	$1,300	17	$4,000
20	16,566	3.1	Sleeping Indian Road between North River Road and City limit	Connects North River Road to northern City limits	Rural Residential, Fallbrook, Agriculture	$11,000	$5,000	66	$16,000
21	7,861	1.49	Loretta Street/Langford Street/Laurel Street/San Diego Street between SR-76 and Canyon Drive	SR-76, Joe Balderrama Recreation Center, Laurel Elementary, residential, commerical		$5,200	$2,400	31	$7,600
22	14,313	2.71	Silver Bluff Drive/Masters Drive/Corona Drive/Alamosa Park Drive/Rio Plata Drive/Robinwood Drive/Muirwood Drive/Summerhill Drive/Sagewood Drive between College Boulevard and Mesa Drive	Alamosa Park Elementary, Roosevelt Middle School, Alamosa Park, residential		$9,500	$4,300	57	$14,000
23	12,301	2.33	Cameo Drive/Brandeis Drive/Kelton Drive/Marvin Street/Sherbourne Road/Thunder Road between Rancho Del Oro and College Boulevard	McAuliffe Elementary, Sherbourne Park	Brandeis Drive is a steep climb from Cameo Drive	$8,200	$3,700	49	$12,000

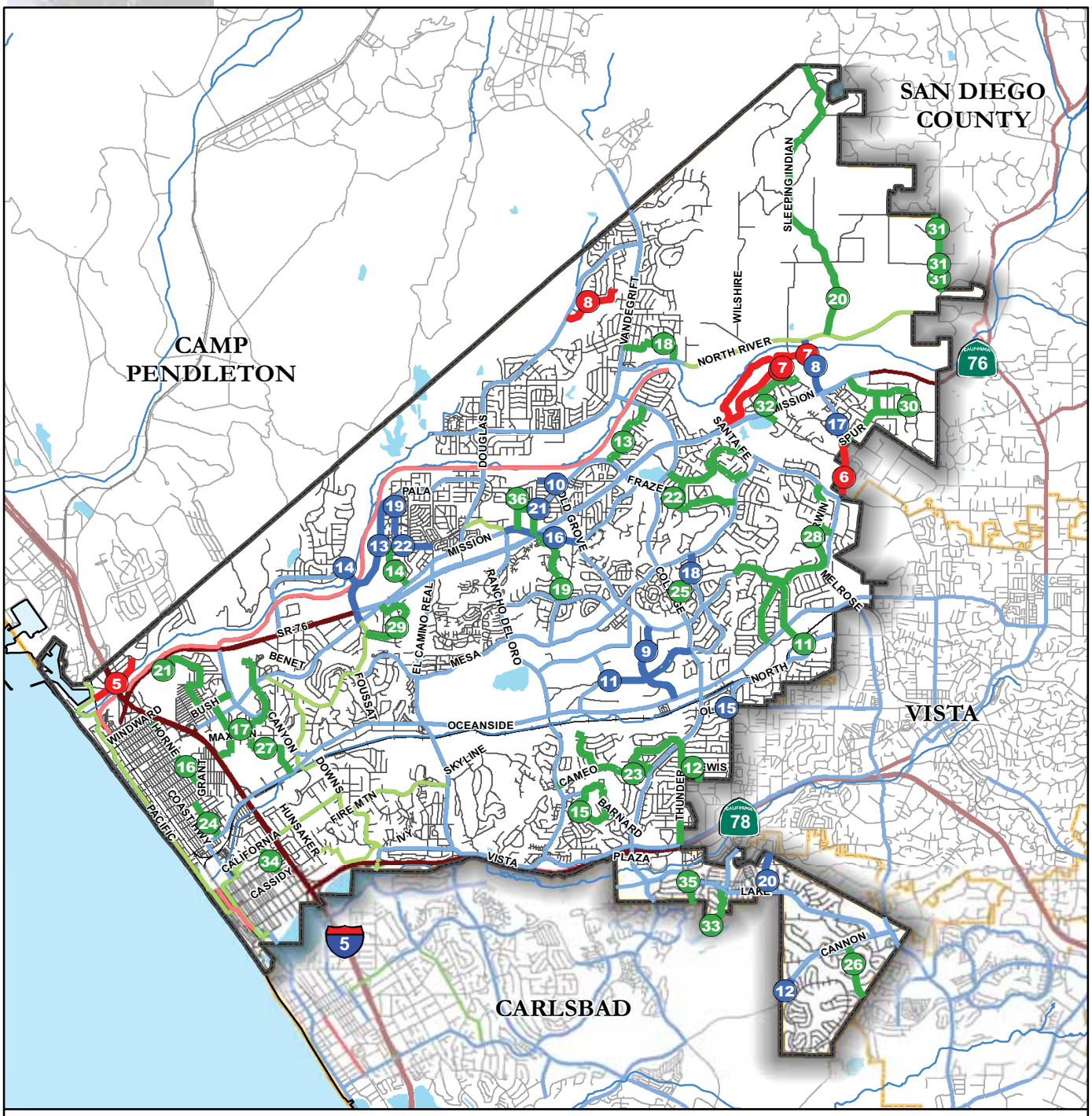
*Cost have been rounded

Second Priority Class 3 cont.

Second Priority Class 3 Bike Route Projects

Segment Numbers	Length (ft)	Length (miles)	Descriptions	Destinations	Notes	Cost with Standard Sigange	Cost of Shared Lane Sumbols	Number of Painted Shared Lane Symbols	Total Cost with Standard Signage and Shared Lane Symbols
24	2,190	0.41	South Ditmar Street between Wisconsin Avenue and Oceanside Boulevard	Ditmar Elementary,Mary Star of the Sea Elementary, residential		$1,500	$660	9	$2,100
25	1,389	0.26	Avenida Empresa between College Boulevard and Avenida De La Plata	Empresa Elementary, residential		$920	$420	6	$1,300
26	2,957	0.56	Shadowridge Drive between Cannon Road and City of Vista	City of Vista, residential		$2,000	$890	12	$2,800
27	4,800	0.91	Maxson Street/Grace Street and Greenbrier Drive between Country Club Lane and Oceanside Boulevard	Senior Citizens Center, Victory Christian School and a Park and Ride		$3,200	$1,400	19	$4,600
28	11,883	2.25	Darwin Drive and Peacock Boulevard between Oceanside Boulevard and North Santa Fe Avenue. Sagewood Drive	Residential		$7,900	$3,600	48	$11,000
29	4,840	0.92	Frontier Drive/Hacienda Drive/Flaminog Drive/Las Vegas Drive between Mission Avenue and Foussat Road	Park and Ride, Pacific View Charter, residential		$3,200	$1,500	19	$4,700
30	9,728	1.84	Jeffries Ranch Road/Wagon Wheel Drive/Spur Avenue/Buckboard Drive/Del Mar Road between SR-76 and Melrose Drive	Mission Meadows Elementary, residential		$6,400	$2,900	39	$9,400
31	4,304	0.82	Via Puerta Del Sol between North River Road and Bonsall	Rural residential		$2,900	$1,300	17	$4,100
32	4,076	0.77	Cranberry Street and Guajome Lake Rd	Guajome Park		$2,700	$1,200	16	$3,900
33	1,968	0.4	Sky Haven Lane between Lake Boulevard and Azure Lado Drive	Connection from Lake Boulevard to Calaveras Lake trails	City of Carlsbad, Residential, Calaveras Lake	$1,300	$590	8	$1,900
34	2,012	0.38	Stewart St between California Street and Cassidy Street	Residential		$1,300	$600	8	$1,900
35	1,493	0.28	Mira Monte Drive between Lake Boulevard and city limit	Residential		$990	$450	6	$1,400
36	3,308	0.63	Academy Road/Private Rd/Via Santa Maria along Mission Avenue	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	If Frazee Rd will connect in the future, this route will allow access to the school from adjacent neighborhoods. Via Santa Maria is primarily a narrow road to access the Montessori from Mission Avenue.	$2,200	$990	13	$3,200
Totals	**151,973**	**28.78**				**$36,510**	**$16,500**	**608**	**$52,300**

*Cost have been rounded



Existing Bicycle Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Second Priority Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Figure 5-3 Second Priority Projects

0 0.5 1
Miles

Data Source: KTU+A (2008)

5.5 Bikeway Funding Sources

Federal, State and local government agencies invest billions of dollars every year in the nation's transportation system. Only a fraction of that funding is used in development projects, policy development and planning to improve conditions for cyclists. Even though appropriate funds are limited, they are available, but desirable projects sometimes go unfunded because communities may be unaware of a fund's existence, or may apply for the wrong type of grants. Also, the competition between municipalities for the available bikeway funding is often fierce.

Whenever Federal funds are used for bicycle projects, a certain level of State and/or local matching funding is generally required. State funds are often available to local governments on the similar terms. Almost every implemented bicycle program and facility in the United States has had more than one funding source and it often takes a good deal of coordination and opportunism to pull the various sources together.

According to the FHWA's publication, An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels, where successful local bike facility programs exist, there is usually a full-time bicycle coordinator with extensive understanding of funding sources. Cities such as Seattle, Washington, Portland, Oregon and San Diego are prime examples. Bicycle coordinators are often in a position to develop a competitive project and detailed proposal that can be used to improve conditions for cyclists within their jurisdictions. Much of the following information on Federal and State funding sources was derived from the previously mentioned FHWA publication.

5.5.1 Federal Sources

U.S. Department of Transportation TEA-21 (Transportation Equity Act) Enhancement Funds

In 1991, Congress re-authorized the collection and distribution of the Federal gasoline tax and related transportation spending programs. The legislation, the Intermodal Surface Transportation Enhancement Act (ISTEA), was seen as particularly significant because the focus of 30 years of Federal transportation investment, the Interstate Highway System, was nearing completion. The legislation provided the opportunity to rethink transportation priorities and philosophies. This act was re-authorized in 1997 as the Transportation Equity Act (TEA-21), and again in 2005.

TEA-21 funding is currently managed through State and regional agencies, in this case the San Diego Association of Governments (SANDAG). Most, but not all, of the funding programs are oriented toward transportation versus recreation, with the emphasis on reducing auto trips and providing intermodal connections. Funding criteria include completion and adoption of a bicycle master plan, quantification of the costs and benefits of the system (including saved vehicle trips, reduced air pollution), proof of public involvement and support, NEPA compliance and the commitment of local resources. In most cases, TEA-21 provides matching grants of 80 to 90 percent. The amount of money available through TEA-21 is substantial (over $155 billion from 1992-97), but there is always strong competition to obtain those funds.

Federal funding through the TEA-21 program provides the bulk of outside funding. TEA-21 is comprised of two major programs, Surface Transportation Program (STP) and Congestion Management and Air Quality Improvement (CMAQ), along with other programs such as the National Recreational Trails Fund, Section 402 (Safety) funds, Scenic Byways funds and Federal Lands Highways funds, though municipalities are unlikely to be eligible for funding from all of these sources. Among the new concepts in the original legislation were intermodalism, transportation efficiency, funding flexibility and planning, all of which had direct benefits for cycling. The legislation also created a wide range of funding opportunities for bicycle-related activities, including the following that may represent opportunities for the City of Imperial Beach:

Surface Transportation Program (STP)

Section 1007 (a)(I)(b)(3) allows states to spend their allocation of Surface Transportation Program funds on a range of activities similar to those of the NHS. Bicycle facilities are specifically listed as eligible items. STP Funds can also be used for "non-construction bicycle projects related to safe bicycle use." Section 1007 (b)(2)(C)(c) created a new category of transportation enhancement activities (TEA) on which States were required to spend at least 10 percent of their Surface Transportation Program funds. TEAs are very broadly defined as:

> "...with respect to any project or the area to be served by the project, provision of facilities for pedestrians and cyclists, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs, landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures or facilities including historic railroad facilities and canals, preservation of abandoned railway corridors (including the conversion and use thereof for pedestrian and bicycle trails), control and removal of outdoor advertising, archaeological planning and research and mitigation of water pollution due to highway runoff."

Surface Transportation Program funds are allocated to the California Department of Transportation (Caltrans) and 75 percent of STP funds are programmed by regional agencies such as the San Diego Association of Governments (SANDAG) under current state law. The Federal government does not allocate funds to specific projects. Therefore, for a bicycle project to be funded, it must appear on the list of potential projects under consideration at the State, regional, or City level, whichever is appropriate.

Local Planning

Section 1024 (a) requires each metropolitan area (with a population greater than 200,000) to develop an annual or biannual Transportation Improvement Program (TIP) that "shall provide for the development of transportation facilities (including pedestrian walkways and bicycle transportation facilities) which will function as an intermodal transportation system."

These TIPs must be based on available funding for projects in the program and they must be coordinated with transportation control measures to be implemented in accordance with Clean Air Act provisions. Final project selection rests with the California Transportation Commission (CTC), with technical input from Caltrans.

State Planning

Two sections of the Act explicitly require the State to develop a TIP to "consider strategies for incorporating bicycle transportation facilities and pedestrian walkways in projects, throughout the State," (Section 1025 (c)(3)), and to "develop a long-range plan for bicycle transportation facilities and pedestrian walkways for appropriate areas of the State, which shall be incorporated into the long-range transportation plan," (Section 1025 (e)). These provisions are important on a municipal level because they are crucial for getting incidental bicycle projects funded. The intent behind these sections is to ensure that if bicycle facilities are identified in a TIP or long-range plan as being necessary in a corridor and construction or reconstruction work in those corridors is planned, then the relevant bicycle improvements called for in the planning must be included and implemented. Opportunities for incorporating bicycle projects are not limited to large transportation projects and not even to actual construction projects. Independent bicycle and pedestrian projects, such as trails away from highway corridors and non-construction projects, such as mapping, also need to be incorporated into State and City planning documents if they are to be funded.

Section 1033 states that the Federal share under TEA-21 of bicycle transportation facilities is to be 80 percent. The remaining 20 percent of the funds must be matched by the State or local government agency implementing the project. The section also states that, to be funded, a bicycle transportation facility must be principally for transportation rather than recreation purposes. This has been defined by the FHWA to mean:

"Where Federal-aid highway funds are used, these projects should serve a transportation function. A circular recreation path, for example, would not be eligible. However, any type of facility which does serve a valid transportation need while also fulfilling recreation purposes would be eligible." The section goes on to describe a "bicycle transportation facility" as: "new or improved lanes, paths or shoulders for the use of cyclists, traffic control devices, shelters and parking facilities for cyclists."

Congestion Mitigation and Air Quality Program (CMAQ)

Section 1008 is referred to as the Congestion Mitigation and Air Quality Program (CMAQ). This part of the legislation is intended to fund programs and projects likely to contribute to the attainment of national ambient air quality standards under the 1990 Clean Air Act Amendments. Five areas of eligibility have been defined: Transportation activities in an approved State Implementation Plan (SIP) developed under the Clean Air Act Transportation Control Measures listed in Section 108 (b)(1)(A) of the Clean Air Act, which include:

(ix) Programs to limit portions of roadway surfaces or certain sections of the metropolitan area to the use of non-motorized vehicles or pedestrian use, both as to time and place;

(x) Programs for secure bicycle storage facilities and other facilities, including bicycle lanes, for the convenience and protection of cyclists in both public and private areas; and

(xv) Programs for new construction and major reconstruction of paths, tracks, or areas solely for the use by pedestrians or other non-motorized means of transportation, when economically feasible and in the public interest."

"Construction of bicycle and pedestrian facilities, non-construction projects related to safe bicycle use and State bicycle/pedestrian coordinator positions as established in the TEA- 21, for promoting and facilitating the increased use of non-motorized modes of transportation. This includes public education, promotional and safety programs for using such facilities."

To be funded under this program, projects and programs must come from a transportation plan (or State (STIP) or Regional (RTIP) Transportation Improvement Program) that conforms to the SIP and must be consistent with the conformity provisions of Section 176 of the Clean Air Act.

Section 402 (Safety) Funds

Section 402 funds address State and community highway safety grant programs. The priority status of safety programs for cyclists expedites the approval process for these safety efforts.

Symms National Recreational Trails Act

The Symms National Recreational Trails Act created a trust fund for the construction and maintenance of trails. At least 30 percent of the funds must be spent on trails for non-motorized users and at least 30 percent for trails for motorized users. The remainder is to be allocated to projects as determined by the State Recreational Trails Advisory Board of the California Department of Parks and Recreation, which the State must have to be eligible for the funds.

Federal Transit Act

Section 25 of the 1964 Urban Mass Transportation Act states that: "For the purposes of this Act a project to provide access for bicycles to mass transportation facilities, to provide shelters and parking facilities for bicycles in and around mass transportation facilities, or to install racks or other equipment for transporting bicycles on mass transportation vehicles shall be deemed to be a construction project eligible for assistance under sections 3, 9 and 18 of this Act." The Federal share for such projects is 90 percent and the remaining 10 percent must come from sources other than Federal funds or fare box revenues. Typical

funded projects have included bike lockers at transit stations and bike parking near major bus stops. To date, no projects to provide bikeways for quicker, safer or easier access to transit stations have been requested or funded.

Department of the Interior - Land and Water Conservation Fund (LWCF)

The U.S. Recreation and Heritage Conservation Service and the State Department of Park and Recreation administer this funding source. Any project for which LWCF funds are desired must meet two specific criteria. The first is that projects acquired or developed under the program must be primarily for recreational use and not transportation purposes and the second is that the lead agency must guarantee to maintain the facility in perpetuity for public recreation. The application will be considered using criteria such as priority status within the State Comprehensive Outdoor Recreation Plan (SCORP). State Department of Park and Recreation will select which projects to submit to the National Park Service (NPS) for approval. Final approval is based on the amount of funds available that year, which is determined by a population-based formula. Trails are the most commonly approved project.

National Recreational Trail Fund

This funding source is intended to pay for a variety of recreational trails programs to benefit cyclists, pedestrians and other non-motorized users. Projects must be consistent with the State Comprehensive Outdoor Recreation Plan required by the Land and Water Conservation Act.

5.5.2 State Sources

Streets and Highways Code – Bicycle Transportation Account (BTA)

The Bicycle Transportation Account (BTA) funds non-motorized facilities and access to cities and counties that have adopted bikeway master plans. Section 2106 (b) of the Streets and Highways Code transfers funds annually to the BTA from the revenue derived from the excise tax on motor vehicle fuel. The Caltrans Office of Bicycle Facilities administers the BTA. It is locally administered through SANDAG to counties and cities. Approximately $8.2 million is available annually to projects in San Diego County. For a project to be funded from the BTA, the project shall:

i) Be approximately parallel to a State, county, or city roadways, where the separation of bicycle traffic from motor vehicle traffic will increase the traffic capacity of the roadway; and

ii) Serve the functional needs of commuting cyclists; and

iii) Include but not be limited to:

- New bikeways serving major transportation corridors;
- New bikeways removing travel barriers to potential bicycle commuters;
- Secure bicycle parking at employment centers, park and ride lots and transit terminals;
- Bicycle-carrying facilities on public transit vehicles;
- Installation of traffic control devices to improve the safety and efficiency of bicycle travel;
- Elimination of hazardous conditions on existing bikeways serving a utility purpose;
- Planning; and
- Safety and education

Maintenance is specifically excluded from funding and allocation takes into consideration the relative cost effectiveness of the proposed project.

State Highway Account

Section 157.4 of the Streets and Highways Code requires Caltrans to set aside $360,000 for the construction of non-motorized facilities that will be used in conjunction with the State

highway system. The Office of Bicycle Facilities also administers the State Highway Account fund. Funding is divided into different project categories. Minor B projects (less than $42,000) are funded by a lump-sum allocation by the CTC and are used at the discretion of each Caltrans District office. Minor A projects (estimated to cost between $42,000 and $300,000) must be approved by the CTC. Major projects (more than $300,000) must be included in the State Transportation Improvement Program and approved by the CTC. Funded projects have included fencing and bicycle warning signs related to rail corridors.

Transportation Development Act Article III (Senate Bill 821)

Transportation Development Act Article III funds are State block grants awarded annually to local jurisdictions for bicycle and pedestrian projects in California. The funds originate from the State retail sales tax and are distributed through the Congestion Management Agency to local jurisdictions based generally of population. Examples of expenditures have included construction of bicycle facilities and printing of bicycle safety posters on the back of city buses.

5.5.3 Other State Bicycle Project Funding Sources

Governor's Energy Office (Oil Overcharge Funds)

The Federal government forced oil companies to repay the excess profits many of them made when they violated price regulations enacted in response to the energy crisis of the early 1970's. Few states have taken advantage of this fund, but some have received grants for bike coordinators and bicycle facilities. The types of projects eligible for funding vary by state, as does the level of allocation available.

Safe Routes to School Program (SR2S)

The Safe Routes to School Program funds non-motorized facilities in conjunction with improving access to schools through the Caltrans Local Assistance Division.

5.5.4 Local Sources

TransNet Sales Tax Funds

San Diego County voters passed a local tax ordinance authorizing the creation of the TransNet Sales Tax, imposing a 1/2 cent "transaction and use tax" solely to fund transportation improvements. About one million dollars are allocated annually for improved bicycle routes throughout the region. The ordinance describes bicycle facilities and requirements for facilities as:

"All purposes necessary and convenient to the design, right-of-way acquisition and construction of facilities intended for the use of bicycles. Bicycle facilities shall also mean facilities and programs that help to encourage the use of bicycles, such as secure bicycle parking facilities, bicycle promotion programs and bicycle safety education programs."

"All new highway projects funded with revenues as provided in this measure, which are also identified as bikeway facilities in the Regional Transportation Plan (RTP), shall be required to include provision for bicycle use."

Proposition A

This is a funding source administered by SANDAG with an annual availability of approximately $1 million per year.

Assembly Bill 2766/434

This bill funds air pollution reduction projects related to alternate modes of transportation. The Air Pollution Control Board (APCB) administers this fund. Approximately $3 million is available annually.

RideLink

This program is operated by SANDAG and covers a variety of transportation management

activities including projects such as bicycle lockers and security devices. These will be provided, installed and maintained for public agencies at no cost to the requesting agency. RideLink also offers a bicycle locker loan program to private sector entities.

Developer Impact Fees

As a condition for development approval, municipalities can require developers to provide certain infrastructure improvements, which can include bikeway projects. These projects have commonly provided Class 2 facilities for portions of on-street, previously planned routes. They can also be used to provide bicycle parking or shower and locker facilities. The type of facility that should be required to be built by developers should reflect the greatest need for the particular project and its local area. Legal challenges to these types of fees have resulted in the requirement to illustrate a clear nexus between the particular project and the mandated improvement and cost.

New Construction

Future road widening and construction projects are one means of providing on-street bicycle facilities. To ensure that roadway construction projects provide bike lanes where needed, it is important that the review process includes input pertaining to consistency with the proposed system. Future development in the City of Imperial Beach will contribute only if the projects are conditioned.

Restoration

Cable TV and telephone companies sometimes need new cable routes within public rights-of-way. Recently, this has most commonly occurred during expansion of fiber optic networks. Since these projects require a significant amount of advance planning and disruption of curb lanes, it may be possible to request reimbursement for affected bicycle facilities to mitigate construction impacts. In cases where cable routes cross undeveloped areas, it may be possible to provide for new bikeway facilities following completion of the cable trenching, such as sharing the use of maintenance roads.

Other Sources

Local sales taxes, fees and permits may be implemented as new funding sources for bicycle projects. However, any of these potential sources would require a local election. Volunteer programs may be developed to substantially reduce the cost of implementing some routes, particularly multi-use paths. For example, a local college design class may use such a multi-use route as a student project, working with a local landscape architectural or engineering firm. Work parties could be formed to help clear the right-of-way for the route. A local construction company may donate or discount services beyond what the volunteers can do. A challenge grant program with local businesses may be a good source of local funding, in which the businesses can “adopt” a route and help to construct and maintain it.

5.5.5 Most Likely Sources

According to City of Imperial Beach sources, the most likely local sources of bikeway funding are the following:

1) TDA/CIP (Transportation Development Act, Capital Improvement Projects)
2) TIF (Traffic Impact Fee Fund)
3) City of Imperial Beach General Fund
4) Developer Impact Fees
5) BTA (Bicycle Transportation Account)
6) APCB (Air Pollution Control Board)

These facility guidelines are intended to guide development of all types of bikeway facilities. The first section considers the necessary planning aspects of bikeway system design in general. The following section discusses general physical design guidelines. Subsequent sections provide physical design information for specific classes of bikeway facilities.

5.6 Bikeway Planning

Successfully implementing a bikeway system involves careful planning that considers a number of issues, including setting up appropriate mechanisms to take advantage of bikeway opportunities as they become available. Author and bicycle planning expert Susan Pinsof has perhaps described the process most succinctly:

"A comprehensive, affordable approach to bicycle planning involves maximizing the usefulness of existing infrastructure by improving the safety of shared roadway space; using opportunities, such as available open space corridors for trails; creating more "bicycle-friendly" communities through planning, design and regulation; and addressing the need for bicycle safety education and encouragement."

5.6.1 Local Emphasis

Cycling is primarily a local activity since most trips do not exceed five miles. Experienced cyclists routinely ride further than this and their cross-community travel should be accommodated. However, if it is a community goal to make localized cycling a viable option for personal transportation, then cyclist mobility must be improved and enhanced throughout the community, especially to important local destinations. Even though State or Federal policies may influence or even dictate some design and implementation decisions, it is local decisions that will most significantly affect the potential for cycling within a community.

5.6.2 Master Plan Process

The basis for a bicycle-friendly community can be established by instituting appropriate policies through the development and adoption of this bicycle master plan. A program of physical improvements and workable implementation strategies that reflects local needs was developed as part of this master plan. A bicycle master plan will be of little value if it is not part of an active and ongoing planning process that continually seeks to integrate cycling considerations into all areas of local planning.

Within this master plan, facility design guidelines have been tailored to local conditions, but are also consistent with national guidelines, such as the AASHTO Guide to Development of Bicycle Facilities. State guidelines are also referenced, specifically, Caltrans Highway Design Manual, Chapter 1000, Bikeway Planning and Design and the Caltrans Traffic Manual. Elements of these guidelines without relevance to the region have been excluded.

5.6.3 "Institutionalizing" Bicycle Planning

Achieving implementation of this master plan will be greatly expedited by "institutionalizing" bicycle planning, a concept first developed by Peter Lagerway of the city of Seattle, Washington as part of his efforts as the city's pedestrian and bicycle coordinator. The term refers to coordinating local planning and regulatory functions in the development of a program of improvements. The three elements needed to institutionalize bicycle planning on a local level are a bicycle advisory committee, a bicycle coordinator and committed public officials.

1. Bicycle Advisory Committee

Public involvement can be promoted through the formation of a bicycle advisory committee as a new city committee, or as a subcommittee of an appropriate existing committee. Its primary benefit would be in providing an avenue for public participation and support.

2. Bicycle Coordinator

City government involvement can occur through the designation of a bicycle coordinator. For a city the size of Imperial Beach, this may be a part-time position or integrated with an existing position, but this does not diminish its importance. Since a truly comprehensive bicycle planning effort will involve many city departments including Public Works, Parks and Recreation, Planning and Traffic Engineering, as well as local school boards and the Sheriffs Department, the bicycle coordinator would be in a position to organize interdepartmental efforts and make certain that bicycle concerns are integrated into other city activities in the planning stages, as well as coordinated with adjacent communities and jurisdictions.

3. Public Officials

The third aspect of institutionalization of bicycle planning involves obtaining the commitment of public officials. Leadership for bicycle improvements may already come from public officials, but even if it does not, officials will be more likely to be supportive if they can be certain their constituency wants a more bicycle-friendly community.

Figure 5-4 Bikeway Facility Funding Summary

Grant Source	Due Date	Agency	Annual Total	Match Required	Eligible Applicants	Eligible Bikeway Project Types			Remarks
						Class I	Class II	Class III	
State Sources									
State Highway Account (SHA): Bicycle Transportation Account (BTA)	Consult Local Assistance Office	Caltrans	$7,200,000/yr. state-wide	10% local match required	Jurisdictions with an adopted Bikeway Plan	X		X	Available for planning grants
Transportation Development Act (TDA) Section 99234	April 2, annually			none	Local agencies	X	X	X	2% of TDA total
AB 2766 Vehicle Registration Funds		Caltrans				X	X		Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) RCF	July	APCB		none	Local agencies, transit operations, others	X	X	X	Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) PMF	April	APCB	40% from grant source	none	Local jurisdictions	X	X	X	Funds distributed to county communities based on population
Developer Fees or Exactions	Ongoing	Cities	Project-specific	none		X	X	X	Mitigation required during land use approval process
State Gas Tax (local share)	Monthly allocation	Allocated by State Auditor-Controller		none	Local jurisdictions	X		X	Major Projects, >$300,000
Flexible Congestion Relief Program (FCRP)	Dec. STIP cycle	Caltrans	$200 million/yr. state-wide		Cities, counties, transit operations, Caltrans	X	X		Must be included in an adopted RTP, STIP, CMP or RTIP
State and Local Transportation Partnership Program (SLPP)	June 30	Caltrans	Est. $200 million/yr. state-wide	none	Cities, counties or assess. districts authorized to impose taxes/fees and construct public trans. facilities	X	X		Road projects with bike lanes are eligible
Caltrans Minor Capital Program	Ongoing after July 1	Caltrans	Discretionary (Est. $4 million/yr. for District 11)	none	State and local agencies for projects >$300,000	X			Projects must be on state highways; such as upgraded bike facilities
Environmental Enhancement and Mitigation Program (EEM)	Nov. 1 annually	State Resources Agency	$10 million/yr. state-wide	none required, but favored	Local, state, federal government and non-profit agencies	X	X		Projects that enhance or mitigate existing or future transportation projects
Petroleum Violation Escrow Account (PVEA)	March 1	Budget Act for Caltrans, or special legislation for allocation to local agencies	Varies	none	State and local jurisdictions	X	X		Projects must save energy, provide restitution to the public and be approved by CA Energy Commision and US DOE
Community Based Transportation Planning Demonstration Grant Program	November	Caltrans	$3 million annually	20% local match required	Local and state agencies, MPOs, RTPAs, private, non-profit and community organizations	X		X	Projects must have a transportation component or objective
Habitat Conservation Fund Grant Program (HCF)	October	CA Dept of Park and Recreation	$2 million	50% local match required	Cities, counties and eligible districts		X		Will only be available until July 1, 2020
Office of Traffic Safety Program (OTS)	January 31	Office of Traffic Safety	Varies	none	Local, state, federal government, school districts, fire dpeartments, state colleges and universities, emergency service providers and non-profit agencies	X		X	Program objective is to reduce motor vehicle fatalities and injuries through a national highway safety program. Program to include: education, enforcement and engineering
Safe Routes to School Program (SR2S)	May	Subset of the Hazard Elimination Safety Program	$20 million annually	10% local match required	Cities and counties within California	X		X	Maximum grant shall not exceed $450,000 of federal funds per project
State Transportation Improvement Program (STIP)	Every 4 years	Regional Transportation Planning Agency	Varies	non	Cities, counties transit operators and Caltrans	X		X	Gives metropolitan regions more control over how state transportation funds are invested

Grant Source	Due Date	Agency	Annual Total	Match Required	Eligible Applicants	Eligible Bikeway Project Types			Remarks
						Com	Rec	Safety	
Federal Sources									
Land and Water Conservation Act of 1965	Dec.	State Parks and Recreation Department		50%			X		Funding subject to North/South split. Funds for outdoor recreation projects
TEA21 - Surface Transportation Program (STP)	June 1	Caltrans, FHWA		20% non-federal match	Federally certified jurisdictions				STP funds may be exchanged for local funds for non-federally certified local agencies. No match required if project improves safety
TEA21 - Tranportation Enhancement Activities (TEA)	STIP cycle	FHWA		20% non-federal match	Federally certified jurisdictions	X	X		Contact county
TEA21 - Bridge Replacement and Rehabilitation Program (BRP)	Jan/list of projects	Caltrans	$85 million/yr. state-wide	20%	Cities, counties, parks/recreation districts and air districts	X	X		Contact Caltrans Division of Structures, Office of Local Programs, Program Manager
TEA21 - National Highway System		Caltrans				X	X		Bike projects must provide a high degree of safety
TEA21 - Scenic Byways Program		Caltrans	$30 million/yr. state-wide		Local government agencies		X		Should apply first for TEA funds until TEA runs out
TEA21 - Public Lands Highway Program									
1. Forest Highway Program	Oct. 30	Caltrans	$15 million/yr. state-wide		Caltrans, local jurisdictions and federally funded programs (USFS, BLM)	X	X		For roads and bikeways leading to and serving National Forests
2. Discretionary Program	June 7	Caltrans	Varies - averages $7 million/yr. state-wide		Caltrans, local jurisdictions and federally funded programs (USFS, BLM)	X	X		For roads and bikeways leading to and serving National Forests
Congestion Mitigation and Air Quality Improvement Plan (CMAQ)	Annually to Multi-Year. Depends on MPO	Caltrans	$400 million/yr. state-wide	20% non-federal match	Cities, counties, transit operators, Caltrans, Metropolitan Planning Organizations, Non-Profit and private entities	X		X	The amount of CMAQ Funds depends on the state's populationshare and on the degree of air pollution
Regional Trails Program (RTP)	October	Dept of Parks and Recreation	$3 million annually	20% non-federal match	Local jurisdictions, state agencies and non-profit organizations		X	X	Funds are for both mototrized and non-motorized categories
Rivers, Trails and Conservation Assistance Program (RTCA)	August	National Park Service			Local jurisdictions, state agencies and citizen groups		X		Expenditures include bikeway plans, corridor studies and trails assistance

SHARE
THE
ROAD

6 Design Guidelines

These facility guidelines are intended to guide development of all bikeway facility types. The first section considers the necessary planning aspects of bikeway system design in general. The following section discusses general physical design guidelines. Subsequent sections provide physical design information for specific classes of bikeway facilities.

6.1 Bikeway Planning

Successfully implementing a bikeway system involves careful planning that considers a number of issues, including setting up appropriate mechanisms to take advantage of bikeway opportunities as they become available. Author and bicycle planning expert Susan Pinsof has perhaps described the process most succinctly:

"A comprehensive, affordable approach to bicycle planning involves maximizing the usefulness of existing infrastructure by improving the safety of shared roadway space; using opportunities, such as available open space corridors for trails; creating more 'bicycle-friendly' communities through planning, design and regulation; and addressing the need for bicycle safety education and encouragement."

6.1.1 Local Emphasis

Cycling is primarily a local activity since most trips do not exceed five miles. Experienced cyclists routinely ride further than this and their cross-community travel should be accommodated. However, if it is a community goal to make localized cycling a viable option for personal transportation, then cyclist mobility must be improved and enhanced throughout the community, especially to important local destinations. Even though State or Federal policies may influence or even dictate some design and implementation decisions, it is local decisions that will most significantly affect the potential for cycling within a community.

6.1.2 Master Plan Process

The basis for a bicycle-friendly community can be established by instituting appropriate policies through the development and adoption of this bicycle master plan. A program of physical improvements and workable implementation strategies that reflects local needs was developed as part of this master plan. A bicycle master plan will be of little value if it is not part of an active and ongoing planning process that continually seeks to integrate cycling considerations into all areas of local planning.

Within this master plan, facility design guidelines have been tailored to local conditions, but are also consistent with national guidelines, such as the AASHTO Guide to Development of Bicycle Facilities. State guidelines are also referenced, specifically, Caltrans *Highway Design Manual*, Chapter 1000, Bikeway Planning and Design and the Caltrans Traffic Manual. Elements of these guidelines without relevance to the region have been excluded.

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Bicycle Coordinator

City government involvement can occur through the designation of a bicycle coordinator. For a city the size of Oceanside, this may be a full-time position or integrated with an existing position, but this does not diminish its importance. Since a truly comprehensive bicycle planning effort will involve many city departments including Public Works, Parks and Recreation, Planning and Traffic Engineering, as well as local school boards and the Sheriffs

Department, the bicycle coordinator would be in a position to organize interdepartmental efforts and make certain that bicycle concerns are integrated into other city activities in the planning stages, as well as coordinated with adjacent communities and jurisdictions.

Public Officials

The third aspect of institutionalization of bicycle planning involves obtaining the commitment of public officials. Leadership for bicycle improvements may already come from public officials, but even if it does not, officials will be more likely to be supportive if they can be certain their constituency wants a more bicycle-friendly community.

6.1.4 Primary Planning Considerations

The safety, efficiency and enjoyment of the bike facility by expected users should be the primary considerations employed in the planning of new bicycle facilities. More specifically, such considerations should include the following:

- Direct and convenient alignment to serve trip origins and destinations;
- Access to and from existing and planned bicycle facilities;
- Avoiding abrupt facility discontinuity;
- Avoiding steep grades whenever possible;
- Adequate lighting and sight lines;
- Convenient bicycle parking at destinations; and
- Adequate commitment to maintenance.

6.1.5 Integration with Other City Plans and Programs

Bikeway facility planning requires a high level of coordination because it is directly affected by the planning decisions of other City departments, as well as those of adjacent communities, the county, regional and state agencies. Land use, zoning, street design, open space and park planning all affect how bicycle-friendly a community can be. For examples, land use patterns affect cycling by determining the locations of trip origins and destinations by such means as creating areas of employment and housing densities sufficient to sustain bicycle facilities, or by providing a balance of housing and jobs by encouraging multi-use development. Access or bicycle parking facilities can often be included in developments at a low cost. Also, the provision of better access and connections between developments for cyclists and pedestrians may be more easily provided if the need is understood and articulated as early as possible in the planning process.

Effective bicycle planning requires review of regional transportation plans, local street plans, park and open space plans and even site plan review. Transportation plans provide opportunities for low cost improvements to be designed into subsequent projects. Local street plans provide opportunities to implement changes that make streets more conducive to cycling using techniques such as traffic calming to reduce motor vehicle speeds. Park and open space planning may provide opportunities to acquire greenways and to build multi-use trails. Site plan review provides opportunities to ensure that project design accommodates cyclists through the provision of improvements such as access or parking facilities and that the project's vehicular traffic does not decrease the safety of cyclists of adjacent facilities.

6.1.6 Education and Encouragement

Education and encouragement of cycling are important elements of any bicycle planning effort and can occur through instructional venues such as school curricula and through the efforts of large employer-based transportation programs. There is no shortage of educational materials available through a number of private and government organizations such as the League of American Bicyclists. The dissemination of meaningful information can also be augmented by the participation of local businesses such as bike shops, especially since they have a vested interest in promoting safe cycling in Oceanside. Education and encouragement rarely receive the attention they deserve even when included in bikeway master plans and this is where a bicycle coordinator can be of help in developing appropriate programs.

The following are a few ways to develop education and encrouagement throughout the City.

Education:

1. Expand motorist education efforts. Install additional “Share the Road” signage throughout the City especially on roads with high ADTS and speed limits. Include the “Share the Road” message in local driver’s education classes. Improve road network signage.

2. Get bicycling motorist education messages added to routine local activities. These could be included in tax renewal, drivers’ manuals testing, or inserts with utility bills.

3. Expand the Safe Routes to School program and encourage all schools to get involved.

4. Improve the reach of bicycle safety campaigns.
This can include PSAs through KOCT and the Oceanside Magazine.

Encouragement

1. Expand encouragement efforts during Bike Month.
Have the Mayor and/or the City Council proclaim May as Bike Month and expand Bike to Work Week events. Have local bike shops and businesses donate time and money to man stations throughout the City to promote bicycling, health awareness and their businesses.

Ribbon cutting ceremony for the opening of the San Luis Rey River Trail extension

2. Develop a series of short (2-5 mi.) loops rides around Oceanside. Provide way-finding signage and integrate these rides into local bike map. Have the City of local bicycle club promote a race for amateurs and professionals and include children’s races to encourage bicycling. Use these events to conduct bicycle rodeos to promote safe and fun bicycling. Proceeds from the event can be used to improve and maintain bicycle facilities throughout the City.

3. Improve bicycle route wayfinding markers.

4. Arrange community celebrations and/or rides each time a new bicycling related project is completed. Show off the City’s good efforts and introduce new users to the improvment.

Enforcement

Address whether or not the law enforcement community has a liaison with the cycling community, if there are bicycle divisions of the law enforcement or public safety communities, if the community uses targeted enforcement to encourage cyclists and motorists to share the road safely, and the existence of bicycling related laws such as those requiring helmet or the use of sidepaths.

Encourage the Police Department to use targeted enforcement to encourage motorists and cyclists to share the road. This could be in the form of a brochure or tip card explaining each user’s rights and responsibilities.

6.1.7 Regulating Land Use and Community Design to Benefit Cycling

Land use and design options are largely determined by regulatory functions that, in turn, help to define community character and functionality. These regulatory functions such as subdivision regulations, zoning requirements and developer exactions are also often used to set requirements for amenities in new development projects. These same regulations can be used to help define development patterns more conducive to cycling such as in-

corporating more mixed use, higher densities and connections between communities and land uses. Street patterns and hierarchy can greatly affect average daily (motor vehicle) trips (ADTs), connectivity and motor vehicle speeds, which in turn positively or negatively affects cycling. Street design can be modified to discourage high motor vehicle speeds and to provide width for a bike lane. Linear open space can become land for greenway routes that benefit all non-motorized users, not just cyclists.

Though prioritization of bikeway projects is defined by State and local decisions, it is Federal funding and policies that currently encourage the use of transportation funds for bicycle and pedestrian projects. However, Federal funding cannot be counted upon as a reliable source for the foreseeable future since it depends on the political nature of legislative action. Bicycle planning cannot sustain itself on the occasional Federal grant. Future local implementation will more likely depend on instituting bicycle improvements as part of infrastructural projects, which is when they are most cost-effective.

Similarly, the most economical way to include bicycle facilities in private development is through initial project planning and design, not as an afterthought. Ordinances can be written that bikeway systems be included as part of new developments. An effort should be made to show developers that such requirements are worthwhile because they create well established marketing advantages gained from providing pedestrian and bicycle amenities. Ordinances can also require bicycle amenities such as bicycle parking, showers and lockers at employment sites. In all cases, a bicycle master plan is important for establishing priorities for such public/private projects.

Review of developments for transportation impacts should address how on-site bicycle facilities are planned. Bicycle storage racks should be provided at commercial facilities at locations convenient to building entrances and covered from the elements. This is especially important at retail and service establishments. At employment sites, secure bicycle racks and/or lockers should be provided. For outdoor parking, lockers are preferred because they completely secure the bicycle from theft of the entire bicycle or its parts and are weatherproof.

Requiring developments near commuter rail stations to provide access pathways to these transit centers as part of urban in-fill may improve multi-modal connections for pedestrians and cyclists alike. Other developers should contribute to bicycle master plan implementation projects in newly developing areas. Park land dedication or fees in lieu of dedication is another possible component of strategies to acquire local trail and bicycle path rights-of-way.

6.1.8 Bicycle Parking Facilities

The selection and placement of bicycle racks is an important issue because the lack of secure parking keeps many people from using their bikes for basic transportation. Leaving a bicycle unattended, even for short periods, can easily result in damage or theft. Not being able to find a bike rack or finding one that does not work or is not conveniently located is a frustrating experience.

Whenever possible, the racks should be placed within 50 feet of building entrances where cyclists would naturally transition to pedestrian mode. The rack placement would ideally allow for visual monitoring by people within the building and/or people entering the building. The placement of the racks should minimize conflicts with both pedestrians and motorized traffic. All bicycle parking provided should be on paving, and located a minimum of two feet from a parallel wall, and four feet from a perpendicular wall (as measured to the closest center of the rack).

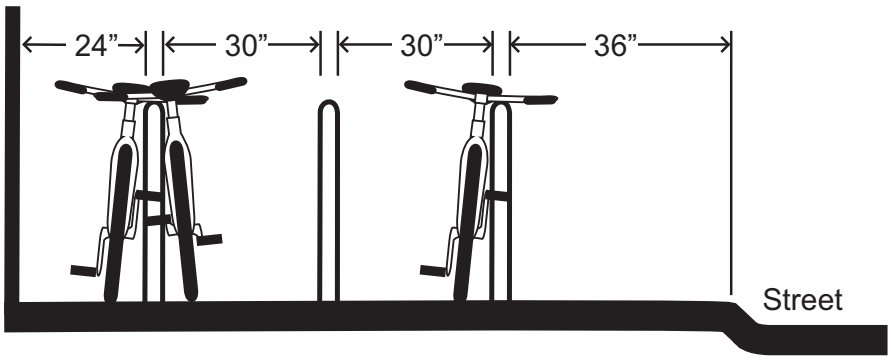
Like most American municipalities, no real facility inventory is available for Oceanside. However, there are bicycle parking facilities at the larger retail centers, Community Centers and some parks and other City facilities as well as the bikelockers at the Sprinter Stations, City Hall and the Oceanside Transit Center.

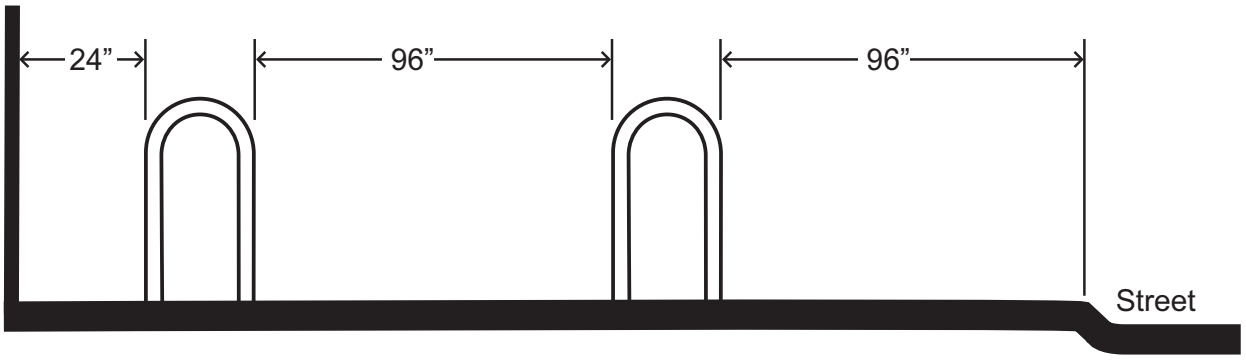
Oceanside could implement a minimum bicycle parking ordinance like that of the City of Encinitas (EMC 30.54.030.C) that defines bicycle parking facilities as "...stationary racks or devices designed to secure the frame and wheel of the bicycle." The ordinance lists the following provisions:

- Buildings housing administrative/professional office space, shopping centers and other commercial uses of less than 20,000 square feet of floor area must provide a minimum of three bicycle parking spaces. Facilities with more than 20,000 square feet must supply a minimum of five spaces.

- Shopping centers with over 50,000 square feet of gross floor area must supply one bicycle parking space for every 33 required automobile spaces.

- Restaurants of less than 6,000 square feet of floor area must provide two spaces and restaurants with more than 6,000 square feet must provide five spaces.





- Recreation facilities must provide one bicycle space per 33 required automobile parking space.

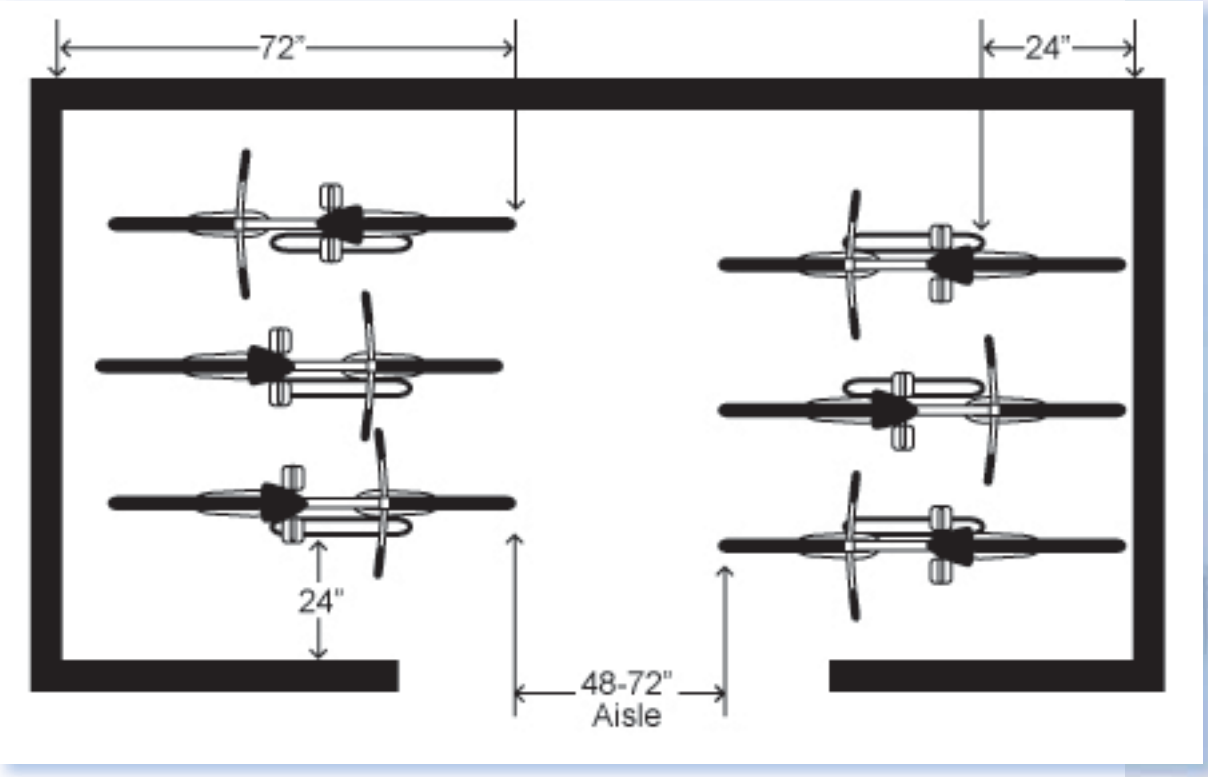
- Hospitals and churches must provide eight bicycle spaces.

The City should continue to encourage the use of alternate forms of transportation by also requiring the provision of shower facilities for employers with greater than a specified number of employees.

To help achieve parity with drivers, the City could codify by ordinance, or develop a pro-

gram to provide bike racks in existing commercial areas, and in new or existing multi-family development designed without private garages. These programs should include bike rack design and installation standards such as those in the following section.

The following paragraphs and graphics focus on outdoor installations using racks intended to accommodate conventional, upright, single-rider bicycles and the use a solid, U-shaped lock, or a cable lock, or both.



Rack Element

The rack element is the part of the bike rack that supports one bicycle. It should support the bicycle by its frame in two places, prevent the bicycle wheel from tipping over, allow the frame and one or both wheels to be secured and support bicycles with unconventional frames.

"Inverted U" type racks are most recommended because each element can support two bicycles. Commonly used "wave" type racks are not recommended because they support the bicycle at only one point. Cyclists often park their bikes parallel with the rack, instead of perpendicular as intended, which reduces the rack capacity by half.

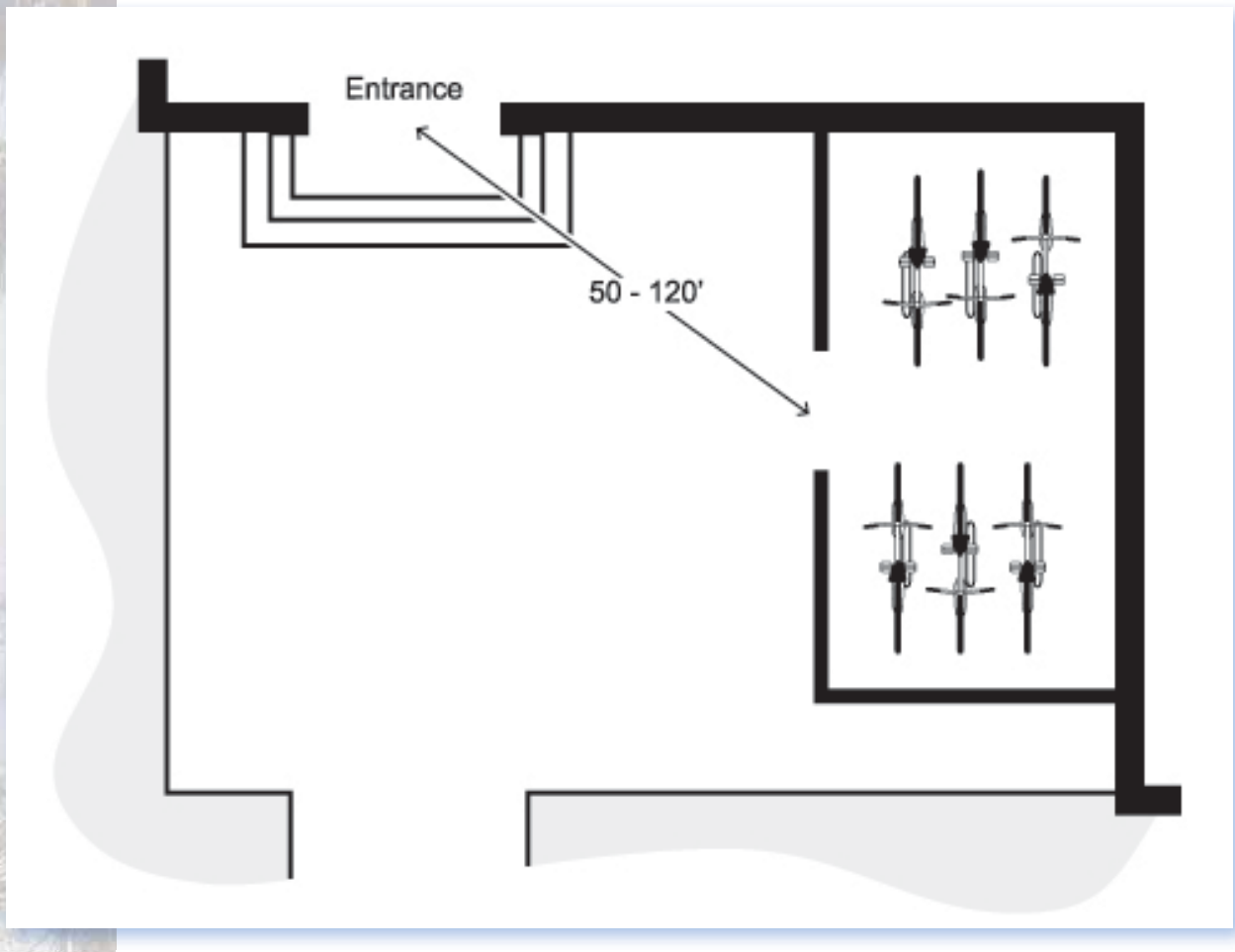
The rack element should also resist being cut or detached using common hand tools, especially those that can be concealed in a backpack. Such tools include bolt cutters, pipe cutters, wrenches and pry bars.

Rack

The rack itself is one or more rack elements joined on a common base or arranged in a regular array and fastened to a common mounting surface.

The rack elements may be attached to a single frame or remain single elements mounted in close proximity. They should not be easily detachable from the rack frame or easily removed from the mounting surface. The rack should be anchored so that it cannot be stolen with the bikes attached such as with vandal-resistant fasteners.

The rack should provide easy, independent bike access. Typical inverted “U” rack elements mounted in a row should be placed on 30” centers. Normally, the handlebar and seat heights will allow two bicycles to line up side-by-side in opposite directions. If it is too inconvenient and time-consuming to squeeze the bikes into the space and attach a lock, cyclists will look for an alternative place to park or use one rack element per bike and reduce the projected parking capacity by half.



Rack Area

The rack area is a bicycle parking lot where racks are separated by aisles.

A rack area or “bicycle parking lot” is an area where more than one rack is installed separated by aisles measured from tip to tip of bike tires across the space between racks. The minimum separation between aisles should be 48 inches, which provides enough space for one person to walk one bike. In high traffic areas where many users park or retrieve bikes at the same time, such as at colleges, the recommended aisle width is 72 inches. The depth of each row of parked bicycles should also be 72 inches.

Large rack areas in high turnover areas should have more than one entrance. If possible, the rack area should be protected from the elements. Even though cyclists are exposed to sun, rain and snow while en route, covering the rack area keeps the cyclist more comfortable while parking, locking the bike and loading or unloading cargo. A covering will also help keep the bicycle dry, especially the saddle.

Rack Area Site

The rack area site is the relationship of a rack area to the building entrance or approach.

In general, smaller, conveniently located rack areas should serve multiple buildings, rather than a larger combined, distant one. Racks far from the entrance or perceived to be where bikes will be vulnerable to vandalism will not receive much use.

Rack area location in relationship to the building it serves is very important. The best location is immediately adjacent to the entrance it serves, but racks should not be placed where they can block the entrance or inhibit pedestrian flow. The rack area should be located along a major building approach line and clearly visible from the approach.

The rack area should be no more than a 30-second walk (120 feet) from the entrance it serves and should preferably be within 50 feet. A rack area should be as close or closer than the nearest car parking space, be clearly visible from the entrance it serves and be near each actively used entrance.

Creative Design

There are many creative, three-dimensional bicycle parking racks that work very well. Creative designs should carefully balance form with function. Whatever the rack configuration, the critical issue is that the rack element supports the bike in two places and allows the bicycle to be securely locked. All racks must be carefully manufactured and maintained to prevent weaknesses at the joints that might compromise bicycle security.

Long Term Parking

Bicycle parking facility intended for long term parking and protected against theft of the entire bicycle and its components and accessories. Three common ways of providing secure long term bicycle parking are:

1. Fully enclosed lockers accessible only by the user - generally involving a charge;

2. A continuously monitored facility that provides at least medium term type bicycle parking facilities - generally available at no-charge;

3. Restricted access facilities in which short term type bicycle racks are provided and access is restricted only to the owners of the bicycles stored therein.

Bike Lockers at City Hall

Perhaps the easiest retrofit is bicycle locker. Generally they are as strong as the locks on the door. They are designed to be secure individual bikes with panniers, computers, lights, etc, left on the bike. Some designs of bike lockers can be stacked so there is twice the parking density. Good protection from the weather is another benefit. Bike lockers tend to be used most for long term bicycle commuter parking in area without a lot of continuous oversight. On the downside, if lockers have coin-operated locks, they can be a target of theft, and may attract various non-intended uses. Bike parking facility in urban parking structures tends to be three groups:

1. Parking company parking garages (often stand-alone) which provide no bike parking - these may be self-service or have a parking attendant collecting fees.

2. Parking in a company building (often subterranean) where bicycle racks, available to the public, are installed in some corner not very suitable for cars -- hopefully within eye-sight of the parking lot attendant. The building owners provide bike parking for corporate goodwill.

3. Buildings with bicycle parking cages (in a car park garage) or bicycle parking rooms, without an attendant associated with them. Access to these secure parking areas is via a

gate or door controlled by an employee badge reader. The employer/building owner provides parking as a service to employees, and probably as part of a commute trip reduction program.

Generally, both of the latter bicycle parking arrangements are available at no cost and there are signs posted prominently that the building owners assume no liability for loss or theft. These garages/parking facilities generally have limited hours of operation, after which they are shuttered (gates closed and locked) for the night and any left vehicles is inaccessible until the facility reopens.

6.1.9 Locating Bicycle Facilities on Roadways

The appropriateness of a roadway facility for bicycling is influenced by a number of factors. These factors can generally be classified into the following categories:

Land Use and Location Factors

These factors represent the most significant category affecting compatibility. Since bicycle trips are generally shorter than motor vehicle or mass transit trips, there must be a manageable distance between origins and destinations, such as between residential areas and places of employment. There are certain key land uses, which are especially likely to generate bicycle traffic if good bicycle facilities are available. These consist of, but are not limited to, transit centers, schools, employment centers with nearby residential areas, recreation areas and mixed use areas.

Physical Constraint Factors

These consist of roadway geometric or physical obstacles to bicycling, which are difficult or costly to remedy. For example, a roadway may be appropriate because of location factors, but not appropriate because of the existence of physical constraints to bicycling such as a narrow bridge, insufficient right-of-way or intersections with restricted lane widths resulting from lane channelization. The feasibility of correcting these physical constraints must be weighed in designating bikeways.

Traffic Operations Factors

These include traffic volume, speed, the number of curb cuts or conflict points along the roadway, sight distance and bicycle-sensitive traffic control devices. Experienced cyclists will use roadways even if they have limiting traffic operational factors, but less confident cyclists will perceive such roadways as unsafe and intimidating. These roadway facilities should be designed or improved to accommodate cyclists through the shared use of roadways. However, they are inappropriate for full designation as bikeways.

Other safety issues such as maintenance and pavement repair are also important considerations in the designation of bikeways, but do not directly affect the planning aspects of appropriate facilities.

6.1.10 Integrating Bicycle Facilities into the Roadway Planning Process

Planning for bicycle facilities on roadways should begin at the very earliest stage of project development on all sizes and types of roadway projects. Even the smallest roadway reconstruction project could result in a missed opportunity if cyclists are not taken into consideration at the initiation of the project. At the municipal level, planners should address these roadway planning issues in the comprehensive context of the Circulation Element in the City's General Plan.

The Bikeway Master Plan is a planning tool for the development of bikeway facilities. It is intended to complement the City's adopted roadway standards, and the General Plan's Circulation Element. The roadway standards rely on the Bikeway Master Plan to provide guidance on the location, type and recommended design of bikeway facilities.

The following procedure offers the planner and designer general guidance in determining

the need for bikeways during the usual phases of project development.

Needs Assessment

The first step in the planning process for any transportation project is the assessment of needs. Existing and planned land use, current and projected traffic levels and the special needs of the area population are examined. There are circumstances in which a portion of the transportation need might be served by non-motorized means, as well as locations where existing bicycle demand would be better served by improved facilities. The following land use and location factors assist in recognizing the potential for non-motorized travel and evaluating the needs of cyclists at the street level. The roadway:

- Serves an activity center, which could generate bicycle trips;
- Is included on a county or municipal bicycle master plan;
- Provides continuity with or between existing bicycle facilities, including those of adjacent cities;
- Is located on a roadway, which is part of a mapped bike route or utilized regularly by local bicycle clubs;
- Passes within two miles of a transit center;
- Passes within two miles of a high school or college;
- Passes within a half mile of an elementary school or middle school;
- Passes through an employment center, especially if there is a significant residential area within a three mile radius; or
- Provides access to a recreation area or otherwise serves a recreation purpose.

If any one of these factors exists, the roadway has the potential to attract less experienced bicycle riders and/or significant numbers of advanced riders. As a result, it should be considered as potentially appropriate for designation as a bikeway.

The planner should include a description of the potential significance of the roadway as a bikeway facility in the project initiation or scoping document that will be forwarded to the project designer. If the planner determines that the project is potentially appropriate for designation as a bikeway, the nature of potential bicycle use should be addressed, including factors affecting roadway design, such as roadway truck volumes or intersections.

Preliminary Engineering

Roadway facilities that have been determined through needs assessment to be potentially appropriate for bikeways should be analyzed to determine whether any physical constraints exist that may limit the facility type that could be provided. The following factors should be considered:

- Sufficient right-of-way exists, or additional right-of-way can be acquired to allocate the required space for a bikeway;
- Physical impediments or restrictions exist, but they can be avoided or removed to allow for the required pavement width to provide a bikeway;
- Bridges allow for bicycle access in accordance with bikeway standards; and
- Travel or parking lanes can be reduced in width or eliminated to allow space for bikeways.

If these factors occur, a bikeway should be recommended at the completion of the preliminary engineering phase for the following situations:

- Transportation facilities or segments that connect bicycle traffic generators within five miles of each other; or
- Segments of transportation facilities that provide continuity with existing bicycle facilities.

If physical constraint factors that preclude allocation of space and designation of bikeways

exist along a particular roadway and cannot be avoided or remedied, these factors should be reported to the project manager in the final design phase and alternative design treatments should be generated.

Planning and engineering should consider more than roadway cross-sections. Often, the most difficult potential areas of conflict are at intersections. In general, high speed interchanges, merge lanes and wide radius curbs are unsafe for cyclists and should be avoided.

Final Design And Facility Selection

Class 2 facilities are usually more suitable in urban settings on roads with high traffic volumes and speeds. Class 3 facilities are often used in urban settings to guide cyclists along alternate or parallel routes that avoid major obstacles, or have more desirable traffic operational factors.

In rural settings, Class 2 facilities are not usually necessary to designate preferential use. On higher volume roadways, wide shoulders offer cyclists a safe and comfortable riding area. On low volume roadways, most cyclists prefer the appearance of a narrow, low speed country road.

Table 1 (following page) recommends the type of bikeway and pavement width for various traffic conditions. For locations where pavement widths do not meet the criteria listed in the table, the local municipal bicycle authority should be consulted to assist in the decision-making process.

Where physical obstructions exist that can be removed in the future, the roadway facility should be designed to meet bikeway space allocation requirements and upgraded and designated when the physical constraint is remedied (i.e., bridge is replaced and improved to allow designated facility).

The final design should be coordinated with the bicycle coordinator for review and approval prior to construction.

- Existing and projected traffic volumes and speeds;
- Existence of parking (Can parking be restricted or removed to allow better sight distances?);
- Excessive intersection-conflict points (Can intersection-conflict points be reduced along roadways?);
- Turn lanes at intersections that can be designed to allow space for cyclists;
- Sections with insufficient sight distance or roadway geometrics be changed; or
- Traffic operations be changed or “calmed” to allow space and increased safety for cyclists.

6.2 General Physical Guidelines

The following sections cover physical design guidelines applicable to all bikeway facility types. Guidelines specific to Class 1, 2 and 3 facilities are covered in subsequent sections.

6.2.1 Pavement Width

At a minimum, all roadway projects shall provide sufficient width of smoothly paved surface to permit the shared use of the roadway by bicycles and motor vehicles.

Table 1 is based on the FHWA publication, *Selecting Roadway Design Treatments to Accommodate Bicycles*. Pavement widths represent minimum design treatments for accommodating bicycle traffic. These widths are based on providing sufficient pavement for shared use by bicycle and motor vehicle traffic and should be used on roadway projects as minimum guidelines for bicycle compatible roads. Note that these are recommendations that do not supersede current City roadway standards, and they apply to Class 3 routes only.

Table 6-1: Recommended Lane Widths

Posted Speed Limit	Urban w/ Parking	Urban w/o Parking	Rural
1,200 to 2,000 ADTs			
<30 mph	12 ft. SL	11 ft. SL	10 ft. SL
31-40 mph	14 ft. SL	14 ft. SL	12 ft. SL
41-50 mph	15 ft. SL	15 ft. SL	3 ft. SH
>50 mph	NA	4 ft. SH	4 ft. SH
2,000 to 10,000 ADTs			
<30 mph	14 ft. SL	12 ft. SL	12 ft. SL
31-40 mph	14 ft. SL	14 ft. SL	3 ft. SH
41-50 mph	15 ft. SL	15 ft. SL	4 ft. SH
>50 mph	NA	6 ft. SH	6 ft. SH
More than 10,000 ADTs or Trucks over 5%			
<30 mph	14 ft. SL	14 ft. SL	14 ft. SL
31-40 mph	14 ft. SL	4 ft. SH	4 ft. SH
41-50 mph	15 ft. SL	6 ft. SH	6 ft. SH
>50 mph	NA	6 ft. SH	6 ft. SH

Notes:

Primarily applicable to Class 3 and "Undesignated" routes.

SH = Shoulder, SL = Shared Lane

Shared lane is acceptable for volumes less than 1,200 ADTs.

Provide 8' shoulder for volumes greater than 10,000 ADTs.

Considerations in the selection of pavement width include traffic volume, speed, sight distance, number of large vehicles (such as trucks) and grade. The dimensions given in Table1 for shared lanes are exclusive of the added width for parking, which is assumed to be eight feet. On shared lanes with parking, the lane width can be reduced if parking occurs only intermittently. On travel lanes where curbs are present, an additional one foot is necessary.

On very low volume roadways with ADTs of less than 1,200, even relatively high speed roads pose little risk for cyclists since there will be high probability that an overtaking motor vehicle will be able to widely pass a bicycle. When an overtaking car is unable to immediately pass a bicycle, only a small delay for the motorist is likely. Both cyclists and motorists jointly use these types of roadways in a safe manner and widening of these roads is not usually recommended. Costs of providing widening of these roads can seldom be justified based on either capacity or safety.

Similarly, moderately low volume roadways with ADTs between 1,200 and 2,000 generally are compatible for bicycle use and will have little need for widening. However, since there

is a greater chance of two opposing cars meeting at the same time as they must pass a cyclist, providing some room at the outside of the outer travel lane is desirable on faster speed roadways. On low speed roadways, motorists should be willing to accept some minimal delay.

With ADTs from 2,000 to 10,000, the probability becomes substantially greater that a vehicle overtaking a bicycle may also meet another oncoming vehicle. As a result, on these roads, some room at the edge of the roadway should be provided for cyclists. This additional width should be two to three feet added to a typical 10-foot outer travel lane. At low speeds, such as below 25 m.p.h., little separation is needed for both a cyclist and a motorist to feel comfortable during a passing maneuver. With higher speeds, more room is needed.

At volumes greater than 10,000 ADTs, vehicle traffic in the curb lane becomes almost continuous, especially during peak periods. As a result, cyclists on these roadways require separate space to safely ride, such as a Class 2 facility. In addition, improvements to the roadway edge and the shoulder area will be valuable for motorists as well.

Caltrans guidelines for highways recommend that a full eight-foot paved shoulder be provided for State highways. On highways having ADTs greater than 20,000 vehicles per day, or on which more than five percent of the traffic volume consists of trucks, every effort should be made to provide such a shoulder for the benefit of cyclists, to enhance the safety of motor vehicle movements and to provide “break down” space, as well as a Class 2 facility. Otherwise, the highway should probably not be designated as a bicycle facility.

6.2.2 Sight Distance

Roadways with adequate sight distance will allow a motorist to see, recognize, decide on the proper maneuver, and initiate actions to avoid a cyclist. Adequate decision sight distance is most important on high speed highways and narrow roadways where a motorist would have to maneuver out of the travel lane to pass a cyclist.

The pavement widths given in Table 1 are based on the assumption that adequate sight distance is available. In situations where there is not adequate sight distance, provision of additional width may be necessary.

6.2.3 Truck Traffic

Roadways with high volumes of trucks and large vehicles, such as recreational vehicles, need additional space to minimize cyclist/motorist conflicts on roadways. Additional width allows trucks to overtake cyclists with less maneuvering and the cyclists will experience less lateral force from truck drafts. This additional width will also provide greater sight distance for following vehicles.

Although there is no established threshold, additional space should be considered when truck volumes exceed five percent of the traffic mix, or on roadways that serve campgrounds, or where a high level of tourist travel is expected using large recreational vehicles. Where truck volumes exceed 15 percent of the total traffic mix, widths shown on Table 1 should be increased by one foot minimum.

6.2.4 Steep Grades

Steep grades influence overtaking of cyclists by motorists. Inexperienced cyclists climbing steep grades are often unsteady (wobbly) and may need additional width. Also, the difference in speed between a slow, climbing cyclist and a motor vehicle results in less time for the driver to react and maneuver around a cyclist. Motor vehicle slowing on a steep grade to pass a cyclist can result in a diminished level of service.

6.2.5 Unavoidable Obstacles

Short segments of roadways with multiple unavoidable obstacles that result in inadequate roadway width are acceptable on bicycle compatible roadways if mitigated with signing or

striping. Typical examples include bridges with narrow widths and sections of roadway that cannot be widened without removing significant street trees. These conditions preferably should not exist for more than a quarter of a mile, or on high speed highways. “Zebra” warning striping should be installed to shift traffic away from the obstacle and allow for a protected buffer for bicycle travel.

In situations where a specific obstacle such as a bridge abutment cannot be avoided, a pavement marking consisting of a single six inch white line starting 20 feet before and offset from the obstacle can also be used to alert cyclists that the travel lane width will soon narrow ahead. (See Section 1003.6 of the Caltrans *Highway Design Manual* for specific instructions.)

In either situation, where bicycle traffic is anticipated, a “SHARE THE ROAD” sign should be used to supplement the warning striping. On longer sections of roadway that are irrevocably narrow, edge striping should be employed to narrow the travel lane and apportion pavement space for a partial shoulder. In situations where even these measures may not provide adequate roadway space for cyclists, it is recommended that an alternate route be designated.

6.2.6 Pavement Design

Though wider tires are now very common and bicycle suspension systems are becoming increasingly prevalent, bicycles still require a riding surface without significant obstacles or pavement defects because they are much more susceptible to such surface irregularities than are motor vehicles. Asphalt is preferred over concrete where shoulders are employed. The outside pavement area where bicycles normally operate should be free of longitudinal seams. Where transverse expansion joints are necessary on concrete, they should be saw cut to ensure a smooth transition. In areas where asphalt shoulders are added to existing pavement, or where pavement is widened, pavement should be saw cut to produce a tight longitudinal joint to minimize wear and expansion of the joint.

6.2.7 Raised Roadway Markers

Raised roadway markers such as reflectors or rumble strips should not be used on roadway edges where bicycles are most likely to operate because they create a surface irregularity that can be hazardous to bicycle stability. Painted stripes or flexible reflective tabs are preferred. In no case should strips of raised reflectors intended to warn motorists to reduce vehicle speeds prior to intersections be allowed to cross through the bicycle travel lane.

6.2.8 Utilities

Because bicycles are much more sensitive to pavement irregularities than motor vehicles, utility covers should be adjusted as a normal function of any pavement resurfacing or construction operations. Failure to do so can result in the utility cover being sunken below the paving surface level which creates a hazard experienced cyclists refer to as “black holes.” Also, it is common practice to excavate trenches for new utilities at road edges, the same location as bicycle facilities. When such trenching is completed, care should be given to replacing the full surface of the bicycle lane from the road edge to the vehicle travel lane instead of narrow strips that tend to settle or bubble, causing longitudinal obstructions. Replacement of the bike lane striping should also be required.

6.2.9 Drainage Facilities

Storm water drainage facilities and structures are usually located along the edge of roadways where they can present conflicts with cyclists. Careful consideration should be given to the location and design of drainage facilities on roadways with bicycle facilities.

All drainage grate inlets pose some hazard to bicycle traffic. The greatest hazard comes from stream flow drainage grates which can trap the front wheel of a bicycle and cause the cyclist to lose steering control, or allow the narrow bicycle wheels to drop into the grate. Another type of hazard may be caused by cyclists swerving into the lane of traffic to avoid

a grate or cover. Riding across any wet metal surface increases the chances of a sudden slip fall.

Only a "bicycle safe" drainage grate with acceptable hydraulic characteristics should be used. The inlet grate should be used in all normal applications and should be installed flush with the final pavement. Where additional drainage inlet capacity is required because of excessive gutter flow or grade (greater than two percent), double inlets should be considered. Depressed grates and stream flow grates should not be used except in unique or unusual situations that require their use and only outside the lane sharing area. Where necessary, depressed grates should only be installed on shoulders six feet wide or greater. Where projects offer the possibility for replacement of stream flow grates located in the lane sharing area, these grates should be replaced with the "bicycle safe" grate.

When roads or intersections are widened, new bicycle safe drainage grates should be installed at a proper location at the outside of the roadway, existing grates and inlet boxes should be removed and the roadway reconstructed. Drainage grate extensions, the installation of steel or iron cover plates or other "quick fix" methods which allow for the retention of the subsurface drain inlet are unacceptable measures since they will create a safety hazard in the portion of the roadway where cyclists operate.

Manholes and covers should be located outside of the lane sharing area wherever possible. Utility fixtures located within the lane sharing area, or any travel lane used by bicycle traffic, should be eliminated or relocated. Where these fixtures cannot be avoided, the utility fixture cover should be made flush with the pavement surface.

6.2.10 Combination Curb and Gutter

These types of curbs reduce space available for cyclists. The width of the gutter pan should not be used when calculating the width of pavement necessary for shared use by cyclist. On steep grades, the gutter should be set back an additional one foot to allow space to avoid high speed crashes caused by the longitudinal joint between the gutter pan and pavement. Where the combination curb and gutter is used, pavement width should be calculated by adding one foot from the curbed gutter.

6.2.11 Bridges

Bridges provide essential crossings over obstacles such as rivers, rail lines and high speed roadways, but they have been almost universally constructed for the expedience of motor vehicle traffic and often have features that are not desirable for bicycling. Among these features are widths that are narrower than the approach roadways (especially when combined with relatively steep approach grades), low railings or parapets, high curbs and expansion joints that can cause steering problems.

Though sidewalks are generally not recommended for cycling, there are limited situations such as long or narrow bridges where designation of the sidewalk as an alternate bikeway facility can be beneficial to cycling, especially when compared to riding in the narrow bridge roadway. This is only recommended where the appropriate curb cuts, ramps and signage can also be included. Using the bridge sidewalk as a bikeway facility is especially useful where pedestrian use is expected to be minimal. Appropriate signage directed to all potential users should be installed so that they will be aware of the shared use situation. Bridge railings or barrier curb parapets where bicycle use is anticipated should be a minimum of 4.5 feet high.

Short of wholesale replacement of existing narrow bridges over rail lines and highways, there are a few measures to substantially improve safety for cyclists. Signage warning motorists of both the presence of cyclists and the minimal bridge width should be installed at the bridge approaches. "Zebra" warning stripe areas should be painted along high curbs to deter cyclists from riding too close to them, which can result in the pedal hitting these high, curbs, causing a crash. This situation is of particular concern since the cyclist will want to

stay as far to the right as possible to avoid passing motor vehicles traffic, even though riding far to the right increases the chances of hitting the high curb.

Though the first alternative mentioned above, bridge replacement, is the preferred alternative for bridges that are too narrow, it is the least likely to occur due to cost. A second alternative is to direct cyclists to alternate, safer routes, but this will not always be practical since highway and rail crossing points are usually limited in number and considerable distances apart. In any case, these other crossing points may well have similar width restrictions.

A third alternative is to build separate bridges for cyclist and pedestrian use. Where access warrants a workable solution, this could be a cost-effective long-term solution compared to rebuilding the motor vehicle bridge. These additional bridges could be built adjacent to the motor vehicle bridges, or be installed well away from them, depending upon where best to conveniently accommodate cyclists and pedestrians. An advantage to constructing the bridges away from the motor vehicle bridges is that only one bridge would be needed since building bicycle/pedestrian bridges immediately adjacent to existing motor vehicle bridges would require constructing two one-way spans, one on each side of the roadway, for optimum user safety.

If sidewalk widths are sufficient, directing cyclists to use the sidewalks and installing ramps at the bridge ends is a possible solution. In general, sidewalks are not recommended as a cycling venue and riding on sidewalks is illegal, but in cases where narrow bridges are not expected to be rebuilt for an extended period of time, this may be a reasonable alternative. If possible, a railing should be installed between the roadway and the sidewalk.

Finally, it should be noted that all the other alternatives are inherently inferior to the first alternative of rebuilding narrow bridges in terms of safety, and should only be considered where the first alternative cannot be implemented.

6.2.12 Traffic Control Devices

As legitimate users of California's roadways, cyclists are subject to essentially the same rights and responsibilities as motorists. In order for cyclists to properly obey traffic control devices, those devices must be selected and installed to take their needs into account. All traffic control devices should be placed so cyclists who are properly positioned on the road can observe them. This includes programmed visibility signal heads.

Traffic Signals and Detectors

Traffic-actuated signals should accommodate bicycle traffic. Detectors for traffic-activated signals should be sensitive to bicycles, should be located in the cyclist's expected path and stenciling should direct the cyclist to the point where the bicycle will be detected. Examples of successful bicycle-sensitive signal detector installation and their specific applications are shown below.

Bicycle Detection symbol in Oceanside

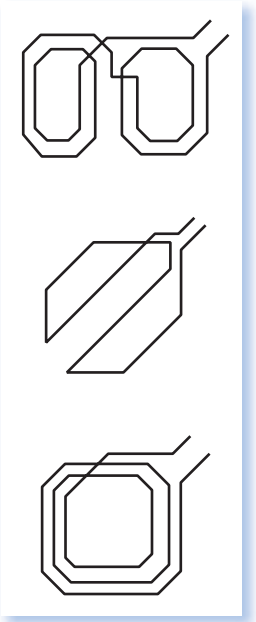
Since detectors can fail, added redundancy in the event of failure is recommended in the form of pedestrian push buttons at all signalized intersections. These buttons should be mounted in a location that permits their activation by a cyclist without having to dismount.

It is common for bicycles to be made of so little ferrous metals that they may not be detectable by many currently installed types of loop detectors. As an convenience for cyclists, the strongest loop detection point should be marked with a standard symbol (See Figure 1003.2D: Bike Loop Detector Pavement Marker in Caltrans *Highway Design Manual, Chapter 1000 - Bikeway*

Planning and Design).

Where left turn lanes are provided and only protected left turns are allowed, bicycle sensitive loop detectors should be installed in the left turn lane, or a pedestrian style push button should be provided that is accessible to the cyclist in the median immediately adjacent to the turn lane to permit activation of the left turn phase. Where moderate or heavy volumes of bicycle traffic exist, or are anticipated, bicycles should be considered in the timing of the traffic signal cycle as well as in the selection and placement of the traffic detector device. In such cases, short clearance intervals should not be used where cyclists must cross multi-lane streets. According to the 1991 AASHTO *Guide for the Development of Bicycle Facilities*, a bicycle speed of 10 m.p.h. and a perception/reaction time of 2.5 seconds can be used to check the clearance interval. Where necessary, such as for particularly wide roadways, an all-red clearance interval can be used.

In general, for the sake of cyclist safety, protected left turns are preferred over unprotected left turns. In addition, traffic signal controlled left turns are much safer for cyclists than left turns at which motorists and cyclists must simply yield. This is because motor vehicle drivers, when approaching an unprotected left turn situation or planning to turn left at a yield sign, tend to watch for other motor vehicles and may not see an approaching cyclist. More positive control of left turns gives cyclists an added margin of safety where they need it most.



Quadrupole Loop
- Detects most stronly in center
- Sharp cut-off of sensitivity
- Used in bike lanes

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

Standard Loop
- Detects strongest over wires
- Gradual cut-off
- Used in advanced detection

Signing

When designating a bicycle route, the placement and spacing of signs should be based on the Caltrans *Traffic Manual* and *Highway Design Manual*. For bike route signs to be functional, supplemental plaques can be placed beneath them when located along routes leading to high demand destinations (e.g. “To Downtown,” “To Transit Center,” etc.) Since bicycle route continuity is important, directional changes should be signed with appropriate arrow sub-plaques. Signing should not end at a barrier. Instead, information directing the cyclist around the barrier should be provided.

According to the *Manual on Uniform Traffic Control Devices (MUTCD)* Part 2A-6: “Care should be taken not to install too many signs. A conservative use of regulatory and warning signs is recommended as these signs, if used to excess, tend to lose their effectiveness. On the other hand, a frequent display of route markers and directional signs to keep the driver informed of his location and his course will not lessen their value.”

"BIKE ROUTE" - This sign is intended for use where no unique designation of routes is desired. However, when used alone, this sign conveys very little information. It can be used in connection with supplemental plaques giving destinations and distances. (See Section 1003-3 of the Caltrans *Highway Design Manual* and Part 9B-22 of the *MUTCD* for specific information on sub-plaque options.)

Roadways appropriate for bicycle use, but are undesignated, usually do not require regulatory, guide or informational signing in excess of what is normally required for motorists. In certain situations, however, additional signing may be needed to advise both motorists and cyclists of the shared use of the roadway, including the travel lane.

"SHARE THE ROAD" - This sign is recommended where the following roadway conditions occur:

- Shared lanes (especially if lane widths do not comply with Table 1) with relatively high posted travel speeds of 40 m.p.h. or greater;
- Shared lanes (conforming with Table 1) in areas of limited sight distance;
- Situations where shared lanes or demarcated shoulders or marked bike lanes are dropped or end and bicycle and motor vehicle traffic must begin to share the travel lane;
- Steep descending grades where bicycle traffic may be operating at higher speeds and requires additional maneuvering room to shy away from pavement edge conditions;
- Steep ascending grades, especially where there is no paved shoulder, or the shared lane is not adequately wide and bicycle traffic may require additional maneuvering room to maintain balance at slow operating speeds;
- High volume urban conditions, especially those with travel lanes less than the recommended width for lane sharing;
- Other situations where it is determined to be advisable to alert motorists of the likely presence of bicycle traffic and to alert all traffic of the need to share available roadway space.

6.2.13 Intersections and Driveways

High speed, wide radius intersection designs with free rights turns, multiple right turn lanes, and wide radius turns increase traffic throughput for motor vehicles by minimizing speed differentials between entering and exiting vehicles and through vehicles. However, these designs are dangerous for cyclists (and pedestrians) by design since they exacerbate speed differential problems faced by cyclists traveling along the right side of a roadway and encourage drivers to fail to yield the right-of-way to cyclists. As a result, Caltrans District 11 (San Diego County area) no longer allows such wide radius free right turns at interchanges.

Where they already exist, specific measures should be employed to ensure that the movement of cyclists along the roadway will be visible to motorists and to provide cyclists with a safe area to operate to the left of these wide radius right turn lanes. One method to accomplish this is to stripe (dash) a bicycle lane throughout the intersection area. Also, "SHARE THE ROAD" signs should be posted in advance of the intersection to alert existing traffic. In general, however, curb radii should be limited to short distances, which helps to communicate to the motorist that he or she must yield the right-of-way to cyclists traveling and pedestrians walking along the sidewalk or roadway margin approaching the intersection.

Even so, wherever possible, such intersection conditions should be eliminated. Reconstruction of intersections to accomplish this is a legitimate use of bicycle program funds.

Sand, gravel and other debris in the cyclist's path present potential hazards. In order to minimize the possibility of debris from being drawn onto the pavement surface from unpaved intersecting streets and driveways, during new construction, reconstruction and resurfacing, all unimproved intersecting streets and driveways should be paved back to the right-of-way

line or a distance of 10 feet. Where curb cuts permit access to roadways from abutting unpaved parking lots, a paved apron should be paved back to the right-of-way line, preferably 10 feet from the curb line. These practices will lessen the need for maintenance debris removal. The placement of the paved back area or apron should be the responsibility of those requesting permits for access via curb cuts from driveways and parking lots onto the roadway system.

6.2.14 Roadside Obstacles

To make certain that as much of the paved surface as possible is usable by bicycle traffic, obstructions such sign posts, light standards, utility poles and other similar appurtenances should be set back a one foot minimum "shy distance" from the curb or pavement edge with exceptions for guard rail placement in certain instances. Additional separation distance to lateral obstructions is desirable. Where there is currently insufficient width of paved surface to accommodate bicycle traffic, any placement of equipment should be set back far enough to allow room for future projects (widening, resurfacing) to bring the pavement width into conformance with these guidelines. Vertical clearance to obstructions should be a minimum of 8 feet, 6 inches. (See Section 1003.1 of the Caltrans *Highway Design Manual*.)

6.2.15 Railroad Crossings

As with other surface irregularities, railroad grade crossings are a potential hazard to bicycle traffic. To minimize this hazard, railroad grade crossings should, ideally, be at a right angle to the rails. This minimizes the possibility of a cyclist's wheels being trapped in the rail flangeway, causing loss of control. Where this is not feasible, the shoulder (or wide outside lane) should be widened, or "bumped out" to permit cyclists to cross at right angles. (See Section 1003.6 of the Caltrans *Highway Design Manual*.)

It is important that the railroad grade crossing be as smooth as possible and that pavement surfaces adjacent to the rail be at the same elevation as the rail. Pavement should be maintained so that ridge buildup does not occur next to the rails.

Options to provide a smooth grade crossing include removal of abandoned tracks, use of compressible flangeway fillers, timber plank crossings or rubber grade crossing systems. These improvements should be included in any applicable project.

6.2.16 TSM Type Improvements

Transportation Systems Management (TSM) improvements are minor roadway improvements which enhance motor vehicle flow and capacity. They include intersection improvements, channelization, addition of auxiliary lanes, turning lanes and climbing lanes. TSM improvements must consider the needs of bicycle traffic in their design, or they may seriously degrade the ability of the roadway to safely accommodate cyclists. The inclusion of wider travel lanes or adjacent bike lanes will decrease traffic conflicts and increase vehicular flow. Designs should provide for bicycle compatible lanes or paved shoulders. Generally, this requires that the outside through lane and (if provided) turning lane be 14 feet wide. Auxiliary or climbing lanes should conform to Table 1 by either providing an adjacent paved shoulder, or a shared lane width of at least 15 feet. Where shared lanes and shoulders are not provided, it must be assumed that bicycle traffic will take the lane.

6.2.17 Marginal Improvements and Retrofitting Existing Roadways

There may be instances or locations where it is not feasible to fully implement guidelines pertaining to the provision of adequate pavement space for shared use due to environmental constraints or unavoidable obstacles. In such cases, warning signs and/or pavement striping must be employed to alert cyclists and motorists of the obstruction, alert motorists and cyclist of the need to share available pavement space, identify alternate routes (if they exist), or otherwise mitigate the obstruction.

On stretches of roadway where it is not possible to provide recommended shoulder or lane widths to accommodate shared use, bicycle traffic conditions can be improved by:

- Striping wider outside lanes and narrower interior lanes; or

- Providing a limited paved shoulder area by striping a narrow travel lane. This tends to slow motor vehicle operating speeds and establish a space (with attendant psychological benefits) for bicycle operation.

Where narrow bridges create a constriction, “zebra“ striping should be used to shift traffic away from the parapet and provide space for bicycle traffic.

Other possible strategies include:

- Elimination of parking or restricting it to one side of the roadway;
- Reduction of travel lanes from two in each direction to one in each direction plus center turn lane and shoulders; or
- Reduction of the number of travel lanes in each direction and the inclusion or establishment of paved shoulders.

6.2.18 Access Control

Frequent access driveways, especially commercial access driveways, tend to convert the right lane of a roadway and its shoulder area into an extended auxiliary acceleration and deceleration lane. Frequent turning movements, merging movements and vehicle occupancy of the shoulder can severely limit the ability of cyclists to utilize the roadway and are the primary causes of motor vehicle-bicycle collisions. As a result, access control measures should be employed to minimize the number of entrances and exits onto roadways. For driveways having a wide curb radius, consideration should be given to marking a bicycle lane through the driveway intersection areas. As with other types of street intersections, driveways should be designed with sufficiently tight curb radii to clearly communicate to motorists that they must fully stop and then yield the right-of-way to cyclists and pedestrians on the roadway.

6.2.19 Bikeway Reconstruction after Construction

Since roadways with designated bicycle facilities carry the largest volumes of users, their reconstruction should be of particular concern. Unfortunately, bicycle facilities are often installed piecemeal and users can find themselves facing construction detours and poor integration of facilities where the facilities begin and end.

Bicycles facilities also sometimes seem to “disappear” after roadway construction occurs. This can happen incrementally as paving repairs are made over time and are not followed by proper bikeway re-striping. When combined with poor surface reconstruction following long periods out of service due to road work, this can result in the eventual loss of affected bikeway facilities and decrease the number of cyclists regularly using the facilities.

Adjacent construction projects that require the demolition and rebuilding of roadway surfaces can cause problems in maintaining and restoring bikeway function. Construction activities controlled through the issuance of permits, especially driveway, drainage, utility, or street opening permits, can have an important effect on the quality of a roadway surface where cyclists operate. Such construction can create hazards such as mismatched pavement heights, rough surfaces or longitudinal gaps in adjoining pavements, or other pavement irregularities.

Permit conditions should ensure that pavement foundation and surface treatments are restored to their pre-construction conditions, that no vertical irregularities will result and that no longitudinal cracks will develop. Stricter specifications, standards and inspections designed to prevent these problems should be developed, as well as more effective control of construction activities wherever bikeways must be temporarily demolished. A five-year bond should be held to assure correction of any deterioration, which might occur as a result

of faulty reconstruction of the roadway surface.

Spot widening associated with new access driveways frequently results in the relocation of drainage grates. Any such relocation should be designed to permanently close the old drainage structure and restore the roadway surface. New drainage structures should be selected and located to comply with drainage provisions established in these guidelines.

6.2.20 Maintenance Priorities

Bikeway maintenance is easily overlooked. The “sweeping” effect of passing motor vehicle traffic readily pushes debris such as litter and broken glass toward the roadway edges where it can accumulate within an adjoining bicycle facility. Since the potential for loss of control can exist due to a blowout caused by broken glass, or through swerving to avoid other debris, proper maintenance is directly related to safety. For this reason, street sweeping must be a priority on roadways with bike facilities, especially in the curb lanes and along the curbs themselves. The police department could assist by requiring towing companies to fully clean up crash scene debris, or face a fine. This would prevent glass and debris from being left in place after a motor vehicle crash, or simply swept to the curb or shoulder area.

A suggested minimum monthly sweeping schedule is recommended for heavily used Class 1 and 2 facilities, and twice a year where use is light. Class 3 facilities should be swept twice a year.

The availability of a forum through which citizens can conveniently notify the proper city authority of bikeway facility problems or shortcomings is desirable. Several local cities make available a service request form via their Internet home pages to allow citizens to report problems such as streets, sidewalks, tree trimming and other civil engineering and infrastructural issues. They generally do not mention bicycle facilities specifically in their list of selected problems, but do offer the user the opportunity to type in the particulars of any street-related issue.

6.2.21 Intermodal Planning and Facilities

Creating an environment conducive to intermodal transit begins with providing the proper types of facilities and amenities in locations convenient enough to attract potential users. Such facilities can include those described in the following sections.

Bike Lockers and Racks

The provision of bicycle racks and lockers is an important first step in making a multi-modal system work for cyclists. Their presence encourages cyclists to use available transit because these facilities help to alleviate concerns about security, primarily theft or vandalism of bicycles parked for long periods.

Bus-mounted Racks

The provision of bus-mounted bicycle racks on bus routes should encourage cyclists to use the bus system, especially in the eastern sections of the City where topography is the most pronounced. These racks are mounted on the front of the bus to increase visibility between the bus driver and the cyclist using the rack and to decrease the chance of theft while the bus is stopped.

6.2.22 Traffic Calming

There exist roadway conditions in practically all communities where controlling traffic movements and reducing motor vehicle speeds is a worthwhile way to create a safer and less stressful environment for the benefit of non-motorized users such as pedestrians and cyclists. These controlling measures are referred to as traffic calming. These measures are also intended to mitigate impacts of vehicular traffic such as noise, crashes and air pollution, but the primary link between traffic calming and bicycle planning is the relationship between motor vehicle speed and the severity of crashes. European studies have shown that instituting traffic calming techniques significantly decreases the number of pedestrian

and cyclist fatalities in crashes involving motor vehicles, as well as the level of injuries and air pollution, without decreasing traffic volume.

Stop Signs/Yield Signs

The installation of stop signs is a common traffic calming device intended to discourage vehicular through traffic by making the route slower for motorists. However, stop signs are not speed control devices, but rather right-of-way control devices. They do not slow the moving speed of motor vehicles and compliance by cyclists is very low. Requiring motor vehicles to stop excessively also contributes to air pollution. Cyclists are even more inconvenienced by stop signs than motorists because unnecessary stopping requires them to repeatedly reestablish forward momentum. The use of stop signs as a traffic management tool is not generally recommended unless a bicycle route must intersect streets with high motor vehicle traffic volumes. Controlled intersections generally facilitate bicycle use and improve safety and stop signs tend to facilitate bicycle movement across streets with heavy motor vehicular traffic. An alternative to stop signs may be to use yield signs or other traffic calming devices as methods to increase motorist awareness of crossing cyclists.

Speed Bumps and Tables

Though many cities are no longer installing speed bumps, they have been shown to slow motor vehicle traffic speeds and reduce volume. If speed bumps are employed as a traffic management tool, a sufficiently wide gap must be provided to allow unimpeded bicycle travel around the bump to prevent safety hazards for cyclists. Standard advance warning signs and markers must be installed as well.

Partial Traffic Diverters

These traffic calming devices include roundabouts and chicanes, both of which force traffic to follow a curved path, which had formerly been straight. They are usually employed in areas of traditional grid street configuration. These devices can actually increase traffic hazards if they are not substantial enough to decrease motor vehicle speeds, or if appropriate side street access points are not controlled.

Total Traffic Diverters

These diverters close roadways to motor vehicles only, or divert them to other routes while continuing to provide access to non-motorized users. Partial diverters allow access for cyclists in both directions, but block motor vehicle entry at one end. Both devices reduce motor vehicle driver options as a means to reduce the local traffic volume while allowing unrestricted access for pedestrians and cyclists. They are only useful where bicycles are fully exempt from the restrictions preventing the access of motor vehicles. Bicycle access should be clearly signed where motor vehicle access is limited so that cyclists are made aware that they can proceed even though motor vehicles cannot.

Curb Extensions and Radius Reductions

Larger curb radii are intended to facilitate high speed right-turn movements for the convenience of motorists. However, these larger radii are more dangerous for crossing and adjacent cyclists and pedestrians both because of the resulting higher motor vehicle speeds and the longer crossing distance for the cyclists and pedestrians. Motorists tend to spend less time looking for pedestrians and cyclists when they are attempting to make a high speed turn because their attention is focused on watching for oncoming traffic from the left. Their tendency to watch for pedestrians crossing from the right is also reduced. In addition, this type of intersection encourages higher speed movements across the bicycle travel lane, increasing the risk of collisions. To avoid these problems, curb radii should be reduced and curb extensions installed that pinch in toward the motor vehicle traffic lanes. This narrowing of the roadway tends to reduce traffic speeds, which creates a longer period for drivers to see potential conflicts before making right turns. However, due to the resulting reductions in motor vehicle speeds, this approach may not be appropriate at congested intersections. In such cases, there should instead be a safe lane and crossover segment especially for

cyclists.

Extensions are curb bulbs extending into the intersection from the corners of one or both of the intersecting roadways. Reducing curb radii functionally narrows the intersection, shortening the crossing distance for pedestrians and cyclists and slowing approaching traffic. Curb extensions are even more effective than reduced curb radii in decreasing crossing distance and slowing traffic. They can also serve the additional purposes of defining parking lanes and improving visibility at corners.

The use of curb extensions should be confined to residential areas and commercial zones with moderate posted speed limits since they prevent the use of the curb lane for cycling in favor of vehicular parking. Reduced curb radii can be used more widely, or on streets with routine large truck use requiring right turns.

6.3 Class 1 Multi-Use Path Guidelines

Class 1 facilities are generally paved multi-use paths, separated from motor vehicle traffic. Off-street routes are rarely constructed for the exclusive use of cyclists since other non-motorized user types will also find such facilities attractive. For that reason, the facilities recommended in this master plan should be considered multi-use where cyclists will share the pathways with other users. Recommended Class 1 paths are intended to provide commuting and recreational routes unimpeded by motor vehicle traffic.

No matter what their primary focus, most cyclists will find bicycle paths inviting routes to ride, especially if travel efficiency is secondary to enjoyment of cycling. Since these paths can augment the existing roadway system, they can extend circulation options for cyclists, making trips feasible which would not otherwise be possible if the cyclists had to depend exclusively on roadways, especially in areas where usable roads are limited. Class B and C (casual riders and children) cyclists would likely also appreciate the relative freedom from conflicts with motor vehicles compared to riding on typical roadways.

By law, the presence of a Class 1 route near an existing roadway does not justify prohibiting bicycles on the parallel or nearly parallel roadway. Where a bikeway master plan calls for Class 1 routes parallel to the alignments of planned roadways, these roadways should still be designed to be compatible with bicycle use. Two reasons to retain parallel facilities are that an experienced cyclist may find Class 1 paths inappropriate because of intensive use, or the routes may not be direct enough. By the same token, the Class 1 path will likely be much more attractive to less experienced cyclists than a parallel facility on the street.

In general, Class 1 facilities should not be placed immediately adjacent to roadways. Where such conditions exist, Class 1 facilities should be offset from the street as much as possible and separated from it by a physical barrier. These measures are intended to promote safety for both the cyclists and the motorists by preventing unintended movement between the street and the Class 1 facility. (See Section 1003.1 (5) of the Caltrans *Highway Design Manual*.)

6.3.1 Class 1 Planning Issues Shared-Use of Multiple Use Paths

Since off-street paths (Class 1) are now generally regarded as multi-use and not for the exclusive use of cyclists, they must be designed for the safety of both cyclists and other expected user types. Heavy use of multi-use trails can create conflicts between different types of users. These conflicts can include speed differentials between inexperienced and experienced cyclists as well as between pedestrians, joggers and in-line skaters, differences in the movements typical of particular user types and even the kinds of groupings common to the different user types as they casually move down the pathway.

As long as volumes are low, the level of conflict between different user types can be managed without enforcement. However, even moderate increases in user volume can create substantial deterioration in level of service and safety. Conflicts between different user types

are especially likely to occur on regionally significant recreational trails that attract a broad diversity of users, such as the Bayshore Bikeway. In general, paths that are expected to receive heavy use should be a minimum of 14 feet wide, paths expected to experience moderate use should be at least 12 feet wide and low volume paths can be 10 feet wide. Caltrans Class 1 requirements call for eight feet (2.4 meters) as the minimum width with two-foot (0.6 meters) clear areas on each side.

Regulation of Multiple Use Paths

The potential for multiple-use path conflicts has increased substantially in recent years with the increased popularity of jogging and in-line skating. Where multi-use paths were once commonly used primarily by pedestrians and secondarily by cyclists, today they tend to be used by a conbination of pedestrians, cyclists and in-line skaters. In-line skating continues to be one of the fastest growing sport in America. Also, the majority of bicycles sold in the United States over the last decade have been mountain and “comfort” bikes, far outstripping sales of drop-bar type road bike sales. These bikes’ relative comfort and upright riding position have helped to encourage inexperienced cyclists who previously rarely rode to do so more often.

Methods used to reduce trail conflicts have included providing separate facilities for different groups, prohibiting certain user types, restricting certain uses to specific hours, widening existing facilities or marking lanes to regulate traffic flow. Examples of all of these types of actions occur along southern California’s coastal trails where conflicts between different user types can be especially severe during peak periods.

Compatibility of Multiple Use of Paths

Joint use of paths by cyclists and equestrians can pose problems due to the ease with which horses can be startled. Also, the requirements of a Class 1 bikeway facility include a solid surface, which is not desirable for horses. Therefore, where either equestrian or cycling activity is expected to be high, separate trails are recommended. On facilities where Class 1 designation is not needed and the facility will be unpaved, mountain bikes and horses can share the trail if adequate passing width is provided, the expected volume of traffic by both groups is low and available sight distances allow equestrians and cyclists to see and anticipate each other. Education of all path users in “trail etiquette” has also proven to be successful on shared paths.

Urban Access Pathways

Conflicts between different user types on multiple use routes occur primarily on heavily used recreational paths, or near major pedestrian trip generators. Lightly used neighborhood pathways and community trails can be safely shared by a variety of user types. Construction of urban access pathways between adjoining residential developments, schools, neighborhoods and surrounding streets can substantially expand the circulation opportunities for both pedestrians and cyclists.

However, bicycle use of urban access pathways should not include sidewalks adjacent to streets for a number of reasons. First, sidewalks are designed for pedestrian speeds and maneuverability. Second, they are usually encumbered by parking meters, utility poles, benches, trees, etc. Third, other types of users and their specific types of maneuverability can also pose a safety issue for cyclists.

Though sidewalks are, in general, not conducive to safe cycling, an exception is Class C cyclists, young children. This type of bicycle use is generally acceptable because it provides young children who do not yet have the judgment or skill to ride in the street an opportunity to develop their riding skills. Sidewalks in residential areas generally have low pedestrian volumes and are usually accepted as play areas for children.

Finally, one other exception to sidewalk use by cyclists should be allowed. This is where the walkway is at least eight feet wide and well away from streets, such as within parks. In

such cases, bicycle use on walkways can occur safely.

Bicycle Paths Adjacent to Roadways

Two-way bicycle facilities located immediately adjacent to a roadway are not recommended because they require one direction of bicycle traffic to ride against motor vehicle traffic, contrary to the normal "Rules of the Road." This puts the wrong way cyclists in the motorists' "blind spot" at intersections where they do not have the right-of-way, or are not noticed by motorists turning right because the cyclists are not on the roadway. Many cyclists will also find it less convenient to ride on this type of facility as compared to streets, especially for utility trips such as commuting. This more experienced group of cyclists may find the roadway more efficient, safer, or better maintained than the adjacent bicycle facility. The AASHTO guide states that: "...bicycle lanes, or shared roadways should generally be used to accommodate bicycle traffic along highway corridors rather than providing a bicycle path immediately adjacent to the highway."

6.4 Design of Class 1 Facilities (Paths Primarily Used by Bicycles)

A substantial portion of the following sections is taken directly from the *AASHTO Guide for the Development of Bicycle Facilities*, 1991. Note that AASHTO's use of the term "bicycle path" is equivalent to a "Class 1 bicycle facility" as defined by Caltrans and as used in this master plan. Also, the AASHTO term "highway" is synonymous with the term "roadway." Finally, all measurements in the Caltrans documents are in metric form.

6.4.1 Width and Clearance

The paved width and the operating width required for a bicycle path are primary design considerations. Under most conditions, recommended paved width for a two-directional bicycle path is 10 feet. In some instances, however, a minimum of eight feet can be adequate. This minimum should be used only where the following conditions prevail: (1) bicycle traffic is expected to be low, even on peak days or during peak hours; (2) pedestrian use of the facility is not expected to be more than occasional; (3) there will be good horizontal and vertical alignment providing safe and frequent passing opportunities; and (4) the path will not be subject to maintenance vehicle loading conditions that would cause pavement edge damage. Under certain conditions, it may be necessary or desirable to increase the width of bicycle path to 12 feet or more, for example, because of substantial bicycle volume, probable shared use with joggers and other pedestrians, use by large maintenance vehicles, steep grades, or where bicycles will be likely to ride two abreast.

Reduced widths are acceptable on access pathways due to their generally short length and low volumes. However, wherever possible, minimum width standards should be employed. One-directional bicycle facilities are not generally recommended since they will almost certainly be used as two-way facilities.

A minimum of a two foot wide graded area should be maintained adjacent to both sides of the pavement. However, three feet or more is desirable to provide clearance from trees, poles, walls, fences, guardrails, or other lateral guidelines. A wider graded area on either side of the bicycle path can also serve as a separate jogging or equestrian path. Vertical clearance from obstructions should be a minimum of eight feet. However, greater vertical clearance may needed to permit maintenance vehicle passage and, in undercrossings and tunnels, a clearance of 10 feet is desirable for adequate vertical shy distance.

6.4.2 Horizontal Separation from Roadways

Class 1 bicycle facilities are generally physically separated from roadways. However, where a Class 1 facility must be considered within a roadway right-of-way, a wide separation between a bicycle path and adjacent highway is desirable to confirm for both the cyclist and the motorist that the bicycle path functions as an independent highway for bicycle traffic. In addition to physical separation, landscaping or other visual buffer is desirable. When this is not possible and the distance between the edge of the roadway and the bicycle path is

less than five feet, a suitable physical divider may be considered. Such dividers serve both to prevent cyclists from making unwanted movements between the path and the highway shoulder for the protection of cyclists from motor vehicles and to reinforce the concept that the bicycle path is an independent facility. Where used, the divider should be a minimum of 4.5 feet high to prevent cyclists from toppling over it and it should be designed so that it does not become an obstruction or traffic hazard in itself.

6.4.3 Design Speed

The speed that a cyclist travels is dependent on several factors, including the type and condition of the bicycle, the purpose of the trip, the condition and location of the bicycle path, the speed and direction of the wind and the physical condition of the cyclist. Bicycle paths should be designed for a selected speed that is at least as high as the preferred speed of the faster cyclists. In general, a minimum design speed of 20 m.p.h. should be used. However, when the grade exceeds four percent, a design speed of 30 m.p.h. is advisable.

On unpaved paths, where cyclists tend to ride slower, a lower design speed of 15 m.p.h. can be used. Similarly, where the grades dictate, a higher design speed of 25 m.p.h. can be used. Since bicycles have a higher tendency to skid on unpaved surfaces, horizontal curvature design should take into account lower coefficients of friction.

6.4.4 Horizontal Alignment and Superelevation

The minimum radius of curvature negotiable by a bicycle is a function of the superelevation rate of the bicycle path surface, the coefficient of friction between the bicycle tires and the bicycle path surface and the speed of the bicycle. The minimum design radius of curvature can be derived from the following formula:

$$R = \frac{V^2}{127\left(\frac{e}{100} + f\right)}$$

R = Minimum radius of curvature (meters)
V= Design speed (k.p.h.)
e = Rate of superelevation
f = Coefficient of friction

For most bicycle path applications, the superelevation rate will vary from a minimum of two percent (the minimum necessary to encourage adequate drainage) to a maximum of approximately five percent (beyond which maneuvering difficulties by slow bicycles and adult tricyclists might be expected). The minimum superelevation rate of two percent will be adequate for most conditions and will simplify construction.

The coefficient of friction depends upon speed; surface type, roughness and condition; tire type and condition; and whether the surface is wet or dry. Friction factors used for design should be selected based upon the point at which centrifugal force causes the cyclist to recognize a feeling of discomfort and instinctively act to avoid higher speed. Extrapolating from values used in highway design, design factors for paved bicycle paths can be assumed to vary from 0.30 at 15 m.p.h. to 0.22 at 30 m.p.h. Based on a superelevation rate (e) of two percent, minimum radii of curvature can be selected from Figure 1003.1C of the Caltrans *Highway Design Manual*.

When substandard radius curves must be used on bicycle paths because of right-of-way, topography, or other considerations, standard curve warning signs and supplemental pavement markings should be installed in accordance with the Caltrans *Highway Design Manual*. The negative effects of substandard curves can also be partially offset by widening the pavement through the curves.

6.4.5 Grade

Grades on bicycle paths should be kept to a minimum, especially on long inclines. Grades

greater than five percent are undesirable because the ascents are difficult for many cyclists and the descents cause some cyclists to exceed the speeds at which they are competent. Where terrain dictates, grades over five percent and less than 500 feet long are acceptable when a higher design speed is used and additional width is provided.

6.4.6 Switchbacks

In areas of steep terrain, a series of "switchbacks" may be the only solution to traversing changes in elevation. At these locations, a grade of eight percent is acceptable for a distance of no more than 100 feet. Where applicable, grades steeper than eight percent will not meet Americans with Disabilities Act (ADA) standards. Switchback radii should be larger than normally employed for pedestrian facilities to allow for cyclists to be able to safely make the turns without having to dismount. Pavement width should be a minimum of 12 feet wide to allow ascending cyclists room to walk their bicycles when necessary. The switchbacks should be completely visible from the next uphill turn. Runouts at the end of each turn should be considered for cyclists unable to slow down quickly enough to make the turn. Railings may installed to discourage shortcuts and appropriate signing should be placed at the top of the descent.

6.4.7 Sight Distances

To provide cyclists with an opportunity to see and react to the unexpected, a bicycle path should be designed with adequate stopping sight distance. The distance required to bring a bicycle to a full controlled stop is a function of the cyclist's perception and brake reaction time, the initial speed of the bicycle, the coefficient of friction between the tires and the pavement and the braking ability of the bicycle. Figure 1003.1D of the Caltrans *Highway Design Manual* indicates the minimum stopping sight distance for various design speeds and grades based on a coefficient of 0.25 to account for the poor wet weather braking characteristics of many bicycles. For two-way bicycle paths, the sight distance in descending direction, that is, where "G" is negative, will control the design.

6.4.8 Intersections

Intersections with roadways are important considerations in bicycle path design. If alternate locations for a bicycle path are available, the one with the most favorable intersection conditions should be selected. For crossings of freeways and other high-speed, high-volume arterials, a grade separation structure may be the only possible or practical treatment. Unless bicycles are prohibited from the crossing highway, providing for turning movements must be considered. When intersections occur at grade, a major consideration is the establishment of right-of-way. The type of traffic control (signal, stop sign, yield sign, etc.) to be used and locations should be provided in accordance with the Caltrans *Traffic Manual*.

Sign type, size and location should also be in accordance with the Caltrans *Traffic Manual*. Care should be taken to ensure that bicycle path signs are located so that motorists are not confused by them and that roadway signs are placed so that they do not confuse cyclists. Other means of alerting cyclists of a highway crossing include lateral deflections or small vertical deflections, as well as changing the paving surface at the approach. Devices installed to prohibit motorists from entering the bike path can also assist with alerting cyclists to crossings, but they must be well marked, including with reflective markings.

It is preferable that the crossing of a bicycle path and a highway be at a location away from the influence of intersections with other highways. Controlling vehicle movements at such intersections is more easily and safely accomplished through the application of standard traffic control devices and normal "Rules of the Road." Where physical constraints prohibit such independent intersections, the crossings may be at or adjacent to the pedestrian crossing. Right-of-way should be assigned and sight distance should be provided so as to minimize the potential for conflict resulting from unconventional turning movements. At crossings of high volume multi-lane arterial highways where signals are not warranted, consideration should be given to providing a median refuge area for cyclists.

The entrances to Class 1 paths can sometimes create crossing conflicts. Methods to resolve this include signalized striped crosswalks with pedestrian push-buttons, bicycle loop detectors and pavement logos, bicycle signal heads, in-pavement flashing lights at unsignalized intersections, and various traffic calming techniques. Bollards should also be placed at the entrance to the path to keep vehicles from entering.

When bicycle paths terminate at existing roads, it is important to integrate the path into the existing system of roadways. Care should be taken to properly design the terminals to transition the traffic into a safe merging or diverging situation. Appropriate signing is necessary to warn and direct both cyclists and motorists regarding these transition areas.

Bicycle path intersections and approaches should be on relatively flat grades. Stopping sight distances at intersections should be checked and adequate warning should be given to permit cyclists to stop before reaching the intersection, especially on downgrades.

Ramps for curb cuts at intersections should be the same width as the bicycle paths. Curb cuts and ramps should provide a smooth transition between the bicycle paths and the roadway.

6.4.9 Signing and Marking

Adequate signing and marking are essential on bicycle paths, especially to alert cyclists to potential conflicts and to convey regulatory messages to both cyclists and motorists at highway intersections. In addition, guide signing, such as to indicate directions, destinations, distance, route numbers and names of crossing streets, should be used in the same manner as they are used on highways. In general, uniform application of traffic control devices, as described in the Caltrans Highway *Design and Traffic Manuals*, will tend to encourage proper cyclist behavior.

A designer should consider a four-inch wide yellow centerline stripe to separate opposite directions of travel if heavy volumes of bicycles are expected, on curves with restricted sight distances; and on unlighted paths where nighttime riding is expected. Edge lines can also be very beneficial where significant nighttime bicycle traffic is expected.

General guidance on signing and marking is provided in the Caltrans *Highway Design Manual*. Care should be exercised in the choice of pavement marking materials. Some marking materials are slippery when wet and should be avoided in favor of more skid-resistant materials.

6.4.10 Pavement Structure

Under most circumstances, a two-inch thick asphalt top course placed on a six-inch thick select granular sub-base is suitable for a bikeway pavement structure. Where unsatisfactory soils can be anticipated, a soil investigation should be conducted to determine the load-carrying capabilities of the native soil and the need for any special provisions.

In addition, some basic differences between the operating characteristics of bicycles and those of motor vehicles should be recognized. While loads on bicycle paths will be substantially less that typical roadway loads, paths should be designed to sustain without damage the wheel loads of occasional emergency, patrol, maintenance and other motor vehicles that are expected to use or cross the path. Where such motor vehicle use will be required, four inches of asphalt should be used. Additional pavement structure may also be necessary in flood plains and in locations where shallow root systems may heave thin pavement sections.

Special consideration should be given to the location of motor vehicle wheel loads on the path. When motor vehicles are driven on bicycle paths, their wheels will usually be at or very

near the edges of the path. Since this can cause edge damage that, in turn, will result in the lowering of the effective operating width of the path, adequate edge support should be provided. Edge support can be either in the form of stabilized shoulders or in constructing additional pavement width. Constructing a typical pavement width of 12 feet, where right-of-way and other conditions permit, eliminates the edge-raveling problem and offers two other additional advantages over shoulder construction. First, it allows additional maneuvering space for cyclists and second, the additional construction cost can be less than that for constructing shoulders because the separate construction operation is eliminated.

It is important to construct and maintain a smooth riding surface on bicycle paths. Bicycle path pavements should be machine laid. Root barriers should be used where necessary to prevent vegetation from rupturing the pavement over time, and on Portland cement concrete pavements, transverse joints, necessary to control cracking, should be saw cut to provide a smooth ride. On the other hand, skid resistance qualities should not be sacrificed for the sake of smoothness. Broom finish or burlap drag concrete surfaces are preferred over trowel finishes, for example.

At unpaved highway or driveway crossings of bicycle paths, the highway or driveway should be paved a minimum of 10 feet on each side of the crossing to reduce the amount of gravel being scattered along the path by motor vehicles. The pavement structure at the crossing should be adequate to sustain the expected loading at the location.

6.4.11 Structures

An overpass, underpass, small bridge, drainage facility or facility on a highway bridge may be necessary to provide continuity to a bicycle path. On new structures, the minimum clear width should be the same as the approach paved bicycle path and the desirable clear width should include the minimum two-foot wide clear areas. Carrying the clear areas across the structures has two advantages. First, it provides a minimum horizontal shy distance from the railing or barrier, and second, it provides needed maneuvering space to avoid conflicts with pedestrians and other cyclists who are stopped on the bridge. Access by emergency, patrol and maintenance vehicles should be considered in establishing the design clearances of structures on bicycle paths. Similarly, vertical clearance may be dictated by occasional motor vehicles using the path. Where practical, a vertical clearance of 10 feet is desirable for adequate vertical shy distance.

Railings, fences, or barriers on both sides of a bicycle path structure should be a minimum of 4.5 feet high. Smooth rub rails should be attached to the barriers at handlebar height of 3.5 feet.

Bridges designed exclusively for bicycle traffic may be designed for pedestrian live loading. On all bridge decks, special care should be taken to ensure that bicycle safe expansion joints are used.

Where it is necessary to retrofit a bicycle path onto an existing highway bridge, several alternatives should be considered in light of what the geometrics of the bridge will allow.

One option is to carry the bicycle path across the bridge on one side. This should be done where the bridge facility will connect to a bicycle path at both ends, sufficient width exists on that side of the bridge, or can be obtained by widening or re-striping lanes; and provisions are made to physically separate bicycle traffic from motor vehicle traffic as discussed above.

A second option is to provide either wide curb lanes or bicycle lanes over the bridge. This may be advisable where the bicycle path transitions into bicycle lanes at one end of the bridge; and sufficient width exists, or can be obtained by widening or re-striping.

A third option is to use existing sidewalks as one-way or two-way facilities. This may be advisable where conflicts between cyclists and pedestrians will not exceed tolerable limits,

and the existing sidewalks are adequately wide. Under certain conditions, the cyclist may be required to dismount and cross the structure as a pedestrian.

Because of the large number of variables involved in retrofitting bicycle facilities onto existing bridges, compromises in desirable design criteria are often inevitable. Therefore, the width to be provided is best determined by the designer, on a case-by-case basis, after thoroughly considering all the variables.

6.4.12 Drainage

The recommended minimum pavement cross slope of two percent adequately provides for drainage. Sloping in one direction instead of crowning is preferred and usually simplifies the drainage and surface construction. A smooth surface is essential to prevent water ponding and ice formation.

Where a bicycle path is constructed on the side of a hill, a ditch of suitable dimensions should be placed on the uphill side to intercept the hillside drainage. Such ditches should be designed in such a way that no undue obstacles are presented to cyclists. Where necessary, catch basins with drains should be provided to carry the intercepted water under the path. Drainage grates and manhole covers should be located outside of the travel path of the cyclist. (See Section 1003.6 of the Caltrans *Highway Design Manual*.) To assist in draining the area adjacent to the bicycle path, the design should include considerations for preserving the natural ground cover. Seeding, mulching and sodding of adjacent slopes, swales and other erosion-prone areas should be included in the design plans.

6.4.13 Lighting

Lighting is encouraged for both guidance and safety reasons and should be considered along Class 1 paths especially if heavy use is expected in the evening hours. Applicable situations include bicycle paths serving colleges or employment centers, as well as at highway intersections. Lighting should also be considered through underpasses or tunnels and when nighttime security could be a problem. Fixed-source lighting reduces conflicts along the paths and at intersections. In addition, lighting allows the cyclist to see the bicycle path direction, surface conditions and obstacles.

Depending on the location, average maintained horizontal illumination levels of 5 to 22 lux should be considered. Light standards (poles) should meet the recommended horizontal and vertical clearances. Luminaires and standards should be at a scale appropriate for a pedestrian or bicycle path. (See Section 1003.6 of the Caltrans *Highway Design Manual*.)

6.4.14 Barriers to Motor Vehicle Traffic

Bicycle paths often need some type of physical barrier at highway intersections and pedestrian-load bridges to prevent unauthorized motor vehicles from using the facilities. Provisions can be made for a lockable, removable post to permit entrance by authorized vehicles. The post should be permanently reflectorized for nighttime visibility and painted a bright color for improved daytime visibility. When more than one post is used, a five foot spacing is desirable. Wider spacing can allow entry to motor vehicles, while narrower spacing might prevent entry by adult tricycles and bicycles with trailers. Striping an envelope around the barrier is recommended. (See Section 1003.1 of the Caltrans *Highway Design Manual.*)

An alternate method of restricting entry of motor vehicles is to split the entryway into two five-foot sections separated by low landscaping. Emergency vehicles can still enter if necessary by straddling the landscape. The maintenance costs associated with landscaping should be acknowledged, however, before this alternative method is selected.

6.5 Unpaved Multi-Use Facilities

In some cases, unpaved trails or roads may be used as part of a bikeway system. Though not eligible for official designation as bicycle facilities, they can be acknowledged as “informal” unpaved connections between official paved segments. Because these routes are

generally in less developed areas, they may also be considered scenic unpaved "byways" that can be accessed via the official bikeway system.

Many of the bicycles sold are mountain bikes designed for use on unpaved surfaces and come equipped with wide tires and low gearing. Many recreational cyclists ride this type of bicycle and may use them on a well maintained unpaved route. Unpaved routes are unlikely to attract many commuting cyclists, but the routes may experience some utility use if they provide convenient shortcuts between popular destinations where such routes would not otherwise exist.

Available guidelines for unpaved facilities are limited. In general, the coefficient of friction used in calculating curve radii and a factor in determining design speed, should be reduced. Although there are not data available for unpaved surfaces, it is suggested that friction factors be reduced by 50 percent to allow a sufficient margin of safety. This reduction in friction affects all situations where traction is important, especially on grades. Grades steeper than three percent may not be practical for bicycle paths with crushed stone surfaces.

In cases where switchbacks are necessary for unpaved paths that occur in steep terrain, curve radii may be enlarged, the path widened and runout areas provided. In areas of erosive soils, it is also advisable to install signage suggesting cyclists dismount when traversing the switchbacks.

6.6 Class 2 Facilities

Class 2 facilities are marked bicycle lanes within roadways usually adjacent to the curb lane, delineated by appropriate striping and signage.

Bicycle lanes can be considered when it is desirable to delineate available road space for preferential use by cyclists and motorists and to provide for more predictable movements by each. Bicycle lane markings can increase a cyclist's confidence in motorists not straying into his/her path of travel. Likewise, passing motorists are less likely to swerve to the left out of their lane to avoid cyclists on their right.

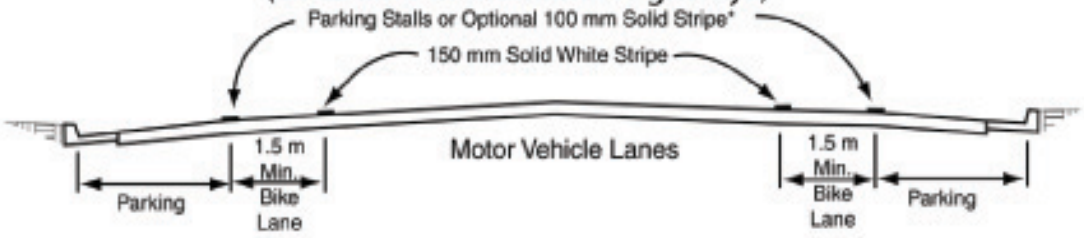
Bicycle lanes should always be one-way facilities and carry traffic in the same direction as adjacent motor vehicle traffic. Two-way bicycle lanes on one side of the roadway are unacceptable because they promote riding against the flow of motor vehicle traffic. Wrong-way riding is the primary cause of bicycle crashes and violates the "Rules of the Road" stated in the Uniform Vehicle Code. Bicycle lanes on one-way streets should be on the right side of the street, except in areas where a bicycle lane on the left will decrease the number of conflicts (e.g., those caused by heavy bus traffic). In unique situations, it may be appropriate to provide a contra-flow bicycle lane on the left side of a one-way street. Where this occurs, the lane should be marked with a solid, double yellow line and the width of the lane should be increased by one foot.

6.6.1 Lane Widths

Under ideal conditions, the minimum bicycle lane width is five feet. However, certain edge conditions dictate additional desirable bicycle lane width. Figure 1003.2A from the Caltrans *Highway Design Manual*, on the following page, depicts four common dimensions for such facilities and their relations to the roadway.

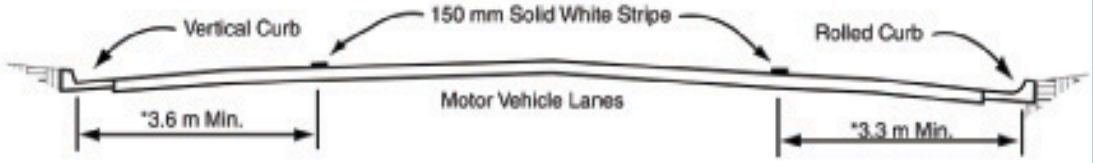
The first configuration depicts bicycle lanes on an urban curbed street where a striped parking lane is provided. The minimum bicycle lane width for this location is five feet. If parking volume is substantial or turnover is high, an additional one or two feet of width is desirable for safe bicycle operation. Bicycle lanes should always be placed between the parking lane and the motor vehicle lanes. Bicycle lanes between the curb and the parking lane can create obstacles for cyclists and eliminate a cyclist's ability to avoid a car door as it is opened. Therefore, this placement should not be considered.

Figure 1003.2A
Ty pical Bike Lane Cross Sections
(On 2-lane or Multilane Highways)



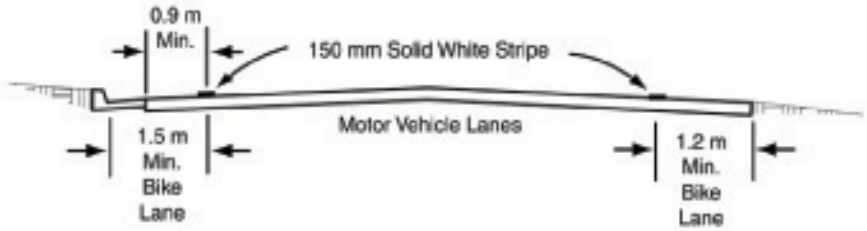
*The optional solid white stripe may be advisable where stalls are unnecessary (because parking is light) but there is concern that motorists may misconrue the bike lane to be a traffic lane.

(1) STRIPED PARKING

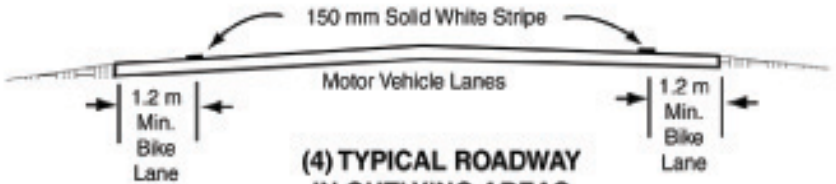


* 3.9 is recommended where there is substantial parking or turnover of parked cars is high (e.g. commerical areas).

(2) PARKING PERMITTED WITHOUT PARKING STRIPE OR STALL



(3) PARKING PROHIBITED



(4) TYPICAL ROADWAY IN OUTLYING AREAS PARKING RESTRICTED

The second configuration depicts an urban curbed street where parking is allowed, but without striping for a separate bike lane. This parking lane shared with bicycles should be 11 to 12 feet wide. 13 feet is recommended where parking turnover is high, such as commercial districts. Cyclists do not generally ride near a curb because of the possibility of debris, of hitting a pedal on the curb, of an uneven longitudinal joint, or of a steeper cross slope.

The third configuration of Figure 1003.2A shows a roadway where parking is prohibited. Bicycle lanes in this location should have a minimum width of five feet where a curb occurs (measured from the curb face) and four feet where no curb is used. If the longitudinal joint between the gutter pan and the roadway surface is uneven and falls within five feet of the curb face, a minimum of four feet should be provided between the joint and the motor vehicle lanes.

The fourth configuration of Figure 1003.2A depicts bicycle lanes on a roadway where parking is prohibited and without curbs. Bicycle lanes should be located between the motor vehicle lanes and the roadway shoulders. In this situation, bicycle lanes may have a minimum width of four feet, since the shoulder can provide additional maneuvering width. A width of five feet or greater is preferable. Additional widths are desirable where substantial truck traffic is present, or where vehicle speeds exceed 40 m.p.h. In certain situations, it may be appropriate to designate the full shoulder as the bike lane.

6.6.2 Intersections

Bicycle lanes tend to complicate both bicycle and motor vehicle turning movements at intersections. Because they encourage cyclists to keep to the right and motorists to keep to the left, both operators are somewhat discouraged from merging in advance of turns. Because of this, some cyclists will begin left turns from the right side of the bicycle lane and some motorists will begin right turns from the left side of the bicycle lane. Both maneuvers are contrary to established “Rules of the Road” and result in conflicts.

Design treatment for bicycle lanes at a simple intersection is shown in Figure 1003.2B of the Caltrans *Highway Design Manual*. On a two-lane roadway, the edge line along the bike lane should end approximately 200 feet from the intersection to allow left turning cyclists and right turning motorists to “weave” as needed to safely complete their turns.

Design treatment at multi-lane intersections is more complex. Figure 1003.2C of the Caltrans *Highway Design Manual* presents examples of pavement markings for bicycle lanes approaching motorist right-turn-only lanes. Where there is numerous left turning cyclists, a separate turning lane should be considered.

The design of bicycle lanes should also include appropriate signing at intersections to reduce the number of conflicts. General guidance for pavement marking of bicycle lanes is contained in Section 1003.2 of the Caltrans *Highway Design Manual*. (See the Caltrans *Traffic Manual* for additional information.)

6.6.3 Signing and Striping Requirements

Signing and striping should be in accordance with Section 1004 of the Caltrans *Highway Design Manual* and the Caltrans *Traffic Manual*. Bicycle lanes should be well marked and signed to ensure clear understanding of the presence and purpose of the facility by both cyclists and motorists. The Caltrans *Traffic Manual* also specifies standard signing for bicycle lanes. The appropriate signs should be used in advance of the beginning of a marked designated bicycle lane to call attention to the lane and to the possible presence of cyclists. Signs should be used only in conjunction with the appropriate pavement marking and erected at periodic intervals along the designated bicycle lane and in the vicinity of locations where the preferential lane symbol is used.

Where it is necessary to restrict parking, standing, or stopping in a designated bicycle lane, appropriate signs, as described in the Caltrans *Traffic Manual*, may be used. For example,

some cities employ a combination “NO PARKING/BIKE LANE” sign, especially where frequent stopping is a problem.

Bicycle lane stripes should be solid, six to eight inch wide white lines. Care should be taken to use skid-resistant pavement striping. Thermoplastic tape and painted markings can become slippery and cause the cyclist to fall. Impregnated grit, nonskid, preformed tape is an acceptable striping material.

It is very important to reapply bicycle lane markings when they begin to fade, since faded bicycle lane markings can lead to confusion for motorists and cyclists. If necessary, reapplication of bicycle lane stripes should be placed on a more frequent schedule than regular roadway re-striping projects. Old markings should be removed prior to re-striping if new layers of marking materials would otherwise create raised areas that would be hazardous to cyclists.

Prompt replacement of bicycle lane striping following pavement repairs should be the responsibility of the paving contractor for projects that have required the removal and replacement of bike lane paving. Too often, lane striping is not replaced following construction or repaving projects.

Preferential bicycle lane symbols should be installed on the pavement in bicycle lanes. Symbols should be installed at regular intervals (no more that 350 feet between symbols), immediately after intersections and at areas where bicycle lanes begin. Pavement letters that spell “BIKE ONLY,” and arrows are optional, but desirable. (See Figure 1004.4 of the Caltrans *Highway Design Manual*.)

6.6.4 Miscellaneous Bikeway Criteria

In addition to adequate pavement surface and traffic signals responsive to bicycles, bicycle-safe grate inlets and safe railroad crossings should always be provided on roadways where bicycle lanes are being designated.

Bicycle-safe Grate Inlets

Drainage inlet grates should be maintained flush with the surface. Drainage inlet grates on bikeways openings must be narrow enough and short enough to prevent bicycle tires from dropping into the grates, regardless of the direction of bicycle travel. The Caltrans *Highway Design Manual* states; “Where it is not immediately feasible to replace existing grates with standard grates designed for bicycles...steel cross straps should be welded to the grates ...to reduce the size of the openings.”

Grates with slots parallel to expected bicycle travel only should never be used. Most bicycle-safe grate inlets currently in use have vertical slats perpendicular to the roadway spaced roughly two inches apart. Some safe designs have more widely spaced slats angled to improve hydraulic flow. Other effective grate designs employ honeycomb or herringbone hole patterns, including a design approved by Caltrans.

Curb-face inlets take the water into a hole in the curb and have no slots on the road surface. While curb-face inlets offer an excellent solution, removing the grate entirely, they can cause handling problems for bikes if the roadway slopes excessively toward the inlet.

Safe Rail Crossings

Safe rail crossings eliminate the gaps along the rails with flangeway fillers and are aligned so that cyclists are directed to cross the tracks at a perpendicular angle to avoid slipping on the smooth metal that can occur when crossing at an oblique angle. (See Section 1003.6 of the Caltrans *Highway Design Manual*.)

Raised Pavement Markings and Barriers

Raised pavement markings and raised barriers can cause steering difficulties for cyclists

and should not be used to delineate bicycle lanes.

6.7 Class 3 Facilities

A Class 3 facility is a suggested bicycle route that usually consists of a series of signs designating a preferred route between destinations such as residential and shopping areas. A network of such routes can provide access to a number of destinations throughout the community. In some cases, looped systems of scenic routes have been created to provide users with a series of recreational experiences. In addition, such routes can provide relatively safe connections for commuting to workplaces or schools.

The designation of a roadway as a Class 3 facility should be based primarily on the advisability of encouraging bicycle use on that particular roadway. While the roadways chosen for bicycle routes may not be free of problems, they should offer the best balance of safety and convenience of the available alternatives. In general, the most important considerations are pavement width and geometrics, traffic conditions and appropriateness of the intended purpose. A certain amount of risk and liability exists for any area that is signed as a Class 3 route. The message to the user public is that the facility is a safe route. Therefore, routes should not be placed on streets that do not meet appropriate safety standards.

Attributes that describe how appropriate a particular road is for a bicycle route include directness, connectivity with other bicycle facilities, scenery and available services. Directness is important for cyclists traveling for a purpose, such as commuting, though this is not the case for recreational riders, for whom scenery may be the primary factor in selecting a route. For recreational riders traveling more than a few miles, services such as food, water, restrooms and pressurized air may be of interest.

6.7.1 Roadway Engineering

While design of all Class 1 and 2 bikeways should follow the Bikeway Planning and Design Chapter 1000 of Caltrans' *Highway Design and Traffic Manuals*, there are bound to be situations where the recommended geometrics for a Class 3 facility can not be achieved, such as due to right-of-way constraints, for example. Planning and design of the Class 3 facility should emphasize safety for cyclists and provide additional warnings to motorists to be aware of the presence of cyclists.

SHARE
THE
ROAD

Appendix A: Caltrans Highway Design Manual - Chapter 1000 - Bikeway Planning and Design

The following pages from the Caltrans *Highway Design Manual* are included as a reference for physical design requirements for bikeways in the State of California.

CHAPTER 1000 BIKEWAY PLANNING AND DESIGN

Topic 1001 - General Criteria

Index 1001.1 - Introduction

The needs of non-motorized transportation are an essential part of all highway projects. Topic 105 discusses Pedestrian Facilities with Index 105.3 addressing accessibility needs. This chapter discusses bicycle travel. All city, county, regional and other local agencies responsible for bikeways or roads where bicycle travel is permitted must follow the minimum bicycle planning and design criteria contained in this and other chapters of this manual (See Streets and Highways Code Section 891).

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, it is important to provide a uniform surface for bicyclists and pedestrians. See Index 625.1(1) and 635.1(1) for guidance in accommodating bicyclist and pedestrian needs on resurfacing projects. **When adding lanes or turn pockets, a minimum 1.2 m shoulder shall be provided (see Topic 405 and Table 302.1).** When feasible, a wider shoulder should be considered. When placing a roadway edge line, sufficient room outside the line should be provided for bicyclists. When considering the restriping of roadways for more traffic lanes, the impact on bicycle travel should be assessed. Bicycle and pedestrian traffic through construction zones should be addressed in the project development process. These efforts, to preserve or improve an area for use by bicyclists, can enhance motorist and bicyclist safety and mobility.

1001.2 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 sweeping, 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.

1001.3 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.

1001.4 Definitions

The Streets and Highway Code Section 890.4 defines a "Bikeway" as a facility that is provided 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 crossflow by motorists 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.

1001.5 Streets and Highways Code References - Chapter 8 - Nonmotorized Transportation

(a) Section 887 -- Definition of nonmotorized facility.

(b) Section 887.6 -- Agreements with local agencies to construct and maintain nonmotorized facilities.

(c) Section 887.8 -- Payment for construction and maintenance of nonmotorized facilities approximately paralleling State highways.

(d) Section 888 -- Severance of existing major nonmotorized route by freeway construction.

(e) Section 888.2 -- Incorporation of non-motorized facilities in the design of freeways.

(f) Section 888.4 -- Requires Caltrans to budget not less than $360,000 annually for nonmotorized facilities used in conjunction with the State highway system.

(g) Section 890.4 -- Class I, II, and III bikeway definitions.

(h) Section 890.6 - 890.8 -- Caltrans and local agencies to develop design criteria and symbols for signs, markers, and traffic control devices for bikeways and roadways where bicycle travel is permitted.

(i) Section 891 -- Local agencies must comply with design criteria and uniform symbols.

(j) Section 892 -- Use of abandoned right-of-way as a nonmotorized facility.

1001.6 Vehicle Code References - Bicycle Operation

(a) Section 21200 -- Bicyclist's rights and responsibilities for traveling on highways.

(b) Section 21202 -- Bicyclist's position on roadways when traveling slower than the normal traffic speed.

(c) Section 21206 -- Allows local agencies to regulate operation of bicycles on pedestrian or bicycle facilities.

(d) Section 21207 -- Allows local agencies to establish bike lanes on non-state highways.

(e) Section 21207.5 -- Prohibits motorized bicycles on bike paths or bike lanes.

(f) Section 21208 -- Specifies permitted movements by bicyclists from bike lanes.

(g) Section 21209 -- Specifies permitted movements by motorists in bike lanes.

(h) Section 21210 -- Prohibits bicycle parking on sidewalks unless pedestrians have an adequate path.

(i) Section 21211 -- Prohibits impeding or obstruction of bicyclists on bike paths.

(j) Section 21717 -- Requires a motorist to drive in a bike lane prior to making a turn.

(k) Section 21960 -- Use of freeways by bicyclists.

Topic 1002 - Bikeway Facilities

1002.1 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

pavement marking for bicycle use may be unnecessary. In other cases, prior to designation as a bikeway, routes may need improvements for bicycle travel.

Many rural highways are used by touring bicyclists for intercity and recreational travel. It might 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 1.2 m paved roadway shoulders with a standard 100 mm edge line 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 and pedestrian conflicts 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, reducing lane width, 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, pavement markings 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 890.4 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 pedestrians are necessary to minimize conflicts. Dual use by pedestrians and bicycles is undesirable, and the two should be separated wherever possible.

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 2.4 m. The minimum paved width for a one-way bike path shall be 1.5 m. A minimum 0.6 m wide graded area shall be provided adjacent to the pavement (see Figure 1003.1A).** A 1.0 m graded area is recommended to provide clearance from poles, trees, walls, fences, guardrails, or other lateral obstructions. A wider graded area can also serve as a jogging path. 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 2.4 m, preferably 3.6 m or more. 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 3.6 m wide sometimes break up along the edge as a result of loads from maintenance vehicles.

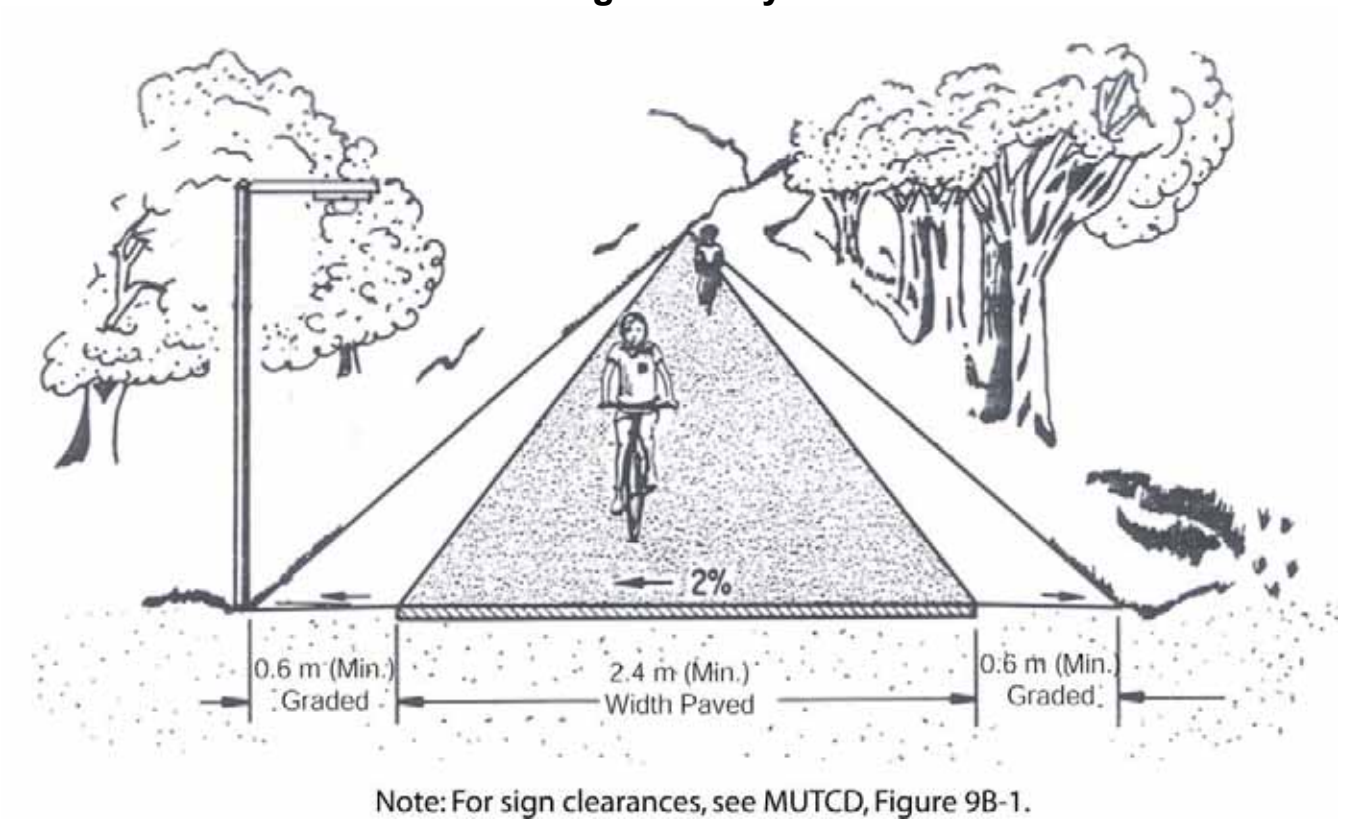
Where equestrians are expected, a separate facility should be provided.

(2) Clearance to Obstructions. **A minimum 0.6 m horizontal clearance to obstructions shall be provided adjacent to the pavement (see Figure 1003.1A).** A 1.0 m 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 100 mm white edge line, 0.6 m 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 2.4 m.** It is desirable that the clear width of structures be equal to the minimum clear width of the path (i.e., 3.6 m).

The vertical clearance to obstructions across the clear width of the path shall be a minimum of 2.5 m. Where practical, a vertical clearance of 3 m is desirable.

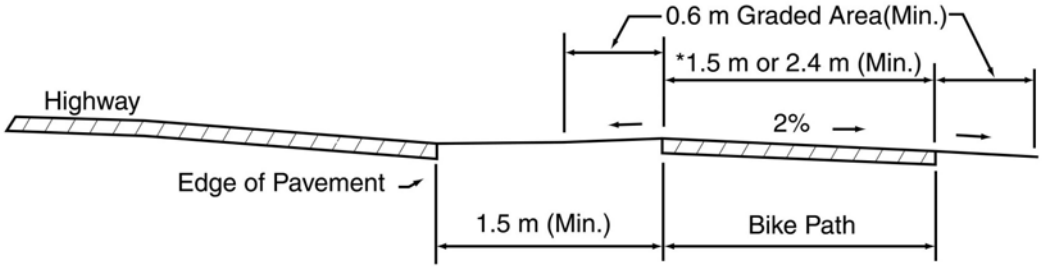
Figure 1003.1A

Two-Way Bike Path on Separate Right of Way



Note: For sign clearances, see MUTCD, Figure 9B-1.

Figure 1003.1B
Typical Cross Section of Bike Path Along Hlghway



NOTE: See Index 1003.1(5)

*One - Way: 1.5 m Minimum Width
Two - Way: 2.4 m Minimum Width

(3) *Signing and Delineation*. For application and placement of signs, see the Manual on Uniform Traffic Control Devices (MUTCD), Section 9B.01 and the MUTCD and California Supplement Section 9B.01 and Figure 9B-101. For pavement marking guidance, see the MUTCD, Section 9C.03.

(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.

Bicycle path intersections and approaches should be on relatively flat grades. Stopping sight distances at intersections should be checked and adequate warning should be given to permit bicyclists to stop before reaching the intersection, especially on downgrades.

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 signals 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 stop or yield signs are visible to approaching motor vehicle 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. Ramps should be the same width as the bicycle paths. Curb cuts and ramps should provide a smooth transition between the bicycle paths and the roadway.

(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 1.5 m from the edge of the shoulder shall include a physical barrier to prevent bicyclists from encroaching onto the highway. Bike paths within the clear recovery zone of freeways shall include a physical barrier separation.** 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 directions 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. **Bike paths shall not be designed in the medians of freeways or expressways.**

(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 40 km/h except as noted in Table 1003.1.**

Table 1003.1

Bike Path Design Speeds

Type of Facility	Design Speed (km/h)
Bike Paths with Mopeds Prohibited	40
Bike Paths with Mopeds Permitted	50
Bike Paths on Long Downgrades (steeper than 4%, and longer than 150 m)	50

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

(8) Horizontal Alignment and Superelevation. The minimum radius of curvature negotiable by a bicycle is a function of the superelevation rate of the bicycle path surface, the coefficient of friction between the bicycle tires and the bicycle path surface, and the speed of the bicycle.

For most bicycle path applications the superelevation rate will vary from a minimum of 2 percent (the minimum necessary to encourage adequate drainage) to a maximum of approximately 5 percent (beyond which maneuvering difficulties by slow bicyclists and adult tricyclists might be expected). A straight 2% cross slope is recommended on tangent sections. The minimum superelevation rate of 2% will be adequate for most conditions and will simplify construction. Superelevation rates steeper than 5 percent should be avoided on bike paths expected to have adult tricycle traffic.

The coefficient of friction depends upon speed; surface type, roughness, and condition; tire type and condition; and whether the surface is wet or dry. Friction factors used for design should be selected based upon the point at which centrifugal force causes the bicyclist to recognize a feeling of discomfort and instinctively act to avoid higher speed. Extrapolating from values used in highway design, design friction factors for paved bicycle paths can be assumed to vary from 0.31 at 20 km/h to 0.21 at 50 km/h. Although there is no data available for unpaved surfaces, it is suggested that friction factors be reduced by 50 percent to allow a sufficient margin of safety.

The minimum radius of curvature can be selected from Figure 1003.1C. When curve radii smaller than those shown in Figure 1003.1C must be used on bicycle paths because of right of way, topographical or other considerations, standard curve warning signs and supplemental pavement markings should be installed. The negative effects of nonstandard curves can also be partially offset by widening the pavement through the curves.

(9) Stopping Sight Distance. To provide bicyclists with an opportunity to see and react to the unexpected, a bicycle path should be designed with adequate stopping sight distances. The distance required to bring a bicycle to a full controlled stop is a function of the bicyclist's perception and brake reaction time, the initial speed of the bicycle, the coefficient of friction between the tires and the pavement, and the braking ability of the bicycle.

Figure 1003.1D indicates the minimum stopping sight distances for various design speeds and grades. For two-way bike paths, the descending direction, that is, where "G" is negative, will control the design.

Figure 1003.1C

Curve Radii & Superelevations

$$R = \frac{V^2}{127\left(\frac{e}{100} + f\right)}$$

where,

R = Minimum radius of curvature (m),

V = Design Speed (km/h),

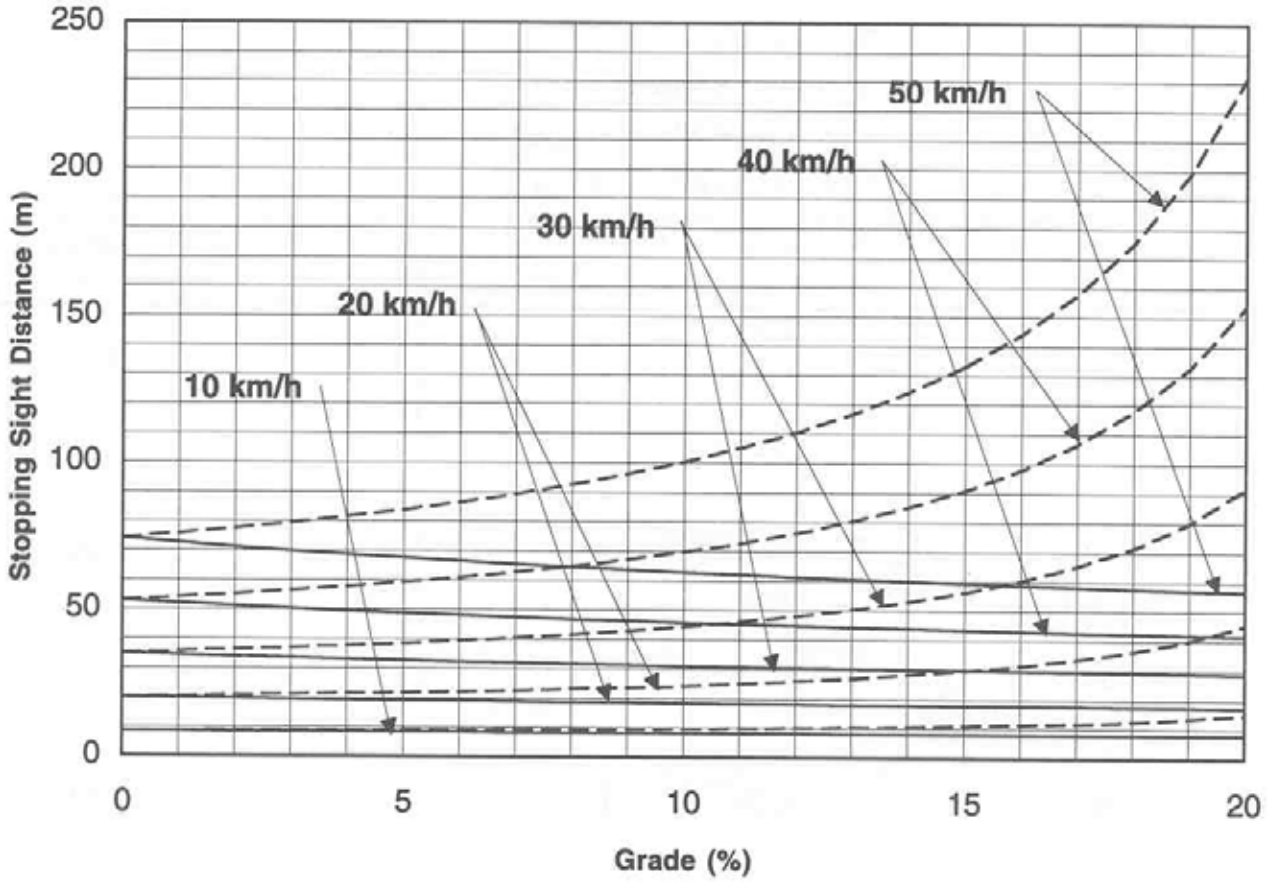
e = Rate of bikeway superelevation, percent

f = Coefficient of friction

Design Speed-V (km/h)	Friction Factor-f	Superelevation-e (%)	Minimum Radius-R (m)
20	0.31	2	10
30	0.28	2	24
40	0.25	2	47
50	0.21	2	86
20	0.31	3	9
30	0.28	3	23
40	0.25	3	45
50	0.21	3	82
20	0.31	4	9
30	0.28	4	22
40	0.25	4	43
50	0.21	4	79
20	0.31	5	9
30	0.28	5	21
40	0.25	5	42
50	0.21	5	76

Figure 1003.1D

Stopping Sight Distance



$$S = \frac{V^2}{254\,(f \pm G)} + \frac{V}{1.4}$$

Descend - - - - - -
Ascend ———

Where : S = stopping sight, m

V = velocity, km/h

f = coefficient of friction (use 0.25)

G = grade, m/m (rise/run)

(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.

Bicyclists frequently ride abreast of each other on bicycle paths, and on narrow bicycle paths, bicyclists have a tendency to ride near the middle of the path. For these reasons, and because of the serious consequences of a head on bicycle accident, lateral clearances on horizontal curves should be calculated based on the sum of the stopping sight distances for bicyclists traveling in opposite directions around the curve. Where this is not possible or feasible, consideration should be given to widening the path through the curve, installing a yellow center line, installing a curve warning sign, or some combination of these alternatives.

(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 150 m). Where steeper grades are necessitated, the design speed should be increased and additional width should be provided for maneuverability.

(13) *Pavement Structure*. The pavement structure 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. It is important to construct and maintain a smooth riding surface with skid resistant qualities. 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 50 mm of asphalt concrete is recommended. Type "A" or "B" asphalt concrete (as described in Department of Transportation Standard Specifications), with 12.5 mm 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.

At unpaved highway or driveway crossings of bicycle paths, the highway or driveway should be paved a minimum of 3 m on each side of the crossing to reduce the amount of gravel being scattered along the path by motor vehicles. The pavement structure at the crossing should be adequate to sustain the expected loading at that location.

(14) *Drainage.* For proper drainage, the surface of a bike path should have a cross slope of 2%. Sloping in one direction usually simplifies longitudinal drainage design and surface construction, and accordingly is the preferred 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. Such ditches should be designed in such a way that no undue obstacle is presented to bicyclists.

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

Figure 1003.1E

Minimum Length of Crest Vertical Curve (L) Based on Stopping Sight Distance (S)

$L = 2S - \frac{450}{A}$ when S>L

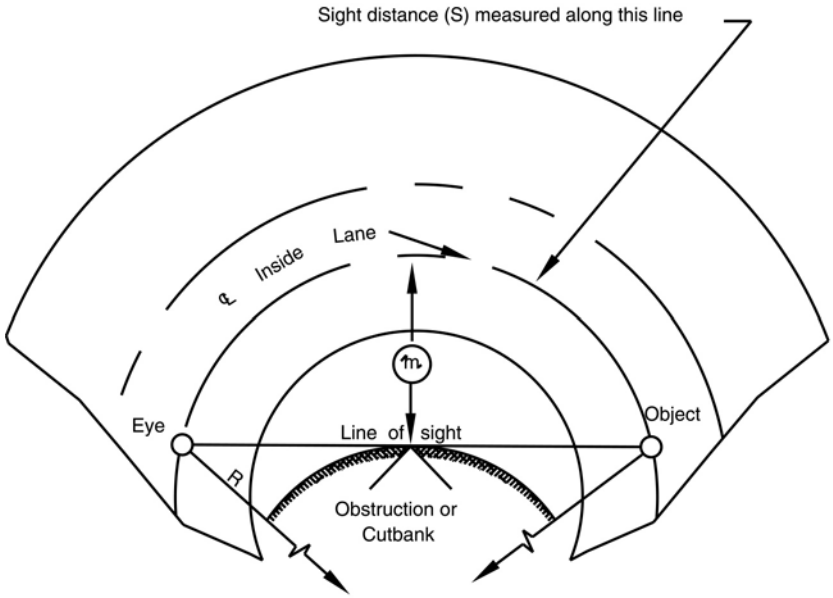
$L = \frac{AS^2}{450}$ when S<L

Double line represents S = L
L = Minimum length of vertical curve - meters
A = Algebraic grade difference - %
S = Stopping sight distance - meters
See Figure1003.1D to determine "S" for a given design speed "V"

Height of cyclist eye - 1400 mm Height of object - 100 mm

A	S = Stopping Sight Distance (m)										
(%)	15	20	25	30	35	40	45	50	55	60	
5								10.0	20.0	30.0	
6						5.0	15.0	25.0	35.0	45.0	
7		**S>L**			5.7	15.7	25.7	35.7	45.7	55.7	
8				3.8	13.8	23.8	33.8	43.8	53.8	64.0	
9				10.0	20.0	30.0	40.0	50.0	60.5	72.0	
10			5.0	15.0	25.0	35.0	45.0	55.6	67.2	80.0	
11			9.1	19.1	29.1	39.1	49.5	61.1	73.9	88.0	
12		2.5	12.5	22.5	32.5	42.7	54.0	66.7	80.7	96.0	
13		5.4	15.4	25.4	35.4	46.2	58.5	72.2	87.4	104.0	
14		7.9	17.9	27.9	38.1	49.8	63.0	77.8	94.1	112.0	
15		10.0	20.0	30.0	40.8	53.3	67.5	83.3	100.8	120.0	
16	1.9	11.9	21.9	32.0	43.6	56.9	72.0	88.9	107.6	128.0	
17	3.5	13.5	23.5	34.0	46.3	60.4	76.5	94.4	114.3	136.0	
18	5.0	15.0	25.0	36.0	49.0	64.0	81.0	100.0	121.0	144.0	
19	6.3	16.3	26.4	38.0	51.7	67.6	85.5	105.6	127.7	152.0	**S<L**
20	7.5	17.5	27.8	40.0	54.4	71.1	90.0	111.1	134.4	160.0	
21	8.6	18.6	29.2	42.0	57.2	74.7	94.5	116.7	141.2	168.0	
22	9.5	19.5	30.6	44.0	59.9	78.2	99.0	122.2	147.9	176.0	
23	10.4	20.4	31.9	46.0	62.6	81.8	103.5	127.8	154.6	184.0	
24	11.3	21.3	33.3	48.0	65.3	85.3	108.0	133.3	161.3	192.0	
25	12.0	22.2	34.7	50.0	68.1	88.9	112.5	138.9	168.1	200.0	

Figure 1003.1F
Lateral Clearances on Horizontal Curves



S = Sight distance in meters.
R = Radius of ℄ of lane in meters.
m = Distance from ℄ of lane in meters.
V = Design speed for S in km/h.
(Refer to Figure 1003.1D to determine "V", after "S" is determined.)

Angle is expressed in degrees

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

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

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

Line of sight is 600 mm above ℄ inside lane at point of obstruction.

GIVEN "R" AND "S"; FIND "m"

R (m)	S=10 m *m* meters	S=20 m *m* meters	S=30 m *m* meters	S=40 m *m* meters	S=50 *m* meters	S=60 m *m* meters	S=70 m *m* meters	S=80 m *m* meters	S=90 m *m* meters	S=100 m *m* meters	S=110 m *m* meters
25	0.50	1.97	4.37	7.58	11.49	15.94	20.75	25.73	30.68	35.41	39.72
50	0.25	1.00	2.23	3.95	6.12	8.73	11.76	15.17	18.92	22.99	27.32
75	0.17	0.67	1.50	2.65	4.13	5.92	8.02	10.42	13.10	16.06	19.28
100	0.12	0.50	1.12	1.99	3.11	4.47	6.06	7.90	9.96	12.24	14.75
125	0.10	0.40	0.90	1.60	2.49	3.58	4.87	6.35	8.01	9.87	11.91
150	0.08	0.33	0.75	1.33	2.08	2.99	4.07	5.30	6.70	8.26	9.97
175	0.07	0.29	0.64	1.14	1.78	2.57	3.49	4.55	5.75	7.10	8.57
200	0.06	0.25	0.56	1.00	1.56	2.25	3.06	3.99	5.04	6.22	7.52
225	0.06	0.22	0.50	0.89	1.39	2.00	2.72	3.55	4.49	5.53	6.69
250	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.19	4.04	4.98	6.03
275	0.05	0.18	0.41	0.73	1.14	1.63	2.22	2.90	3.67	4.53	5.48
300	0.04	0.17	0.37	0.67	1.04	1.50	2.04	2.66	3.37	4.16	5.03
350	0.04	0.14	0.32	0.57	0.89	1.29	1.75	2.28	2.89	3.57	4.31
400	0.03	0.13	0.28	0.50	0.78	1.12	1.53	2.00	2.53	3.12	3.78
500	0.03	0.10	0.23	0.40	0.62	0.90	1.22	1.60	2.02	2.50	3.02
600	0.02	0.08	0.19	0.33	0.52	0.75	1.02	1.33	1.69	2.08	2.52
700	0.02	0.07	0.16	0.29	0.45	0.64	0.87	1.14	1.45	1.79	2.16
800	0.02	0.06	0.14	0.25	0.39	0.56	0.77	1.00	1.27	1.56	1.89
900	0.01	0.06	0.13	0.22	0.35	0.50	0.68	0.89	1.12	1.39	1.68
1000	0.01	0.05	0.11	0.20	0.31	0.45	0.61	0.80	1.01	1.25	1.51

Figure 1003.1F

Lateral Clearances on Horizontal Curves (continued)

GIVEN "R" AND "m"; FIND "S"

R (m)	*m* = 1 meter	*m* = 2 meters	*m* = 3 meters	*m* = 4 meters	*m* = 5 meters	*m* = 6 meters	*m* = 7 meters	*m* = 8 meters	*m* = 9 meters	*m* = 10 meters	*m* = 11 meters
	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)	S (m)
25	14.19	20.13	24.74	28.67	32.17	35.37	38.35	41.15	43.81	46.36	48.82
50	20.03	28.38	34.81	40.27	45.10	49.49	53.55	57.35	60.93	64.35	67.61
75	24.52	34.72	42.57	49.21	55.08	60.40	65.32	69.91	74.23	78.34	82.26
100	28.31	40.06	49.11	56.75	63.51	69.63	75.27	80.54	85.50	90.20	94.68
125	31.64	44.78	54.88	63.41	70.94	77.77	84.06	89.92	95.44	100.67	105.66
150	34.66	49.04	60.10	69.43	77.67	85.13	92.00	98.41	104.44	110.15	115.60
175	37.43	52.96	64.90	74.97	83.86	91.91	99.32	106.23	112.73	118.88	124.75
200	40.01	56.61	69.36	80.13	89.62	98.22	106.13	113.51	120.45	127.01	133.27
225	42.44	60.04	73.56	84.97	95.04	104.15	112.53	120.35	127.70	134.66	141.28
250	44.73	63.28	77.53	89.56	100.16	109.76	118.59	126.82	134.56	141.89	148.86
275	46.91	66.37	81.31	93.92	105.03	115.09	124.35	132.98	141.09	148.77	156.08
300	49.00	69.32	84.92	98.08	109.69	120.19	129.86	138.86	147.33	155.34	162.97
350	52.92	74.86	91.71	105.92	118.45	129.79	140.22	149.94	159.08	167.72	175.95
400	56.58	80.03	98.03	113.22	126.61	138.73	149.87	160.26	170.01	179.25	188.04
500	63.25	89.47	109.59	126.57	141.53	155.06	167.52	179.11	190.01	200.32	210.13
600	69.29	98.00	120.04	138.63	155.02	169.83	183.47	196.16	208.09	219.38	230.12
700	74.84	105.85	129.65	149.73	167.42	183.42	198.14	211.85	224.72	236.91	248.50
800	80.00	113.15	138.60	160.05	178.97	196.07	211.80	226.45	240.21	253.23	265.62
900	84.85	120.01	147.00	169.76	189.81	207.95	224.63	240.16	254.75	268.56	281.69
1000	89.44	126.50	154.95	178.93	200.07	219.18	236.76	253.13	268.51	283.06	296.90

(15) *Barrier Posts*. It may be necessary to install barrier posts at entrances to bike paths to prevent motor vehicles from entering. For barrier post placement, visibility marking, and pavement markings, see the MUTCD and California Supplement, Section 9C.101.

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.

(16) *Lighting.* Fixed-source lighting reduces conflicts along paths and at intersections. In addition, lighting allows the bicyclist to see the bicycle path direction, surface conditions, and obstacles. Lighting for bicycle paths is important and should be considered where riding at night is expected, such as bicycle paths serving college students or commuters, and at highway intersections. Lighting should also be considered through underpasses or tunnels, and when nighttime security could be a problem.

Depending on the location, average maintained horizontal illumination levels of 5 lux to 22 lux should be considered. Where special security problems exist, higher illumination levels may be considered. Light standards (poles) should meet the recommended horizontal and vertical clearances. Luminaires and standards should be at a scale appropriate for a pedestrian or bicycle path.

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 pavement markings 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 pavement markings 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.

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 and promote riding against the flow of motor vehicle traffic.

(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. **As indicated, 1.5 m shall be the minimum width of bike lane where parking stalls are marked.** If parking volume is substantial or turnover high, an additional 0.3 m to 0.6 m of width is desirable.

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, 3.3 m or 3.6 m (depending on the type of curb) shall be the minimum width of the bike lane where parking is permitted.** This type of lane is satisfacory where parking is not extensive and where turnover of parked cars is infrequent. However, if parking is substantial, turnover of parked cars is high, truck traffic is substantial, or if vehicle speeds exceed 55 km/h, 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). **As indicated, if no gutter exists, the minimum bike lane width shall be 1.2 m. With a normal 600 mm gutter, the minimum bike lane width shall be 1.5 m.** The intent is to provide a minimum 1.2 m wide bike lane, but with at least 0.9 m 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, 1.2 m), an additional 0.9 m 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 1.8 to 2.4 m to provide for greater safety. 2.4 m 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.

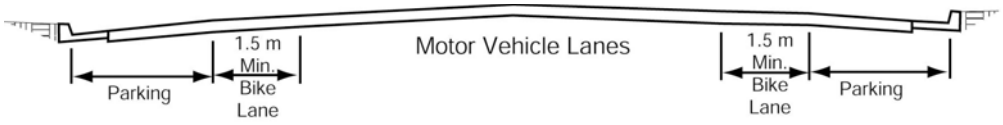
Figure 1003.2A(4) depicts bike lanes on a highway without curbs and gutters. This location is in an undeveloped area where infrequent parking is handled off the pavement. This can be accomplished by supplementing the bike lane signing with R25 (park off pavement) signs, or R26 (no parking) signs. **Minimum widths shall be as shown.** Additional width is desirable, particularly where motor vehicle speeds exceed 55 km/h.

Per Topic 301, the minimum lane width standard is 3.6 m. There are situations where it may be desirable to reduce the width of the traffic lanes in order to add or widen bicycle lanes or shoulders. In determining the appropriateness of narrower traffic lanes, consideration should be given to factors such as motor vehicle speeds, truck volumes, alignment, bicycle lane width, sight distance, and the presence of on-street vehicle parking when vehicle parking is permitted adjacent to a bicycle lane, or on a shoulder where bicycling is not prohibited, reducing the width of the adjacent traffic lane may allow for wider bicycle lanes or shoulders, to provide greater clearance between bicyclists and driver-side doors when opened. Where favorable conditions exist, traffic lanes of 3.3 m may be feasible but must be approved per Topic 301.

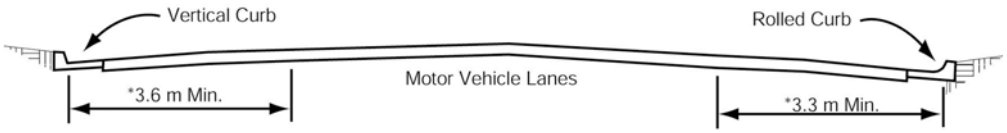
Bike lanes are not advisable on long, steep downgrades, where bicycle speeds greater than 50 km/h are expected. As grades increase, downhill bicycle speeds will increase, which increases the problem of riding near the edge of the roadway. In such situations, bicycle speeds can approach those of motor vehicles, and experienced bicyclists will generally move into the motor vehicle lanes to increase sight distance and maneuverability. If bike lanes are to be marked, 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.

Figure 1003.2A
Typical Bike Lane Cross Sections
(On 2-lane or Multilane Highways)

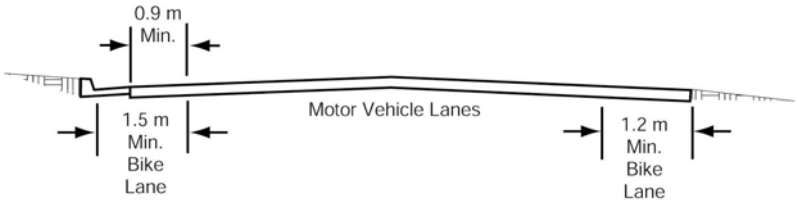


(1) MARKED PARKING

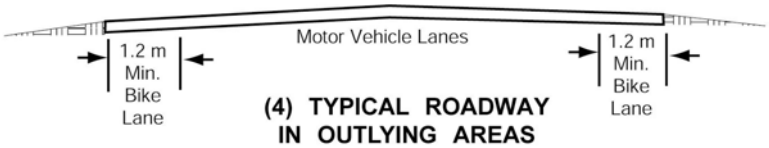


* 3.9 is recommended where there is substantial parking or turnover of parked cars is high (e.g. commerical areas).

(2) PARKING PERMITTED WITHOUT MARKED PARKING OR STALL



(3) PARKING PROHIBITED



(4) TYPICAL ROADWAY IN OUTLYING AREAS PARKING RESTRICTED

Note: For pavement marking guidance, see the MUTCD and California Supplement, Section 9C.04

(2) Signing and Pavement Markings. Details for signing and pavement marking of Class II bikeways are found in the MUTCD and California Supplement, Section 9C.04.

(3) At-grade 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 at-grade 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. 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 often prefer to dismount and change directions by walking their bike in the crosswalk.

(4) Interchange Design. As with bikeway design through at-grade intersections, bikeway design through interchanges should be accomplished in a manner that will minimize confusion by motorists and bicyclists. Designers should work closely with the local agency in designing bicycle facilities through interchanges. Local Agencies should carefully select interchange locations which are most suitable for bikeway designations and where the crossing meets applicable design standards. The local agency may have special needs and desires for continuity through interchanges which should be considered in the design process.

For Class II bikeway signing and lane markings, see the MUTCD and California Supplement, Section 9C.04.

The shoulder width shall not be reduced through the interchange area. The minimum shoulder width shall match the approach roadway shoulder width, but not less than 1.2 m or 1.5 m if a gutter exists. If the shoulder width is not available, the designated bike lane shall end at the previous local road intersection.

Depending on the intersection angles, either Figure 1003.2C or 1003.2D should also be used for multilane ramp intersections. Additionally, the outside through lane should be widened to 4.2 m when feasible. This allows extra room for bicycles to share the through lane with vehicles. The outside shoulder width should not be reduced through the interchange area to accommodate this additional width.

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.

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

Figure 1003.2B

Typical Bicycle/Auto Movements at Intersections of Multilane Streets

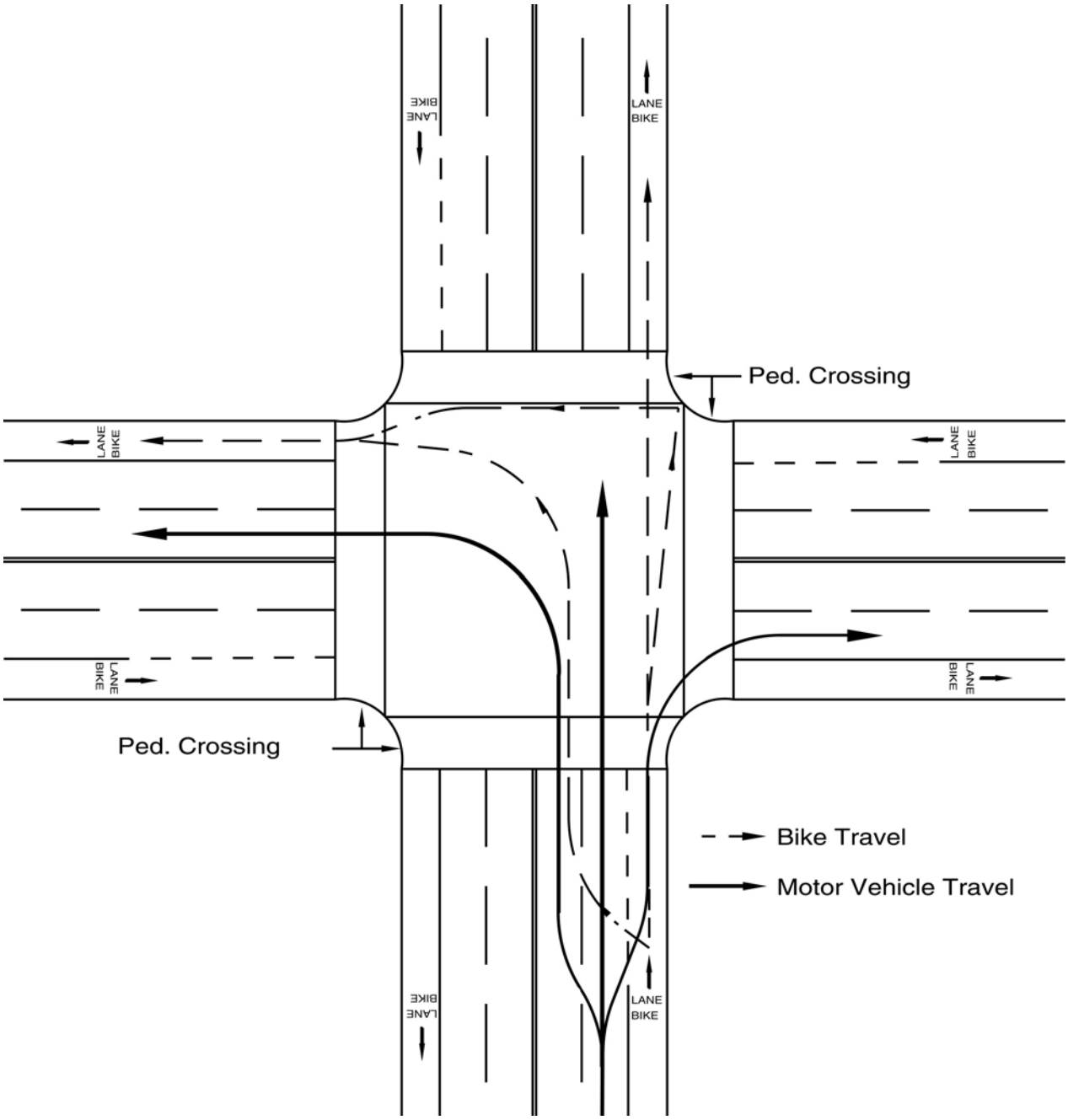
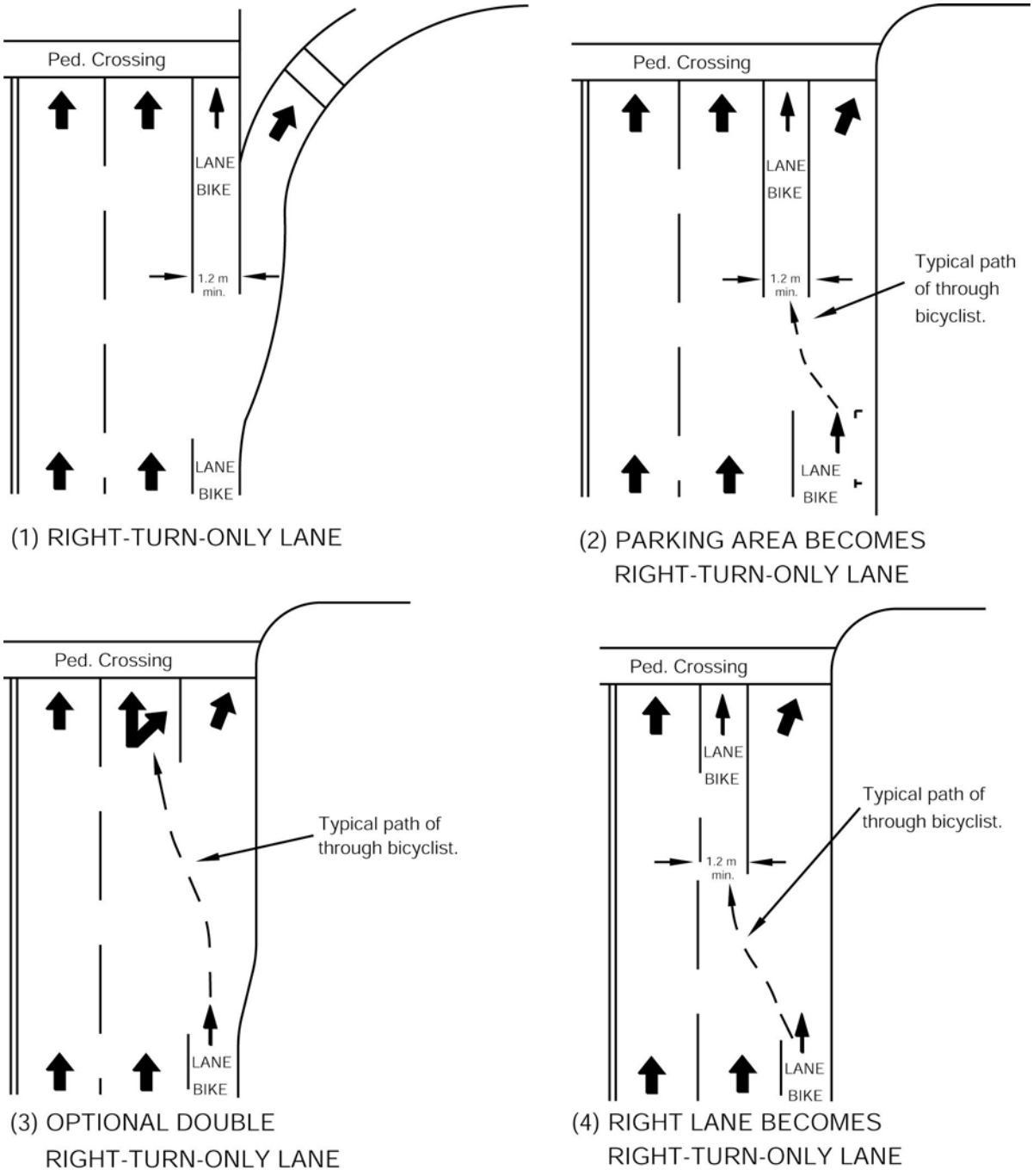
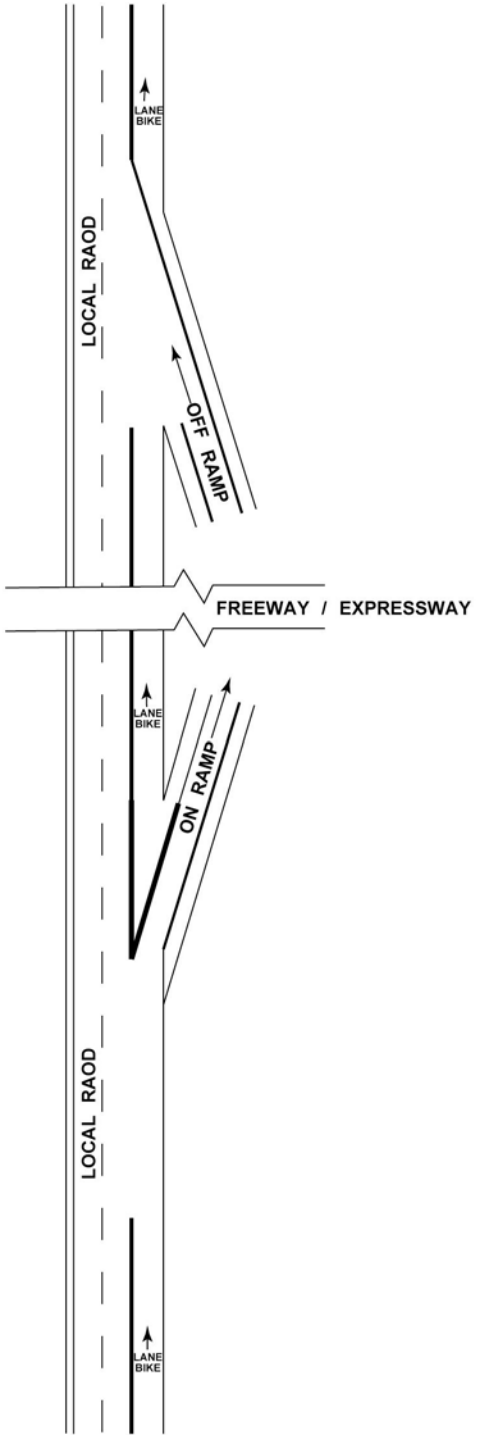


Figure 1003.2C
Bike Lanes Approaching Motorist
Right-turn-only Lane



Note: For bicycle lane markings, see the MUTCD and California Supplement, Section 9C.04.

Figure 1003.2D
Bike Lanes Through Interchanges



Notes:

1.) See Index 1003.2 (4) for additional information.

2.) The shoulder width shall not be reduced through the interchange area. The minimum shoulder width shall match the approach roadway shoulder width, but not less than 1.2 m or 1.5 m if a gutter exists. If the shoulder width is not available, the designated bike lane shall end at the previous local raod intersection.

3.) See Index 1003.3 (4) for information on Bike Routes Through Interchanges.

(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 right-hand 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. 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. For typical signing, see the MUTCD and California Supplement, Figures 9B-5 and 9B-6.

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.

(4) Interchange Design As with bikeway design through at-grade intersections, bikeway design through interchanges should be accomplished in a manner that will minimize confusion by motorists and bicyclists. Designers should work closely with the local agency in designing bicycle facilities through interchanges. Local Agencies should carefully select interchange locations which are most suitable for bikeway designations and where the crossing meets applicable design standards. The local agency may have special needs and desires for continuity through interchanges which should be considered in the design process.

Within the Interchange area the bike route shall require either an outside lane width of 4.8 m or a 3.6 m lane and a 1.2 m shoulder. If the above width is not available, the designated bike route shall end at the previous local road intersection.

1003.4 Bicycles on Freeways

In some instances, bicyclists are permitted on freeways. Seldom would a freeway be designated 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. However, a freeway should not be opened to bicycle use if it is determined to be incompatible. The Headquarters Traffic Liaisons and the Design Coordinator must approve any proposals to open freeways to bicyclists.

If a suitable alternate route exists, it would normally be unnecessary to open the freeway. However, if the alternate route is unsuitable for bicycle travel the freeway may be a better alternative for bicyclists. In determining the suitability of an alternate route, safety should be the paramount consideration. The following factors should be considered:

- Number of intersections
- Shoulder widths
- Traffic volumes
- Vehicle speeds
- Bus, truck and recreational vehicle volumes
- Grades
- Travel time

When a suitable alternate route does not exist, a freeway shoulder may be considered for bicycle travel. Normally, freeways in urban areas will have characteristics that make it unfeasible to permit bicycle use. In determining if the freeway shoulder is suitable for bicycle travel, the following factors should be considered;

- Shoulder widths
- Bicycle hazards on shoulders (drainage grates, expansion joints, etc.)
- Number and location of entrance/exit ramps
- Traffic volumes on entrance/exit ramps
- Bridge Railing height

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 and exits, see the MUTCD and California Supplement, Section 9B.101.

Where no reasonable alternate route exists within a freeway corridor, the Department should coordinate with local agencies to develop or improve existing routes or provide parallel bikeways within or adjacent to the freeway right of way.

The long term goal is to provide a safe and convenient non-freeway route for bicycle travel.

1003.5 Multipurpose Trails

In some instances, it may be appropriate for agencies to develop multipurpose 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 multipurpose trails (or similar designation), along with regulatory signing to restrict motor vehicles, as appropriate.

If multipurpose trails are primarily to serve bicycle travel, they should be developed in accordance with standards for Class I bikeways. In general, multipurpose trails are not recommended as high speed transportation facilities for bicyclists because of conflicts between bicyclists and pedestrians.

Wherever possible, separate bicycle and pedestrian paths should be provided. If this is not feasible, additional width, signing and pavement markings should be used to minimize conflicts.

It is undesirable to mix mopeds and bicycles on the same facility. In general, mopeds should not be allowed on multipurpose trails because of conflicts with slower moving bicyclists and pedestrians. In some cases where an alternate route for mopeds does not exist, additional width, signing, and pavement markings should be used to minimize conflicts. Increased patrolling by law enforcement personnel is also recommended to enforce speed limits and other rules of the road.

It is usually not desirable to mix horses and bicycle traffic on the same multipurpose trail. Bicyclists are often not aware of the need for slower speeds and additional operating space near horses. Horses can be startled easily and may be unpredictable if they perceive approaching bicyclists as a danger. In addition, pavement requirements for safe bicycle travel are not suitable for horses. For these reasons, a bridle trail separate from the multipurpose trail is recommended wherever possible.

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 1.4 m high to minimize the likelihood of bicyclists falling over the railings. Standard bridge railings which are lower than 1.4 m can be retrofitted with lightweight upper railings or chain link fence suitable to restrain bicyclists. See Index 208.10(6) for guidance regarding bicycle railing on bridges.

Separate highway overcrossing structures for bikeway traffic shall conform to Caltrans' standard pedestrian overcrossing design loading. The minimum clear width shall be the paved width of the approach bikeway but not less than 2.4 m. 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 6 mm from the lower edge of a 2.4 m long straight edge when laid on the surface in any direction.

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.) Shoulder rumble strips are not suitable as a riding surface for bicycles. See the MUTCD and California Supplement,

Chapter 3B for additional information regarding rumble strip design considerations for bicycles.

Table 1003.6
Bikeway Surface Tolerances

Direction of Travel	Grooves(1)	Steps(2)
Parallel to travel	No more than 12 mm wide	No more than 10 mm high
Perpendicular to travel	---	No more than 20 mm 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.

(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, 25 mm x 6 mm steel cross straps should be welded to the grates at a spacing of 150 mm to 200 mm 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 15 mm.

(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.

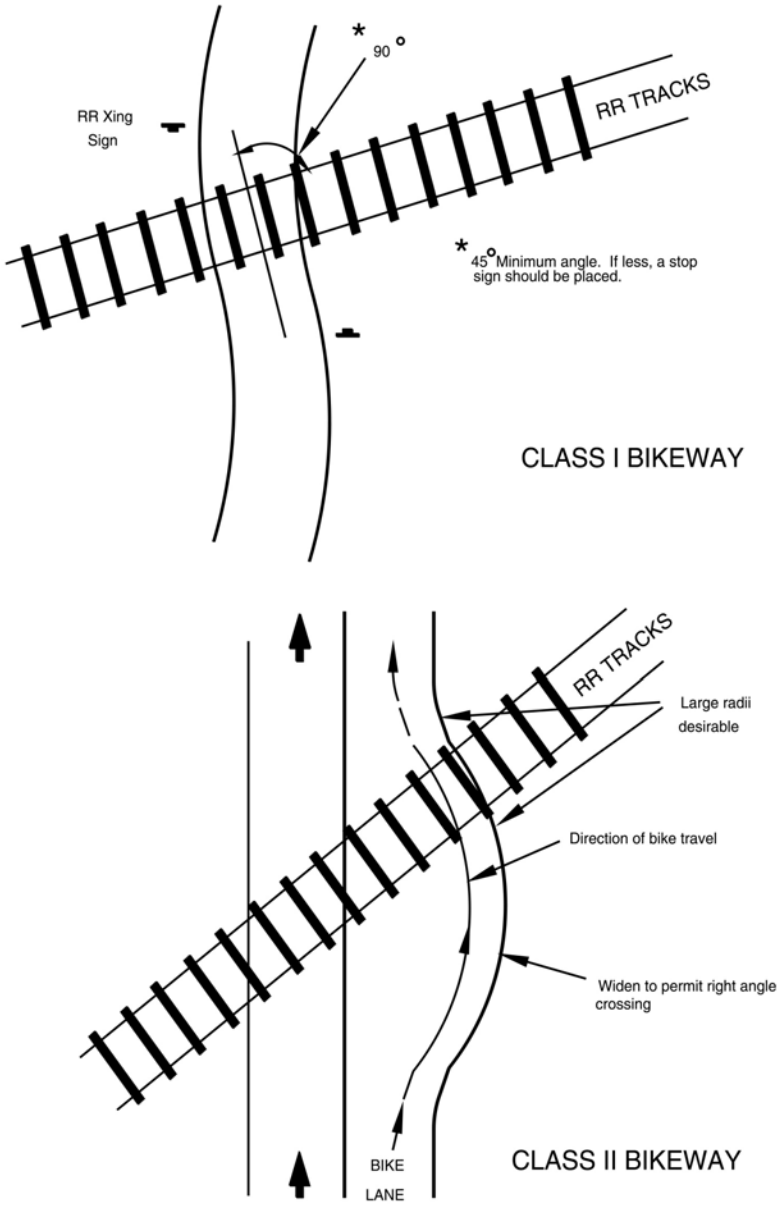
Pavement should be maintained so ridge buildup does not occur next to the rails. In some cases, timber plank crossings can be justified and can provide for a smoother crossing. Where hazards to bicyclist cannot be avoided, appropriate signs should be installed to warn bicyclists of the danger.

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) Obstruction 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. See the MUTCD, Section 9C.06.

Figure 1003.6A
Railroad Crossings



Appendix B: Public Input

Workshop #1 Summary

The first public workshop was help on Saturday, February 2nd, 2008 at the Community Rooms of the Oceanside Public Library. Over 50 people attended the workshop as a PowerPoint presentation was given describing the project background, bicycle facility types and assets and issues regarding bicycle related topics in the City of Oceanside. Surveys were handed out and twenty-two (22) were filled out at the workshop. Copies of the flyers were sent with the January water bill and were also mailed to bike shops, community centers and libraries in the City of Oceanside to notify the public of the workshop.

Display boards included:
Circulation Element Background
Existing Bicycle Facilities
Programmed Bicycle Facilities
Activity Centers
Bicycle Related Collisions (2004 - July 2007)

Comments from the workshop maps are as follows:

1. Bike Path (Class 1) thru Pendleton to tie-in with rail trail
2. Coordinate and connect Class 1 trail through Pendleton to San Clemente
3. Drinking fountains and toilet rooms along river trail
4. Use sewer easements as bike trails (Class 1) wherever possible
5. Possible trail areas at Whelan Lake – Off-road
6. “Burma Shave” signs for courtesy education near trail heads
7. Connect SLR trail to Frazee
8. Tie current and future Class 1 trails together to form a complete loop through Guajome Park

9. “Share the Road” sign to help safety at College Blvd and SR-76
10. Require developers to include dedicated bike paths thru newly developed areas
11. Bike/ped/equestrian crossing at 76 from Jefferies Ranch
12. Need safe passage (between North River Rd and SR-76, south of Sleeping Indian Rd
13. Connect Trail on SLR River past Guajome Park to County Park (future) trail at City limits
14. Connect the bike trail (path) to Jefferies Ranch area. Please!
15. Connect Jefferies Ranch to Guajome Park for bikes/peds and horses without crossing over Melrose. – eg: bridge under Melrose at spur along Spring Creek
16. Bike trail thru Guajome Park for City loop trail. SLR/Guajome/Sprinter/Pacific Ave
17. Bike lanes for children to ride their bikes to school
18. Bike lanes here (Olive Dr) for safe commuting to school on Olive (in Vista) Olive Elementary
19. Olive – could we have bike lane striping as part of road improvements?
20. This intersection is dangerous (Olive and College)
21. “Share the Road” signs to help safety (College and Oceanside Blvd)
22. Old Grove as Class 2 connection (between Mesa Dr and College Blvd)
23. Need safe passage along Sprinter corridor – multi-use pathway
24. Add bots dots on bike lane lines at convex curves so motorists know they are encroaching – like here (Corporate Center Dr)
25. “Share the Road” signs to help safety (College and 78)
26. Can we have pathways thru the 78 corridor
27. Imperative to develop Class1 path along sprinter corridor the entire length

28. Off-road mtn bike trails – include at El Corazon or Morro Hills or Pilgrim Creek areas
29. Unsafe area for cycling (El Camino Real south of SR-78)
30. Is this really going to happen? (Sprinter rail trail)
31. I'm excited about planned routes to the coast and our Oceanside Blvd! Are these a "sure thing?"
32. "Share the Road" signs for safety on Mission Road
33. Sign connection from Coast Hwy to Vista Way
34. Parking incentives for on-site bike parking and showers/lockers
35. Add directional signs – 3"X___" at key locations
36. Coast Hwy as a Class 2
37. Measure minimum bike lane from gutter edge vs. curb edge. (to avoid crack in middle of path)
38. Make Pacific Ave a Class 1 by deleting parking on coast side. Many driveways / few cars
39. NCTD prohibits use of bikes in train parking lot
40. More bike racks at store malls and attractor at Pier
41. Need 1 or 2 more trash containers west of Benet. Maybe one at terminus at Surfrider? (along SLR)
42. Please do whatever you can to get the Class 1 Coastal Rail Trail and the Oceanside Blvd trails built. Access from the beach to El Corazon would be great!
43. Error! There are no bike lanes at any of the Hwy 78 crossings (~500m either side)
44. Signage to SLR at SR-76 and College

Online survey summary (as of February 8, 2008)
Total surveys: 118

What city do you live in?
Oceanside – 82.2%
San Diego – 6.78%
Carlsbad – 5.93%
Vista – 1.69%
Encinitas – 1.69%
Solana Beach – .85%
Del Mar – .85%

Write in a city or county area if you are not a resident of a listed city:
Was Oceanside now Fallbrook
San Clemente
Fallbrook
San Diego
Valley Center
Phoenix, AZ
Fallbrook and Oceanside
Atlanta, Georgia

Please prioritize the following list of bikeway improvements with "1" being the most important and "6" being the least important. Do not duplicate rank assignments to multiple bikeway improvements.

Provide more bike trails separated from roadways.
1 - 54.03%
2 - 8.06%
3 - 9.68%
4 - 5.65%
5 - 4.03%
6 - 18.55%

Provide more on-street bike lanes painted on roadways.
1 - 29.84%
2 - 15.32%
3 - 25.00%
4 - 13.71%
5 - 12.10%
6 - 4.03%

Provide more on-street bike routes (no painted lanes, just signs).
1 - 9.68%
2 - 9.68%
3 - 12.90%
4 - 14.52%
5 - 16.13%
6 - 37.10%

Provide wider shared lanes on existing roads (no lanes provided).
1 - 16.94%
2 - 14.52%
3 - 19.35%
4 - 13.71%
5 - 17.74%
6 - 17.74%

Fix problems with existing problem streets and intersections.
1 - 27.42%
2 - 15.32%
3 - 15.32%
4 - 18.55%
5 - 16.13%
6 - 7.26%

Create a more interconnected system by filling in missing gaps.
1 - 35.48%
2 - 22.58%
3 - 14.52%
4 - 8.87%
5 - 8.06%
6 - 10.48%

Please rate the following list of improvements as High, Moderate, or Low priority in terms of whether they would convince you to commute by bike in Oceanside more often.

Provide trails separated from the road and busy traffic.
Low - 10.48%
Moderate - 16.94%
High - 72.58%

Emphasize safe routes to schools and to local parks.
Low - 17.74%
Moderate - 33.87%
High - 48.39%

Provide more bike lanes on safe streets.
Low - 8.06%
Moderate - 32.26%
High - 59.68%

Mark safe routes on low volume/low speed streets.
Low - 15.32%
Moderate - 48.39%
High - 36.29%

Increase maintenance along routes, removing potholes and debris.
Low - 8.94%
Moderate - 34.15%
High - 56.91%

Provide more multi-modal connections with other transit facilities.
Low - 21.77%
Moderate - 40.32%
High - 37.90%

Insist that large employers provide showers and bike lockers.
Low - 42.74%
Moderate - 37.10%
High - 20.16%

Concentrate on problem intersections and high speed on/off ramps.
Low - 9.68%
Moderate - 36.29%
High - 54.03%

Improve public education with an emphasis on sharing the road.
Low - 10.48%
Moderate - 28.23%
High - 61.29%

Improve intersection bike loop detection systems.
Low - 9.68%
Moderate - 50.81%
High - 39.52%

You will be presented with a series of questions regarding whether you participate in certain activities, and if so, how often you participate in them, and during what time of the day.

Are you currently participating in Cycling for Transportation?
No - 57.26%
Yes - 42.74%

How often do you currently take part in Cycling for Transportation?
24.53% - Daily
37.74% - 2-3 Days per Week
22.64% - Weekly
7.55% - 2-3 Times per Month
3.77% - Monthly
3.77% - A Few Times per Year

When do you like to Cycle for Transportation?
Weekday Mornings - 36.52%
Weekday Days - 11.30%
Weekday Evenings - 26.96%
Weekend Mornings - 7.83%
Weekend Days - 13.04%
Weekend Evenings - 4.35%

Are you currently participating in Cycling for Exercise or Sport?
No - 6.45%
Yes - 93.55%

How often do you currently take part in Cycling for Exercise or Sport?
13.79% - Daily
44.83% - 2-3 Days per Week
25.86% - Weekly
9.48% - 2-3 Times per Month
2.59% - Monthly
3.45% - A Few Times per Year

When do you like to Cycle for Exercise or Sport?
Weekday Mornings - 19.20%
Weekday Days - 15.63%
Weekday Evenings - 8.93%
Weekend Mornings - 27.68%
Weekend Days - 25.00%
Weekend Evenings - 3.57%

Are you currently participating in Cycling for Recreation?
No - 16.13%
Yes - 83.87%

How often do you currently take part in Cycling for Recreation?
3.85% - Daily
39.42% - 2-3 Days per Week
27.88% - Weekly
14.42% - 2-3 Times per Month
5.77% - Monthly
8.65% - A Few Times per Year

When do you like to Cycle for Recreation?
Weekday Mornings - 14.86%
Weekday Days - 14.86%
Weekday Evenings - 8.00%
Weekend Mornings - 24.00%
Weekend Days - 34.29%
Weekend Evenings - 4.00%

Are you currently participating in Cycling for Social/Family Activity?
No - 43.55%
Yes - 56.45%

How often do you currently take part in Cycling for Social/Family Activity?
2.86% - Daily
15.71% - 2-3 Days per Week
30.00% - Weekly
20.00% - 2-3 Times per Month
21.43% - Monthly
10.00% - A Few Times per Year

When do you like to Cycle for Social/Family Activity?
Weekday Mornings - 10.43%
Weekday Days - 9.57%
Weekday Evenings - 4.35%
Weekend Mornings - 29.57%
Weekend Days - 40.87%
Weekend Evenings - 5.22%

Are you currently participating in Running on Multi-Use Paved Paths?
No - 71.77%
Yes - 28.23%

How often do you currently take part in Running on Multi-Use Paved Paths?
11.43% - Daily
28.57% - 2-3 Days per Week
28.57% - Weekly
17.14% - 2-3 Times per Month
8.57% - Monthly
5.71% - A Few Times per Year

When do you like to Run on Multi-Use Paved Paths?
Weekday Mornings - 22.22%
Weekday Days - 11.11%
Weekday Evenings - 12.35%
Weekend Mornings - 29.63%
Weekend Days - 16.05%
Weekend Evenings - 8.64%

Are you currently participating in Walking on Multi-Use Paved Paths?
No - 62.90%
Yes - 37.10%

How often do you currently take part in Walking on Multi-Use Paved Paths?
19.57% - Daily
28.26% - 2-3 Days per Week
28.26% - Weekly
13.04% - 2-3 Times per Month
4.35% - Monthly
6.52% - A Few Times per Year

When do you like to Walk on Multi-Use Paved Paths?
Weekday Mornings - 13.83%
Weekday Days - 22.34%
Weekday Evenings - 18.09%
Weekend Mornings - 15.96%
Weekend Days - 19.15%
Weekend Evenings - 10.64%

How did you hear about this work?
66.13% - Flyer
4.03% - Newspaper
10.48% - Internet
12.90% - Word of mouth
6.45% - Other

To summarize the comments, the most common issue raised was the expansion of Class 1 bike paths throughout the city. A major improvement based on the survey was extending the San Luis Rey River Trail thru Guajome Park to connect to the Sprinter Rail Trail and to complete the Sprinter Rail Trail and Coastal Rail Trail. Complete connections and facility gaps was another common concern to improve the overall the bicycle system within the City. Connections would include allowing bikes on the Sprinter as a multi-modal option, safer highway and railroad crossings and better intra-city bike path connections as well as connections to adjacent cities. Education for both the cyclist and drivers was a concern and more outreach is wanted to improve public awareness. Maintenance is also a concern with all the bicycle facilities in terms of sweeping, cleaning and fixing road surface problems. Bike storage facilities are wanted at all shopping centers to encourage bike use and a safe place to lock up bikes.

The survey comments are sorted by newest to oldest.

105. Provide connected bike paths or lanes protected from traffic to parks/beach and other transportation centers (Sprinter/Coaster stations) Have businesses support biking by providing bike-lock stands.

104. The merge at the entrance to Pendleton is very dangerous.

103. Path: Get the obnoxious club riders under control! Get the obnoxious club riders under control! Rules signage. Patrols control dogs on paths doenterprises@yahoo.com

102. Sweep paths more, prohibit glass on paths, educate participants on proper path behavior.

101. 1) At the West end of hwy 76, please connect the bike path to Mission Ave instead of requiring a long ride under the bridge to get to Mission Ave from the other side. It's a very long way around and back up a steep hill. Crossing the 5 offramp at the end of hwy 76 is too dangerous. 2) Please connect the west end of the Mission trail through to the harbor. It's really not dangerous to go under the railroad bridge on the trail. That's over-doing it with the safety restrictions. The way around through town is very long and much more dangerous than the trail would be. thanks!

100. I really agree with the need for increasing education about "Sharing the Road". I feel that cyclists and drivers would both benifit from a clearer understanding of right of way practices.

99. For the future, a bike lane (path) should be provided that would connect Harbor Dr and Las Pulgas when Camp Pendleton is on HIGH ALERT and off limits to cyclists.

98. Provide more bike racks and hard points for locking bikes at malls, shopping centers, grocery and drug stores, bike loops at Mesa and Mission – Barnes and Mission in left turn lane, Brooks and Mission in left turn lane.

97. There is a culvert near harbor by the new condo development that have homeless living in it that like to throw glass bottle, etc on bike path. We fine we must walk this area because of broken glass.

96. Extend bike trail all the way along San Luis Rey River to I-5.

95. Please continue to coordinate with neighboring cities so trails will be available and connected. Put a fire under the folks in Vista.

94. Develop an interconnected series of paved bike paths separate from streets but bridged where necessary by public streets. It would be even more helpful if they were interlinked with communities of Vista and Carlsbad.

93. Connect river to Guajome/Jefferies R. Break-ins at River Trail Parking. Harbor Access.

92. I would like to see more dedicated bike lanes that are safe.

91. We need many more designated bike lanes on city streets. Glass, palm fronds, and other debris needs to be picked up promptly. We also need more bike paths throughout the city. These should exclude car traffic. Thank you for your attention to this issue of safe biking in Oceanside.

90. Widen coastal bike trail (Cassidy to EMD)

89. 1) Make safe 2) Interconnect with rail, bus, etc. 3) Have parking facilities for bikes that ensure safety of bike

88. We need the Escondido to Oceanside Sprinter Class 1 Facility!

87. If we want more people riding bicycles we must educate our younger kids on the importance of cycling. A lot of our children are overweight. A lot of the younger kids like to ride a BMX style bike to start on. A lot of my customers want to have a skateboard park that they can ride their bikes. Having a place to ride will keep them riding. Then when they get older, they'll continue to ride their bicycles.

86. The goal should be to increase bike use, not improve facilities. Migrate the economic discrimination resulting from off-street parking ordinances. Car parking at work is expensive so it decreases wages. Cyclists do not use the car parking. Amend the off-street parking ordinances to define and reward cash out.

85. Maintain the surface of the existing bike path

84. More bike trails away from roadway & extending the San Luis Rey Bike Path

83. Would need to have bike racks at retail locations so that people can ride to the grocery store, etc. Currently I may be worried that my bike would be stolen if I ride to the store. Secondly, I think that the car drivers need to be educated. I do not feel safe riding around southern California drivers because they are not used to looking out for bicycles. Much different from riding in Northern California where biking for transportation is more of the norm.

82. Provide more spots for bikes on the Coaster & Metrolink Trains. Provide more covered lockers for bicycles. Sponsor more community bicycle events.

81. Thanks for your efforts
80. Get the bike path off of the public streets. In the first place it is not good to inhale auto exhaust any more than you have to. If the exhaust doesn't kill you the cars will. Bike travel should be encouraged. Putting a bike path on a high speed street does not do that!

79. We need more dedicated bike paths. With traffic the way it is - nobody feels safe sharing the road with vehicles.

78. Improve connections of off road paths and provide paths to major shopping centers

77. Obviously, more paths for bikes separate from automobiles is ideal. Better and wider bike lanes with no pot holes, rough pavement, or excessive debris is also quite desirable.

76. The flyer enclosed in my Water bill received today (2/4) was for a meeting last weekend (2/2). How unfortunate to not provide adequate notice to interested citizens. It would be great to make our river pathway/paved trail safe. As a mom exercising with young children I find the River path very unsafe and frightening.

75. Heading north/south on El Camino when crossing over Hwy 78 is extremely dangerous. This area needs improvement. Also, there are a number of pot-holes in bike lanes.

74. I would like to see the San Luis Rey river trail extended to Guajome Park. Overall, I'm pretty happy with the bicycle situation in Oceanside!

73. If better connections are made to the future Sprinter route and bike lockers and space on the Sprinter is dedicated and guaranteed, I will use the two together as transportation to work since I have a Sprinter location close enough to bike to at work and home. But it's too far to walk and if I'm already in my car, I'll drive the whole way (10 mi). It's not going to save any money to ride the Sprinter, but I'd do my part if I could ride my bike to the Sprinter station and be guaranteed a spot for it on the train.

72. Provide inter-connected routes, preferably separate from roads or on low volume, low speed roads.

71. You might consider rerouting the southern section of the Downs St route. Avocado above Ivy Rd is quite steep and has a very blind curve. Reroute to Ivy which turns into Downs. Both are wide and less steep. FYI I am a former trail coordinator for the City of San Juan Capistrano.

70. Better signage of bike routes, better street routes if possible or make bike cut thru connections(bike & pedestrian path only) if possible. Have business strip malls provide bike racks, some have none at all, it is very easy to pick up locked bike when no pole is there to wrap your lock cable.

69. Need a bike route near the pier area. Coast Highway is too busy.

68. Need safe paths, separate from dangerous roads to allow cycling throughout the city and connecting to other communities and to the coast. Bike paths need to be respected by drivers as a safe zone for cyclists. Debris such as broken glass needs to be cleared from pathways. We need safe bikeways to schools, parks and to public transportation. We need businesses and new construction to help support these needs.

67. Education on cycling etiquette for users of multi-use pathways.

66. Safety improvements needed to bikeways on: - Vista Way between El Camino Real and College Avenue; and - Intersections/traffic lights at El Camino Real and I-5.

65. I live in the Fire Mountain neighborhood. My wife and I would like to ride our bikes but don't feel anywhere hear is safe. I hope your plan will include painted lanes on streets that are relatively safe to travel on taking into consideration such things as shopping destination, recreation destinations and general transportation corridors. We are in our sixties so we're have to be thinking more about safety, traffic hazards, etc. before we're willing to get back on our bikes.

64. Add dedicated (separated from roads) bike paths: Oceanside to San Diego, Oceanside to Escondido, etc., etc. etc. The more bike paths, the better!

63. I would love to see some more trails for use by mountain bikers in the open space within the city limits. It would also be great to have trail maps posted at trails heads and/or made available online.

62. Extend the San Luis Rey Bike path north of College Ave so bikers do not have to ride on the 76.

61. Bike Routes on 2 lane high speed roads such as North River Road east of Stallion and Sleeping Indian Road need more signage to educate drivers to expect and pass cyclists safely. Pacific Street should be marked with “Sharrows” to show cyclists where to ride (outside the door zone) and to educate motorists on where to expect cyclists. KEEP CLEAR should NOT be used at non-signalized intersections on multi-lane roads such as College Blvd. where insufficient sight distance from left turn lanes to the Class 2 Bike Lanes does not exist. Worst example is College Blvd. southbound at the Rancho Del Oro shopping center. Northbound Douglas at North River Road should be restriped to provide for Class 2 Bike Lane passage for cyclists continuing north on Douglas. One of the two right hand turn lanes should also be eliminated make space for the bike lanes and to reduce collisions between motorists, pedestrians, and cyclists. North Santa Fe at 76 needs bike lane striping for left turning cyclists. This will likely require two left turn only lanes plus a straight/right turn only lane in addition to the bike lane striping. The bike lane striping on Fousatt northbound at 76 is on the wrong side of a right turn only lane. Striping for northbound cyclists also needs to be included. Bike lane striping on southbound College under 78 needs to be removed and moved over to line up with the existing lane which is correctly positioned to the left of the next right turn only intersection (Plaza Drive). Some kind of guidance for southbound cyclists and notice to motorists is required for the two right turns onto westbound 78 (shared lane markings?) Pacific Coast Hwy. should become a “Complete Street” for all users by reducing it from two through motor vehicle lanes each way to one and by adding a two way left turn lane in the middle plus Class 2 bike lanes on each side located outside of the door zone. El Camino Real from Mission Road southbound needs a Class 2 Bike Lane. If there is insufficient room in the center divide then one of the two traffic lanes should be removed. The bike lane striping on southbound Melrose just past Oceanside Blvd. is confusing and needs to be restriped if there is a right turn only into the Arco Station. Directions from and to the Cleveland Street entrance to the SLR Bike Trail need to be more prominent, especially for directions to the NCTD Train Station.

60. Need more separate bike routes and connectors, also need to monitor the E/W to beach route for men soliciting other men, weird activity going on. the rocky steep shoulder could be a hazard for someone to get hurt if they fell off and tumbled down onto the rocky shoulder. Can this be fixed?

59. Fix road edges and fix North River Rd and Sleeping Indian

58. When I used to live in Oceanside I would commute to work. The part of that commute I enjoyed least was negotiating along the beach front road in the evening, especially during the summer, on my way to the San Luis Rey River bike trail. If a separate bike path was built along the railroad track that would fabulous.

57. Enforce no parking in bike lanes. Make sure that all intersection traffic lights will change when a bicycle is waiting for the light to change, that includes the green arrow for a left turn. Educate motorists about proper behavior ie: NOT throwing objects at bicyclists to purposely injure them, shooting at cyclists with bb guns, pellet guns, paintball guns and other weapons, purposely running cyclists off the road, screaming at cyclists, flicking lit cigarettes at cyclists, etc.

56. Link public transportation with bicycle master plan. For example, I live 5 miles from the beach, and when the Sprinter begins running I'm thinking I'll be able to take my bike on it and ride it along the strand and beyond into Del mar.

55. Improve conditions of trails, extend river trail. Consider adopting "yellow bikes" like NY--free bikes available around the city. If you need a bike you use a yellow bike and then leave it for someone else to use when they need one. Are you familiar with it? Bikes are donated and used by the general public for free--they're not owned, they're shared by all the citizens.

54. I ride from Oceanside to Carlsbad for work. The biggest challenges for me are the short bike path near the coast - it's too short but I like it. However coming into Oceanside that area near Vista Way is a challenge... cyclists cut across coast highway if headed to the beach and for me I have to stay an extra block with possible parked cars to head inland North of Vista Way. I'd like to see the main bike path from the coast to college extended. Overall I like Oceanside as a place to bike when away from the coast.

53. North river road needs to be improved. Pacific Street needs some room for bikes.

52. I ride the San Luis Rey Bike trail every day to work - one of the best bike routes in all of San Diego. But every day I have to get off the trail and take Highway 76 from College - very dangerous. It is very important to finish the San Luis Rey trail all the way to Guajome Park - both for the commuters and for people that camp/recreate at the park. The San Luis Rey trail is Oceanside's' best secret - but it could be a great tourist attraction.

51. 1. Safer crossings of Hwy 78 (at College, Jefferson, and El Camino Real) are essential to increasing bicycle commuting. These areas are death traps and currently prevent several individuals I know from commuting by bicycle. 2. a better/safer connection to Bonsall (via 76 or North River Road) is essential to safe and expanded use of the bicycle route network in Oceanside. 3. Cleaning debris from bike lanes, particularly on well trafficked streets such as 76, college, or Mesa would also increase the safety of travel in these areas.

50. More dedicated bike trails would be very helpful to get cyclists out of traffic. However the trails have to go somewhere, there are segments of the "rail trail" close to Buccaneer park that are completely useless. A cyclist can easily cover 30 - 50 miles in a recreational ride, and a 500 yard long trail just dumps you out into a difficult traffic situation. Make the pathways useful for transportation and people will use them!

49. Bike routes near the beach need to be safer. I do not feel safe on most of the streets near the beach because of small lanes and few designated bike lanes.

48. I think taking this step is a great start and I commend you on it. There have been many positive changes in your city. I hope we can do it in Fallbrook.

47. Would like to see the river bike path extended

46. Improve diver awareness

45. I observed in Europe how bike paths separated from roads were in wide use and packed with commuters

44. Inland rail trail to Oceanside

43. Motorist education

42. I am not too sure about Oceanside.

41. Extend the San Luis Rey bike path. Provide bike lane on Pacific Street. Safer passage for bikes on Coast Highway. Raise awareness of riding a bike as a mode of transportation.

40. Sweep bike lanes more often. Complete bike lane on So Coast Hwy. (eliminate parking if necessary). Allow stand on motorized scooters on bike paths as CA law allows.

39. Thank you for the bike lanes. I ride to work on Oceanside Blvd daily. It is so much safer than before. The main improvement I would like to see is more bike lanes and wider roads where there are none so we can have room to get around without driving our cars. Thanks.

38. I would like to see more bike paths away from traffic in safe areas that I could ride my bike either with friends and family or alone. I do not feel safe riding along the San Luis Rey River bike trail alone.

37. I think Oceanside has to be a little more forward thinking in its approach to providing bicycle transportation options. Roads need to be designed with bicycling in mind so people have options to get around. I use the river bike path on occasion. There are always many people using this for running, walking and bicycling. Oceanside should develop more of these as we continue to build out the city, it provides many benefits to it's citizens.

36. We need a first class bike path. We should have a path that will be the bench mark for other cities. My kids and I need and want to have a safe place to ride. I really beleive a good bike path would improve Oceanside for more then just bicyclist, It would attract tourist and help businesses and in turn bring money into the area. Thank you for this survey, John Ringlever

35. Would like more bike trails off of the road like the San Luis Rey Bike Trail. We love that trail and would especially like more by the beach and harbor.

34. More education for car drivers to encourage them to share the road, and pay attention while driving, i.e. stop using cell phones and other distractions

33. Teach motorists that they have a responsibility to share the road and to watch out for and respect bicyclists. I have been in more than one vehicle-related accident and escaped many others. I am a careful motorist and bicyclist.

32. The City is not bicycle (or pedestrian) friendly at all! Our family cannot & will not ride our bikes on the streets of Oceanside because we are placing our lives at very high risk of being hit. The City needs bike sidewalks away from the traffic lanes. We would also love to have a bike/walk trail along the Sprinter rail line!

31. Add safe bike lane to 101!!

30. Maintain class 2 paths clean of debris. Educate drives to share the road. Provide education for school age riders, Have City planners consider bicycle commuters when designing/improving road ways.

29. Clear debris on bicycle paths & repair potholes, etc.

28. Please provide a pedestrian/cycle crossing for the rail tracks at Neptune Way. This will provide access to the beach and harbor that is not only convenient, but certainly safer than through the intersections. People do not always stop at the stop signs and become impatient if they have to wait. During peak seasons, drivers are also held up by the numerous people

trying to access the beach and amenities.

27. I would like to see a bike/walking trail connecting the San Luis Rey river trail and the Carlsbad bike/walk trail along the rail road tracks near the coast.

26. We need better signage at the bike trail along the coast and a bikeway system map.

25. There simply needs to be more available to cyclists. The river trail is great, but quite short. A trail system would be ideal. Something along Oceanside blvd and the sprinter route would be great.

24. If we had a good SEPARATED bike path system (like they have in Denmark for example) many more people would participate. In Denmark, almost everyone owns a bike and uses it almost daily- but only because it's safe to bike when the paths are separated from cars. With separate pathways even old ladies, little kids and parents with babies use their bikes. I'm glad you are starting work on this. It is needed. Linda

23. I stay inside on a treadmill. If there were nice, safe, separate bike only (nature) paths around town and to the train stations I would bike everywhere or walk.

22. I love the bike path along the San Luis Rey River. It would be wonderful to have an access point at the bottom of Canyon... there is a little track up the bank, but it is a heave to get the bikes up the bank and out onto the road. It is a busy road, but maybe wide enough for a bike path. And it is possible to ride a bike up Canyon! That would make the bike path more accessible to people in the Loma Alta neighborhood. Please consider it Thank you

21. Paths do not connect...heavy traffic on the strand. The strand should be limited to bikers, walkers and residents vehicle ONLY.

20. There should be more dedicated bike lanes and more education for cyclists. Many want to have it both ways, using rules for pedestrians (riding on the sidewalks) and then riding on the road, but not obeying the rules of the road. I want Oceanside to be bike friendly, but I want the cyclists to be safe and more respectful of the law.

19. Improved maintenance of bike lanes. Improve network of bike lanes. Better street sweeping of bike lanes. Do not allow utilities to use bike lanes for construction, or if necessary repave entire bike lane to eliminate seams and ruts in lane.

18. I notice that many group bicycle riders commonly violate basic traffic laws,(stop signs, lights, and lane obstruction).

17. Provide safe cycling so that people can commute to work, commute to the beach/downtown. Need to provide a secure place/s to park bicycles downtown.

16. We need be bike paths separate from the road. We need a long running bike path next to the Coaster and Sprinter tracks, please.

15. More bike trails separated from roads and more definition of bike trails on shared roads. There needs to be a connecting bike train between O'side and Carlsbad Village

14. Existing Bike lane on Vista Way is not safe. Too narrow and too much junk on the bike lane.

13. More connection between the trail gaps and more designated bike lanes
12. WE need safe routes along major traffic corridors. I suggest a bike path that runs along the rail lines.

11. Concentrate on more marked bike lanes on existing and new streets.

10. More Share the Road signs

9. High traffic times and multiple deaths caused to cyclists from car crashes at unsafe areas have deterred me from riding. Please make it safer for us to use our roadways!

8. I think we need a bike/pedestrian crossing at Neptune and the rail line for better harbor and beach access.

7. Make biking safer by having more paths and signs

6. I bike into and out of the front gate of Camp Pendleton. That freeway off ramp is very hard to navigate and might cause an accident.

5. The traffic on PCH virtually eliminates that street. During the summer the tourist traffic in the downtown area is just plain dangerous! City has NOT done any planning for traffic let alone included the safety for bike riders. The Harbor is also not well planned especially during tourist time!

4. Biking into Camp Pendleton main gate through the I5 Merge is very dangerous. Pacific Street needs bike lanes.

3. Repair roads, increase safety for cyclists and runners. I experience serious harassment regularly and get run off the road (riding AND running). Educate the general public although motorists really don't care and use their cars as weapon.

2. More East West connections. More signage (Share the Road) more education.

1. The bike path is great. Any upgrades to the current system is excellent. So many people cycle in this area.

A letter mailed on January 14, 2008

I will be out of town for the Feb. 2nd meeting. I have attended a small meeting before with Mr. LaGrange and Nathan Mertz. I expressed my concern on safety and the need for "Single File Passing". We ended up with the decision to paint the dotted center line which now exists. However the biggest safety problem still exists ....namely, two riders riding abreast and not riding single file when passing.

Even with the new center line two riders still ride abreast. The inside rider does attempt to keep their tires on or just inside the line. Their handle bars, elbows and shoulders then extend over 1/3rd of the oncoming lane. I am an experienced rider and have no problem moving way over to accommodate this behavior but since I ride this path four times a week for the last three years I have seen the following happen over and over again with or without the center line. What I repeatedly observe is:

Two riders riding abreast always makes the oncoming rider go over farther than they would like to make room for them. I have seen mom's with kids in tow with those trailer extensions have to pull onto the extremely narrow shoulder and then watched their trailer jack knife over the edge because of it. I have seen families with little kids learning to ride move over for the two abreast riders and then fall because they got scared that there still wasn't enough room. I have seen outright accidents because a rider had to move so far over for the two abreast riders that they really did go down.

What is needed is a simple signage-road stencil that says.... "Single File When Passing". In addition the Kiosk rule #5 currently reads.... "Users should ride no more than two abreast" this is extremely misleading and is only adding to the problem.

I can guarantee you that this is the number one safety problem on the path. Again, I ride the path four times a week for the past three years. Nothing comes close to this issue when it comes to safety. So I urge the committee to please take this seriously.

I have offered before and will now offer again now to pay for the road stencil, the yellow paint too, and will go out there and paint the stencil myself so the city incurs no expense. i would only need your official OK and to do so.

I have enclosed a rough drawing of the stencil idea as well as a few suggestions for the kiosk #5 Rule. Please feel free to contact me with any thoughts and questions.

Most Sincerely,

Larry Groupe

<u>Kiosk Rules Sheet - Item #5</u>

5. Ride Single File When Passing Traffic in Either Direction

OR

5. Ride Single File When Passing Traffic in Same or Opposing Lane

OR (simply)

5. Ride Single File When Passing

Workshop #2 Summary

The second workshop was conducted on May 10th at the Oceanside Public Library. Twenty people attended this final workshop to discuss the proposed routes recommended in this plan and to add, remove or alter recommended routes. The four Es were also discussed on presentation board; Education, Enforcement, Engineering and Encouragement. There was no presentation as the setup of this workshop was an open forum where the attendees can discuss issues and concerns with the consultant team and City staff. Two large plots of the recommended facilities were laid out on tables for attendees to add comments.

Comments from the workshop maps are as follows:

1. Need bike lane on Mission Blvd over/under I-5
2. Designate Coast Hwy as a Class 2 the full length
3. Add connection from Cassidy to Vista Way at edge of Caltrans ROW.
4. Connect Class 2 on Douglas between Mission and SR-75
5. Joint use off-road at Calaveras Lake Park with Carlsbad
6. Lost bike lane (at Old Grove Road and Mesa Drive)
7. Add left turn only bike lanes to the right of the rightmost vehicle left turn only lanes at North River Road and Vandergrift and on College Blvd at North River Road
8. Change left/straight only lane at N. Santa Fe and SR-76 to left only bike lane onto SR-76. Change the right turn only lane to right/straight lane
9. Make Old Ranch Rd and Class 2 to connect to Guajome Park.

The following are online survey comments between the two workshops. The survey comments are sorted by newest to oldest and are shown in verbatim as they were inputted.

133. !!!!!!!!!!MOST IMPORTANT!!!!!!!!!!!!! I am a City of Oceanside employee who bikes to work from Cardiff. The MOST DANGEROUS portion of my entire commute route by far is just after I cross over the lagoon on Coast Highway entering South Oceanside while headed North. Trying to make the left hand turn at the corner by Angelo's is difficult even at 7am in the morning for several reasons....the turn is on an uphill slope, there is no painted or indicated turn lane or even a center meridian, and there is both front and rear HIGH-SPEED TRAFFIC....THE WORST OF WHICH IS SOUTHBOUND WITH THE O'SIDE SPEED LIMIT NEEDLESSLY POSTED HIGHER (5 MPH) THEN ON THE OTHER SIDE OF THE LAGOON IN CARLSBAD. PEOPLE ARE ACCELRATING FAST RACING OFF OF VISTA WAY/78 AND GOING EVEN FASTER ON THE DOWNHILL INTO CARLSBAD OR INCREASING SPEED NORTH-BOUND WITH THE HIGHER SPEED LIMIT IN O'SIDE WHILE HEADED TO VISTA WAY/78. (AND A BIKER CAN'T TRIP THE LIGHT TO TURN LEFT A BLOCK UP AT PCH AND VISTA WAY WHILE ALSO RISK BEING PICKED OFF BY SOMEONE FLYING GOING WEST TO SOUTH AT THIS INTERSECTION.) PLEASE ALIGN THE SPEEDS, PUT TRAFFIC CONTROL, SPEED DETERNETS, POLICE WITH RADAR, WHATEVER IT TAKES. OVER THE BRIDGE AND WHERE IT GOES FROM TWO TO ONE LANES BOTH DIRECTIONS ARE JUST ACCIDENTS WAITING TO HAPPEN....BIKERS, WALKERS, PEOPLE FISHING, ALL ARE HIGH-STAKE VICTIMS. I WOULD PREFER THAT NO ONE IS PUT AT RISK...ESPECIALLY ME!!! And this is at 7am weekdays.....it only gets worse during the day and especially on weekends when the biker volume goes up dramatically. Thanks for listening. In my mind this is, needlessly, the most dangerous bike intersection/area in the City by far. I would appreciate hearing from you about solutions to this problem.

132. Freeways exits/intersection must have more bike lanes and sings for passing cars because drivers are such in a hurry to get on the freeways and don't care about people in bikes.

131. Improve bike lanes on the 101 between the harbor to Buena Vista Lagoon. Also, a bike path paralleling the Sprinter track would be great.

130. I would like to see something like the 56 freeway interconnect all of North County from La Jolla to Oceanside. I understand the cost would be absurd but in the meantime could we please educate the public on road sharing.

129. MAKE THE PATHS FEEL RURAL AND QUIET AND MAKE SURE THEY ARE SAFE

128. Integrate with transit and emphasize local businesses. For example, if we had an easy to follow trail from the transit parking structure to the river trail, the city could put a code at the bulletin boards along the trail that would be good for discounts at local businesses. Current trail parking is adequate, but the location doesn't encourage after-ride patronage of downtown businesses.

127. People in general don't seem to understand how to share roads with cyclists, nor do a lot of people seem to understand how to share a paved path (cyclists vs. pedestrians/runners). I do both so I am not commenting on the side of one or the other. Personally, I run & cycle defensively, but I am more afraid that others will cause me to have an accident because of unsafe, inconsiderate walking/cycling. Families out walking seem to walk 3-4 abreast just expecting bikes to dodge them, and there are a lot of cyclists who act as if the paved path is a "time trial" lane and everyone should just move far out of their way. Education on everyone's part would make using the paths more enjoyable for everyone: both on foot and on a bike.

126. Try to connect bikes with public transit.

125. The prior questions pretty much covered it.

124. Oceanside needs paths that are more easily accessible to cyclists and that are better maintained. I understood that there would eventually be a path that followed the Sprinter route. That would be great to see. For years I have been hearing about a coastal rail trail, but so far have seen nothing more than an asphalt sidewalk produced in south Oceanside. It would be nice to see something better come of that. Coast Highway could also use a bike lane that travels the entire length of the city, rather than starting at Oceanside Blvd and running 1/2 mile before terminating. I don't even see the purpose of that.

123. Riding along Coast Highway is a nightmare! Aggressive drivers, no shoulder, insufficient width to stay out of parked car "door zones." The marked bike route, closer to the coast, is marginally better, but again, the streets are narrow, the cars and pickups are wide.

122. Lowering speed limits to 35mph and less would go a long way in convincing people to ride bicycles.

121. We'd really like to see the San Luis Rey River bike path get connected to the rail bike path as soon as possible. That will enable us all enjoy the ride down to San Diego and back.

120. I feel that better training/awareness of the rules for drivers and cyclists are most important. Second to that, I think we need to be more sensitive to the quality of the roads for cycling. They can be uncomfortable and sometimes dangerous. This is often a workmanship issue.

119. Reverse the trend to eliminate bike lanes at intersections and freeway crossings in favor of vehicle turn lanes. Connect Cassidy St. to Vista Way along the Caltrans ROW of I-5 and route 78. Connect the River Trail to the eastern city limits, future county park trail.

118. Safer connection between bike paths IE. river path to Coaster path. Better care of street paths. Some of the sides are so bad I have to ride in the street to avoid the potholes.

117. Increase presence on off-street bike paths so it's not scary to ride on them (i.e. enforce leash laws)

116. Provide more off-road mountain bike trails with parking at trailheads.

115. I'd love to have a bike path where the sprinter is running. Paved and at least two lanes, east and west bound.

114. The grades on many underpasses are too steep for other than bicycles. There are a variety of adult Tricycles in use now. Some with foot pedeling and others with arm. These trikes are heavier that most bikes. Also, many people with wheelchairs use the bike paths. Thanks! Jimmie R. Wynn 760-435-9388.

113. Needed: Restrooms and Slow down signs! We often use the San Luis Rey Bike path. Our child rides single file between the adults. A few very fast riders have stopped us and advised us not to bring children on the Bike path. They were rude to our young son, indicating the path was for racing only. If indeed this is a family use path, could we note that with signs. Also...there are no restrooms along the path. Possibly soon with the completion of the park?

112. I would like to see the rail trail systems along the coast and along the sprinter route be completed with bike paths separate from auto traffic.

111. We would like to see the San Luis Rey bike path connected to the rest of the Rail Bike Path along the rail road track.

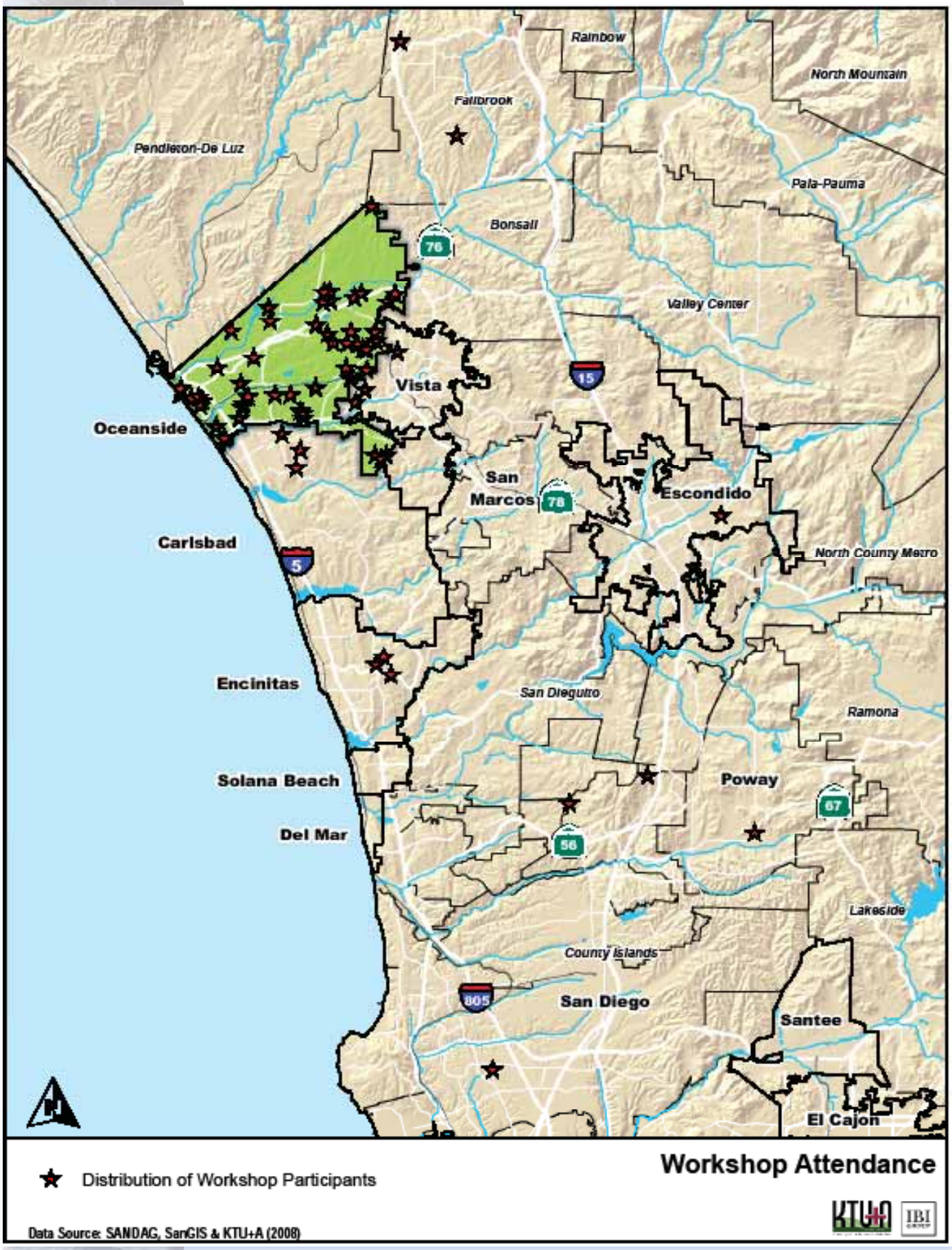
110. I really agree with the need for increasing education about "Sharing the Road". I feel that cyclists and drivers would both benefit from a clearer understanding of right of way practices.

109. 1) At the West end of hwy 76, please connect the bike path to Mission Ave instead of requiring a long ride under the bridge to get to Mission Ave from the other side. It's a very long way around and back up a steep hill. Crossing the 5 off ramp at the end of hwy 76 is too dangerous. 2) Please connect the west end of the Mission trail through to the harbor. It's really not dangerous to go under the railroad bridge on the trail. That's over-doing it with the safety restrictions. The way around through town is very long and much more dangerous than the trail would be. Thanks!

108. Sweep paths more, prohibit glass on paths; educate participants on proper path behavior.

107. Path: Get the obnoxious club riders under control! Get the obnoxious club riders under control! Rules and signage. Patrols control dogs on paths doenterprises@yahoo.com

106. The merge at the entrance to Pendleton is very dangerous.


Rainbow
North Mountain
Fallbrook
Pendleton-De Luz
Pala-Pauma
Bonsall
76
Valley Center
15
Vista
Oceanside
San
Marcos
78
Escondido
Carlsbad
5
North County Metro
Encinitas
San Dieguito
Ramona
Solana Beach
Poway
67
Del Mar
56
Lakeside
County Islands
805
San Diego
Santee
El Cajon
Workshop Attendance
Distribution of Workshop Participants
Data Source: SANDAG, SanGIS & KTU+A (2008)

SHARE
THE
ROAD

Appendix C: Guidelines for Selecting Safe Routes to School

Choosing a safe bicycle route to school is different from choosing a safe walking route because bicyclists and pedestrians have different needs for maximum safety. The higher speed of bicyclists increases the need for visibility, smooth surfaces, and predictable interaction with other road users.

Note also that bicycle skills vary among students more than walking skills do, and they are usually acquired at a later age. Younger children have less skill at estimating closing speed for automobiles and have less ability to process peripheral vision. Younger children should therefore cycle mainly on less complicated streets, where they can focus on one hazard at a time. Older students will cycle faster, and so they need to have longer sight lines. Routes suitable for high schoolers may be unsuitable for elementary school students, and vice versa.

Publishing recommended routes to school is not sufficient for encouraging bicycling to school. Other measures are also needed, including bicycle education, safe bike parking, rewards for cycling (such as bike-to-school days), bike-to-school groups lead by an adult, and so forth.

When choosing safe bicycle routes to school, look for:

- The safest, most direct route. Detours to avoid hazards should not add significantly to the length of the ride, or they will be ignored.

- On-street routes. Children riding on the sidewalk have an increased risk of collision with an automobile 2.5 times over riding on the street. A “bike path” that parallels a road is the same as a sidewalk. Riding a bicycle on sidewalks is prohibited in most jurisdictions in California, at least in business districts.

Use off-street routes only when they have no intersections with streets or driveways, or when they provide a substantial short cut. The faster the cyclists, the more important it is to avoid sidewalks.

Bicyclists should ride on the right side of the street with traffic for maximum safety (wrong way sidewalk riding has the highest risk). When the road is so narrow and so busy that young cyclists cannot ride on it safely, they should walk their bikes on the sidewalk. Generally, this is only feasible to require near intersections with crossing guards.

Where uphill slopes are so steep that the cyclists cannot maintain a straight line (about percent slope equal to age up to 12 years old), students should get off and walk on their bikes on the sidewalk. Similarly steep downgrades require well-maintained brakes and training in braking on hills. Students without that training should walk their bikes down the hills.

- Adequate width of curb lane and good maintenance of road edge. For safe sharing of the curb lane by motorists and cyclists, it should be at least 14 feet wide, with no on-street parking—wider is better, particularly for younger cyclists who cannot hold as straight a line. Broken pavement and accumulated debris on the side of the road can narrow the effective width substantially. If there is a bike lane, its width can be added to the rightmost travel lane to determine if width is adequate. On very quiet residential roads with low traffic speeds and good sight lines, even young children

can safely take a lane, and wide curb lanes are not needed.

Also watch out for drain grates, potholes, obstructed visibility, dogs off-leash, and other obvious hazards. It is best to scout out the routes by bicycle and consult with bicyclists who regularly cycle in the area.

- Right turns, not left turns. It is much easier for a cyclist (particularly a beginning cyclist) to turn right than to turn left. This means that the best route away from school may differ from the best route to school.

There are two ways to do left-turns safely: merging into the left-turn lane or crossing, stopping, turning the bike in place, and crossing again. The merge-left technique can be learned by students as young as 9-10 years old (later for multi-lane streets), but younger students should cross to the far right corner and then cross over to the left.

When left-turns are necessary, it is best if they can be done from low-traffic streets onto low-traffic streets, with all-way stops or traffic signals. T-intersections make left turns even easier, since there are fewer motor vehicle movements to watch out for.

- No right-turn only lanes where cyclists go straight. Right-turn-only lanes require cyclists to merge across a lane of traffic to continue straight. This skill can be learned by middle-school students, but only with proper bicycle instruction.

Where right-turn-only lanes are unavoidable, younger cyclists should probably be directed to walk their bikes on the sidewalk.

- Few stop signs. Stopping requires significant extra effort to regain loss momentum, tempting students to run stop signs illegally. It is safer for them to ride on a slightly busier street with fewer stops and the protection of having the right of way, than to risk running stop signs.

- Only traffic signals that sense bicyclists and give sufficient green time. For a bicyclists to use intersections with traffic signals safely, the traffic signals should detect the bike and make sure there is enough green time for the cyclist to clear the intersection. Traffic signals that do no meet this standard should have their sensors adjusted and be re-timed. Younger children may need to dismount and become pedestrians, using the pedestrian push-button and walking their bikes in the crosswalk.

- Few curb cuts. The turning traffic at commercial driveways is a serious hazard to bicyclists (even more so if they are on the sidewalk).

- Low traffic volume and low speeds. Although this criterion is often the first one people think of, it is actually the least important because most accidents involve turning traffic, not passing traffic. A street with few intersections or curb cuts is safer, even if motor vehicle volume and speed is higher.

Appendix D: California Bicycle Laws and Safety

The following are important excerpts from the California Vehicle Code (VC) relating to the operation and equipping of bicycles.

VC 231 - Bicycle Defined

Defines bicycle as a device upon which any person may ride, propelled exclusively by human power through a belt, chain, or gears and having one or more wheels. Specifically provides that persons riding bicycles are subject to Vehicle Code provisions specified in Sections 21200 and 21200.5 (see below).

VC 21200 - Bicycle Use

Every person riding a bicycle upon a street or highway has all the rights and is subject to all the duties applicable to the driver of a vehicle, including the provisions of law dealing with driving under the influence of alcoholic beverages or drugs, except those provisions that by their very nature can have no application.

Bicycling Under Influence of Alcohol or Drugs. VC 21200.5
Provides that it is unlawful to ride a bicycle upon a street or highway while under the influence of an alcoholic beverage or drug or the combination of alcohol and a drug, punishable by a fine of up to $250. A person arrested may request a chemical test. If the person is under 21 but over 13 years of age, his or her driving privilege will be suspended for one year or delayed for one year once the person is eligible to drive.

VC 21201 - Equipment Requirements

a) No person shall operate a bicycle on a roadway unless it is equipped with a brake that will enable the operator to make one braked wheel skid on dry, level, clean pavement.

b) No person shall operate on the highway any bicycle equipped with handlebars so raised that the operator must elevate their hands above the level of their shoulders in order to grasp the normal steering grip area.

c) No person shall operate upon any highway a bicycle that is of such a size as to prevent the operator from safely stopping the bicycle, supporting it in an upright position with at least one foot on the ground, and restarting it in a safe manner.

d) Every bicycle operated upon any highway during darkness shall be equipped with the following:

1. A lamp emitting a white light that illuminates the highway and is visible from a distance of 300 feet to the front and the sides of the bicycle.

2. A red reflector mounted on the rear of the bicycle and visible from 500 feet to the rear of the bicycle.

3. A white or yellow reflector mounted on each pedal visible 200 feet to the front and rear of the bicycle and a white or red reflector on each side to the rear of the center of the bicycle, except bicycles which are equipped with reflectorized tires on the front and the rear need not be equipped with side reflectors. All reflectorized tires must meet DMV requirements.

e) A lamp or lamp combination, emitting a white light, attached to the operator and visible from a distance of 300 feet in front and from the sides of the bicycle, may be used in place of a lamp attached to the bike.

VC 21202 - Duty of Bicycle Operator: Operation On Roadway

a) Any person operating a bicycle upon a roadway at a speed less than the normal speed of traffic moving in the same direction at such time shall ride as close as practicable to the right-hand curb or edge of the roadway except under any of the following situations:

1. When overtaking and passing another bicycle or motor vehicle proceeding in the same direction.

2. When preparing for a left turn at an intersection or into a private road or driveway.

3. When reasonably necessary to avoid conditions (including, but not limited to, fixed or moving objects, vehicles, bicycles, pedestrians, animals, surface hazards, or substandard width lanes) that make it unsafe to continue along the right-hand curb or edge. For purposes of this section, a "substandard width lane" is a lane that is too narrow for a bicycle and a vehicle to travel safely side by side within the lane.

b) Any person operating a bicycle on a one-way street or highway with two or more marked traffic lanes, may ride as near the left-hand curb or edge of such roadway as practicable.

VC 21203 - Hitching Rides

No person riding upon any motorcycle, motorized bicycle, bicycle, coaster, roller skates, sled, or toy vehicle shall attach the same or themselves to any streetcar or vehicle on the roadway.

VC 21204 - Riding On Bicycle

a) No person operating a bicycle on a highway shall ride other than on a permanent and regular attached seat.

b) No person operating a bicycle on a highway shall allow anyone to ride as a passenger other than on a separate attached seat. If the passenger is four years old or younger or weighs 40 pounds or less, the seat shall adequately retain the passenger in place and protect him/her from the bicycle's moving parts.

VC 21205 - Carrying Articles

No person operating a bicycle shall carry any package, bundle, or article which prevents the operator from keeping at least one hand upon the handlebars.

VC 21208 - Permitted Movements from Bicycle Lanes

a) Whenever a bicycle lane has been established on a roadway, any person operating a bicycle upon the roadway at a speed less than the normal speed of traffic moving in the same direction shall ride in the bicycle lane, except under the following situations.

1. When overtaking or passing another bicycle, vehicle, or pedestrian within the lane or about to enter the lane if such overtaking and passing cannot be done safely within the lane.

2. When preparing for a left turn at an intersection or into a private road or driveway.

3. When necessary to leave the lane to avoid debris or other hazardous conditions.

b) No operator of a bicycle shall leave a bicycle lane until it can be done safely and then only after giving an appropriate hand signal in the event that any vehicle might be affected by the movement.

VC 21210 - Parking

No person shall leave a bicycle lying on its side on any sidewalk, or shall park a bicycle on a sidewalk in any other position, so that there is not an adequate path for pedestrian traffic. Local authorities may prohibit bicycle parking in designated areas of the public highway,

provided appropriate signs are erected.

VC 21211 - Obstruction of Bikeways

No person shall place or park a bicycle or vehicle so as to impede or block the normal and reasonable movement of any bicyclist on a bikeway or bicycle path or trail unless the placement or parking is necessary for safe operation or otherwise in compliance with the law.

VC 21212 - Youth Helmets

Prohibits persons under 18 from riding or being a passenger on a bicycle without wearing helmets meeting specified standards (ANSI or SNELL). Violations are punishable by a fine of not more than $25.

VC 21650.1 - Bicycles on Roadways

A bicycle operated on a roadway or highway shoulder shall be operated in the same direction as vehicles are required to drive upon the roadway.

VC 21960 - Bicycling on Freeways

a) The Department of Transportation and local authorities may prohibit or restrict the use of freeways or any portion thereof by bicycles.

b) Such prohibitory regulations shall be effective when appropriate signs giving notice thereof are erected upon the freeway and the approaches thereto.

VC 22111 - Hand Signals

All required signals given by hand and arm shall be given in the following manner:

1. Left turn-hand and arm extended horizontally beyond the side of the bicycle.

2. Right turn- left hand and arm extended upward beyond the side of the bicycle or right hand and arm extended horizontally to the right side of the bicycle.

3. Stop or sudden decrease of speed signal- left hand and arm extended downward beyond the side of the bicycle.

VC 23330 - Toll Crossing

Except where a special permit has been obtained from the Department of Transportation, bicycles shall not be permitted on any vehicular crossing, unless the Department by signs indicates that bicycles are permitted upon all or any portion of the vehicular crossing.

VC 27400 - Headsets and Earplugs

No person operating any vehicle, including a bicycle shall wear any headset covering, or any earplugs in, both ears. There are exceptions for persons operating authorized emergency vehicles, special construction or maintenance equipment and refuse collection equipment, and for any person wearing personal hearing protectors designed to attenuate injurious noise levels and which do not inhibit the wearers' ability to hear a siren or horn from an emergency vehicle or horn form another motor vehicle, and for any person using a prosthetic device which aids the hard of hearing.

VC 39002 - License Requirement

a) A city or county may adopt a bicycle licensing ordinance or resolution providing that no resident shall operate any bicycle on any street, road, highway, or other public property within the city of county, unless such bicycle is licensed in accordance with this division.

b) Any bicycle not licensed under this division may be additionally regulated or licensed pursuant to local ordinance or may be licensed upon request of the owner.

c) It is illegal for any person to tamper with, destroy, mutilate or alter any license indicia

(marking) or registration form or to remove, alter, or mutilate the serial number, or the identifying marks of a licensing agency's identifying symbol on any bicycle frame licensed under the provision of this division.

VC 23111 - 23112
Throwing Substances On Highways Or Adjoining Areas.

No person in any vehicle shall throw or discharge from or upon any road, highway or adjoining area, pubic or private, any lighted or non-lighted cigarette, cigar, match or any flaming or glowing substance.

No person shall throw or deposit upon a highway any bottle, can, glass, wire, nails, paper or any substance likely to injure or cause damage to traffic using the highway.

Note: Some of the sections of the laws listed above have been reworded slightly and/or abbreviated. For exact language, refer to the referenced sections in the California Vehicle Code.

In addition to these state laws, many communities have local ordinances. Check with local police departments regarding bicycle registration, licensing, and regulations (sidewalk riding, etc.).

Appendix E: Priority Scoring Sheets

The following tables were used to prioritize the projects in Chapter 5. They are separated by Planned Projects from the 1995 General Plan and the Recommended Projects from this current Bicycle Master Plan. Please refer to Chapter 5 for the prioritzed criteria.

Planned Class 1 Bike Paths

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	13,966	2.6	Coastal Rail Trail	Portions have been completed between Vista Way and Morse Street. Not enough room along the track north of the transit center to complete the trail system.	San Luis Rey River Trail, City of Carlsbad, Commercial, Residential	3	3	3	1	3	3	3	3	3	3	3	3	3	37
2	37,850	7.2	Oceanside-Escondido Inland Rail Trail	The trail terminates at College Boulevard from Vista and users have to use Oceanside Boulevard to access the beach or downtown Oceanside. Wetland and easement space issues along the rail line still need to be resolved.	Beaches, City of Vista, Commercial, Residential	3	3	3	1	3	2	3	3	3	3	3	3	3	36
3	5,828	1.1	San Luis Rey River Trail Extension	Extension from College Boulevard to North Santa Fe Road. A half-mile section has already been constructed from College Boulevard along Andrew Jackson Street and Polk Street	San Luis Rey River Trail, Guajome Park, Residential	1	3	3	1	3	3	3	3	3	2	3	2	3	33
4	3,332	0.63	Hi Hope Ranch Bike and Equestrian Trail	Proposed Melrose Drive connection, planned San Luir River Rey connection	Currently conditioned in the development plans	1	2	1	1	2	3	2	2	2	1	2	2	3	24
Totals	**60,976**	**11.5**																	

Planned Class 2 Bike Lanes

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	3,248	0.6	Foussat Road between Benet Road and Mission Avenue	To complete the Class 2 connection between Benet Road and Mission Avenue	San Luis Rey River Trail, SR-76, Pacific View Charter School, Residential	2	3	2	2	2	1	2	2	2	1	2	2	3	26
2	9,191	1.7	El Camino Real between Douglas Blvd and Mesa Drive	Bike lanes exist on the northbound lanes between Mesa Drive and Mission Avenue. Southbound bike lanes need to be installed. Bike lanes programmed to continue to Douglas Boulevard from Mission Avenue	Heritage Park, Commercial, Residential	3	3	3	1	3	2	3	2	3	3	3	2	3	34
3	2,479	0.5	Los Arbolitos Boulevard between Pala Road and Fireside Street	Complete connection between Pala Road and Fireside Street	Residential	1	3	2	2	1	1	2	2	2	1	1	2	3	23
4	17,876	3.4	North River road between Stallion Drive and east City limit	Currently an existing Class 3 bike route with high speed traffic	Melba Bishop Recreation Center, Bonsall, SR-76, Agriculture	2	3	3	1	3	3	3	2	3	1	3	2	3	32
5	3,939	0.7	Mission Avenue between Rancho Del Oro Drive and Old Grove Road	Currently an existing Class 3 bike route	Heritage Park, Old Mission Montessori, Commercial, Residential	2	2	2	3	2	1	2	2	1	1	2	2	3	25
6	2,115	0.4	Emerald Drive between Lake Boulevard and City limit	Complete Oceanside's portion of Emerald Drive of Class 2 bike lanes with the programmed bike lanes of the City of Vista	City of Vista, Residential	1	1	2	3	1	1	2	2	1	1	1	2	3	21
7	1,294	0.2	Cannon Road between Mystra Drive and City limit	Complete the connection to the City limit	City of Carlsbad, Residential	1	2	3	3	2	2	3	2	1	1	2	2	3	27
8	4,878	0.9	Pala Road between Los Arbolitos and Foussat Road	Completes the connection along the south side of the San Luis Rey River	Residential	2	3	2	2	2	1	2	2	2	1	2	2	3	26
Totals	**48,719**	**9.2**																	

Planned Class 3 Bike Routes

Segment Numbers	Length (ft)	Length (Miles)	Description	Notes	Destinations	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	7,609	1.4	Brooks Street/Division Street/Grant Street/Wisonsin Avenue between Mission Bouelvard and Pacific Street	Utilizes residential streets and an I-5 crossing without on/off ramps to connect Mission Boulevard to the beach area	Brooks Street Swim Center, Park & Ride, Senior Citizens Center, St Mary Star of the Sea Elementary, Beaches, Coastal Rail Trail, Residential	3	3	2	3	3	2	3	3	3	3	2	3	3	36
2	7,095	1.3	Hunsaker Street and Cassidy Street between California Street and Broadway	Utilizes residential streets and an I-5 crossing with only a southbound on/off ramp to connect California Street to the Coastal Rail Trail	Coastal Rail Trail, I-5, Beaches, South Oceanside Elementary, Residential	3	3	2	3	3	2	3	3	3	3	2	3	3	36
3	16,566	3.1	Sleeping Indian Road between North River Road and City limit	Connects North River Road to northern City limits	Rural Residential, Fallbrook, Agriculture	1	2	3	3	2	3	1	1	2	1	1	2	3	25
4	1,968	0.4	Sky Haven Lane between Lake Boulevard and Azure Lado Drive	Connection from Lake Boulevard to Calaveras Lake trails	City of Carlsbad, Residential, Calaveras Lake	1	2	2	3	1	1	1	3	1	1	1	2	3	22
Totals	**59,099**	**11.2**																	

Recommended Class 1 Bike Paths

Segment Numbers	Length (ft)	Length (miles)	Class 1 Bike Paths	Destinations	Notes	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	17,495	3.31	Mission Avenue to Inland Rail Trail	Guajome Park, Inland Rail Trail, new Vista park	Coordinate alignment with City of Vista and San Diego County Guajome Park. Coordination with NCTD on connection with Inland Rail Trail.	3	3	2	1	3	3	3	3	3	1	2	1	3	31
2	2,797	0.53	Spur Avenue to Melrose Drive and North Santa Fe Avenue	Rural residential, Guajome Park	Possible connection with Melrose Drive extension project	1	2	2	1	2	1	2	2	3	1	2	2	3	24
3	3,619	0.69	Douglas Drive and Manteca Drive	Residential	Paving exists. Trailheads and signage needed to complete the bike path designation.	1	1	3	1	1	1	1	2	1	1	1	3	1	18
4	3,085	0.58	Between Harbor Drive and Capistrano Drive	Residential, Oceanside Harbor	To avoid the I-5 interchange at Camp Pendleton. Bike path users would travel underneath I-5 onto Capistrano Drive wich would take them to San Rafael Drive and onto the base	1	3	2	1	3	3	3	2	3	1	3	1	1	27
Totals	35,229	5.1																	

Recommended Class 2 Bike Lanes

Segment Numbers	Length (ft)	Length (miles)	Class 2 Bike Lanes	Destinations	Notes	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	1,856	0.35	Los Arbolitos between Fireside Street to El Camino Real	Residential		1	3	3	1	1	1	1	2	1	1	1	2	1	19
2	566	0.11	Rancho Del Oro between Sprinter tracks and Oceanside Boulevard	Sprinter Station	To fill in the gap of missing bike lanes	3	3	3	3	2	1	3	3	3	1	3	3	3	34
3	712	0.13	Old Grove Road between Ocean Ranch Blvd and Mesa Dr	Industrial	Eastbound bike lane missing. Westbound bike lanes exist.	3	3	3	3	2	1	3	3	2	3	2	3	3	34
4	1,527	0.29	Melrose Drive between Old Ranch Road and Spur Avenue	Mission Meadows Elementary	Class 2 bike lanes exist on northbound Melrose but are missing on southbound Melrose from Seattle Slew to Spur Avenue.	2	3	3	3	1	1	1	2	1	1	1	2	3	24
5	1,730	0.33	Olive Drive between College Blvd and City of Vista	City of Vista, Olive Elementary		2	3	3	3	1	1	1	3	2	3	2	2	1	27
6	4,933	0.93	Avenida Del Oro between Old Grove Road and Oceanside Boulevard	Industrial		3	3	3	3	2	1	2	3	1	1	1	2	3	28
7	964	0.18	El Camino Real between Vista Way and City of Carlsbad	SR-78, City of Carlsbad	Overpass over SR-78 to complete bike lanes into/from the City of Carlsbad	3	3	1	1	3	1	3	3	3	3	3	2	1	30
8	2,981	0.56	Melrose Drive between North River Road and SR-76	Planned Hi Hope Ranch trail system	Can be condition into new development	2	3	3	1	3	2	2	3	3	1	2	1	3	29
9	1,368	0.26	North Old Grove Road between Nichols Elementary and Frazee Road	Nichols Elementary School, residential		2	2	3	3	1	2	3	3	1	3	2	2	1	28
10	1,525	0.29	Avenida De La Plata between Mesa Drive and Avenida Empressa	Empressa Elementary School, residential		2	3	3	3	1	1	2	2	1	1	2	2	1	24
11	520	0.10	Frazee Rd	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	Frazee Rd does not currently extend out to Academy Road	1	3	2	1	2	1	1	2	2	1	1	2	1	20
12	847	0.16	Douglas Blvd between Mission Avenue and SR-76	Commercial, Public Storage	Connects the existing Class 2 bike lanes on Mission Avenue and SR-76	3	3	2	3	2	1	3	3	3	3	3	2	1	32
13	6,913	1.31	Avenida De La Plata between Corporate Centre Drive and College Boulevard	Industrial, Commercial		3	3	3	3	2	1	2	3	1	1	1	2	3	28
Totals	26,442	5.0																	

Recommended Class 3 Bike Routes

Segment Numbers	Length (ft)	Length (miles)	Class 3 Bike Routes	Destinations	Notes	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	High/Med/Low Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
1	8,047	1.52	North Cleveland Street/Seagaze Street/South Tremont Street between Neptune Way and Oceanside Boulevard	Oceanside Transit Center, San Luis Rey River Trail, commercial, Regal Cinemas	Move stops signs at Missouri St and Wisconsin Ave onto the aforementioned streets to create a continuous route along Tremont Street	3	2	1	3	3	1	3	3	3	3	2	3	1	31
2	2,190	0.41	South Ditmar Street between Wisconsin Avenue and Oceanside Boulevard	Ditmar Elementary,Mary Star of the Sea Elementary, residential		3	3	1	3	1	1	2	2	2	1	1	2	1	23
3	4,454	0.84	Horne Street between Surfrider Way and Grant Street	Oceanside High School, residential		3	2	1	3	1	1	2	3	2	3	2	2	1	26
4	5,943	1.13	San Diego Street/Bush Street/Civic Center Drive/Archer St between North Cleveland Street and Canyon Drive	Oceanside Public Library, City Hall, commercial, residential		3	3	1	3	3	2	3	3	3	3	3	2	1	33
5	7,861	1.49	Loretta Street/Langford Street/Laurel Street/San Diego Street between SR-76 and Canyon Drive	SR-76, Joe Balderrama Recreation Center, Laurel Elementary, residential, commerical		3	2	1	3	2	1	2	3	2	1	1	2	1	24
6	6,491	1.23	Willow Avenue/Carey Road/Foster Street/Grace Street/Dixie Street/Barnes Street/Maxson St/Country Club Ln between Jefferson Middle School and Mission Avenue	Jefferson Middle School, Burgener Academy, Challenges Community Day, Oceanside Unified School District office, Senior Citizens Center, Victory Christian School, School of Business and Technology and a Park and Ride		3	1	1	3	2	1	3	3	2	3	1	2	1	26
7	4,840	0.92	Frontier Drive/Hacienda Drive/Flaminog Drive/Las Vegas Drive between Mission Avenue and Foussat Road	Park and Ride, Pacific View Charter, residential		3	2	1	3	1	1	2	2	2	1	1	2	1	22
8	3,308	0.63	Academy Road/Private Rd/Via Santa Maria along Mission Avenue	Old Mission Montessori, O'Keefe Field, Tri_City Inline Park, North County Alano Club, San Luis Rey homes	If Frazee Rd will connect in the future, this route will allow access to the school from adjacent neighborhoods. Via Santa Maria is primarily a narrow road to access the Montessori from Mission Avenue.	3	1	1	1	1	1	1	2	2	1	1	2	1	18
9	21,337	4.04	Moonstone Bay Drive/Marblehead Bay Drive/Calle Montecito/Claire Drive/Monica Circle/Macario Drive/Roja Drive/Cardiff Bay Drive/ Elaine Avenue/Redondo Drive/Calle De Palo/Festival Dr/Gold Drive between Douglas Drive and North River Road and Vandergrift Boulevard	Reynold Elementary, Pacifica Elementary, Kids of the Kingdon, Libby Elementary, Libby Lake Skate Park, residential	Bicycle access issues on Monica Cr towards Macario Dr. Bollards block the sides of the lane forcing bicycles to go over speed bumps going both uphill and downhill.	3	3	1	3	3	1	3	3	2	3	2	2	1	30
10	4,169	0.79	Gold Drive/Barry Street/Leon Street between Vandergrift Boulevard and North River Road	Melba Bishop Recreation Center, Del Rio Elementary, residential, commercial		3	2	2	3	1	1	2	3	2	2	1	2	1	25
11	3,936	0.75	Oleander Drive/Gardenia Street/Adams Street between College Boulevard and Frazee Road	Cesar Chavez Middle School, Mance Buchanon Park, San Luis Rey River Trail, residential		3	3	2	3	2	2	2	3	2	1	2	2	1	28
12	9,728	1.84	Jeffries Ranch Road/Wagon Wheel Drive/Spur Avenue/Buckboard Drive/Del Mar Road between SR-76 and Melrose Drive	Mission Meadows Elementary, residential		2	2	1	3	1	1	1	3	2	1	2	2	1	22
13	14,313	2.71	Silver Bluff Drive/Masters Drive/Corona Drive/Alamosa Park Drive/Rio Plata Drive/Robinwood Drive/Muirwood Drive/Summerhill Drive/Sagewood Drive between College Boulevard and Mesa Drive	Alamosa Park Elementary, Roosevelt Middle School, Alamosa Park, residential		3	2	1	3	2	1	2	3	2	1	1	2	1	24
14	7,009	1.33	Temple Heights Drive between Pine Ridge Road and North Avenue	Sprinter line, Temple Heights Elementary, residential		3	3	2	3	2	1	2	3	2	3	2	2	1	29
15	1,389	0.26	Avenida Empresa between College Boulevard and Avenida De La Plata	Empresa Elementary, residential		2	3	3	3	1	1	1	2	2	1	1	2	1	23
16	7,205	1.36	Thunder Road/Lewis Road/Cedar Road between College Boulevard and Vista Way	John Landes Recreation Center, Childrens Hospital, residential	Thunder Road is a heavily travelled road parallel to College Blvd access primarily residential and some commerical offices. Lots of stop signs along this stretch. Some stop signs can be placed on the incoming streets to allow bicycles a continuous route along Thunder Road.	3	2	2	3	2	1	2	3	2	3	3	2	1	29
17	12,301	2.33	Cameo Drive/Brandeis Drive/Kelton Drive/Marvin Street/Sherbourne Road/Thunder Road between Rancho Del Oro and College Boulevard	McAuliffe Elementary, Sherbourne Park	Brandeis Drive is a steep climb from Cameo Drive	2	2	2	3	2	1	2	3	2	1	1	2	1	24
18	4,049	0.77	Plaza Drive and Thunder Road between College Boulevard and Lake Boulevard	City of Vista, Tri-City Crossroads, College Plaza		3	3	3	3	2	1	2	2	3	3	3	2	1	31
19	2,957	0.56	Shadowridge Drive between Cannon Road and City of Vista	City of Vista, residential		1	3	2	3	2	1	2	3	1	1	1	2	1	23
20	4,304	0.82	Via Puerta Del Sol between North River Road and Bonsall	Rural residential		1	2	3	3	2	3	1	1	1	1	1	2	1	22

Recommended Class 3 Bike Routes (continued)

Segment Numbers	Length (ft)	Length (miles)	Class 3 Bike Routes	Destinations	Notes	Adequate access to activity centers and transit sites	Gap closures and route connectivity	Continuous Right-of-way	Roadways to accommodate bikeways	Regional Significance	Aesthetic attributes	Volume of existing or potential bicycle traffic	Provides access to major bicycle traffic generators	Remedies or improves specific obstacles	Improves locations where bicycle crashes have occurred	Improves routes with high vehicular traffic volumes	Route or project has full or partial funding, or is likely to be funded	Route or project is contained in a specific plan	Total Score
21	2,012	0.38	Stewart St between California Street and Cassidy Street	Residential		1	2	2	3	1	1	2	2	1	1	2	2	1	21
22	4,800	0.91	Maxson Street/Grace Street and Greenbrier Drive between Country Club Lane and Oceanside Boulevard	Senior Citizens Center, Victory Christian School and a Park and Ride		3	2	1	3	2	1	2	3	1	1	1	2	1	23
23	4,191	0.79	Mission Gate Drive between Via Rancho Road and Mission Avenue	Residential		1	3	2	3	2	2	2	3	1	1	2	2	1	25
24	11,883	2.25	Darwin Drive and Peacock Boulevard between Oceanside Boulevard and North Santa Fe Avenue. Sagewood Drive	Residential		1	2	2	3	2	1	2	3	1	1	2	2	1	23
25	5,753	1.09	Barnard Drive around Mira Costa College	Mira Costa College		3	3	3	3	1	1	3	3	1	1	2	2	1	27
26	2,892	0.55	Waring Road between College Boulevard and Thunder Road	Residential		3	3	3	3	1	1	2	3	3	3	2	2	1	30
27	1,493	0.28	Mira Monte Drive between Lake Boulevard and city limit	Residential		1	2	2	3	1	1	2	2	1	1	1	2	1	20
28	2,776	0.53	Fireside Street between Los Arbolitos Blvd and Mission Avenue	Residential	Planned Class 2 but roadway configurations and on-street parking won't allow bike lanes	2	3	2	3	1	2	2	2	3	3	2	2	1	28
29	2,580	0.49	Surfrider Way between Pacific Street and Horne Street	Residential, commercial, motels		2	3	3	3	3	3	3	3	1	1	2	2	1	30
30	1,012	0.19	Oceanside Boulevard between Coast Highway and Pacific Street	PCH 101, Alan's Family Bike Shop	Contiues the Class 2 bike lanes to the recommended bike route on Tremont Street	3	3	3	3	1	2	2	2	3	3	3	2	1	31
31	4,076	0.77	Cranberry Street and Guajome Lake Rd	Guajome Park		2	2	2	3	1	1	2	3	1	1	1	2	1	22
32	3,571	0.68	Mission Avenue between I-5 and Pacific Street	Beaches, commercial	Completes a bike facility from I-5 to the beach. Sharrows recommended due to high traffic volumes and on-street parking	2	3	3	3	3	3	3	3	3	1	3	2	1	33
Totals	182,870	34.6																	

Appendix B

Pedestrian Master Plan

PEDESTRIAN MASTER PLAN

NOVEMBER
2009
FINAL REPORT

Prepared for:

City of Oceanside

Prepared by:

IBI GROUP

In Association with:

KTUA

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EXECUTIVE SUMMARY

Overview and Major Findings

The City of Oceanside has a history of development on the west side of Interstate 5, that is conducive to walking. This expresses itself in the mixed uses, the grid network of streets and the types of businesses that are oriented towards the street. With the presence of the beach and the San Luis Rey River, the natural setting encourages walking and exploration. Even the redevelopment of City Hall resulted in creating a public space and relationships with the streets that encourage walking. Much of the development of the eastern half of Oceanside, however, did not take into account pedestrian scale and priorities. A hierarchical street network that concentrates more and more traffic on fewer streets, is not as conducive to walking as the development patterns of western Oceanside. This development pattern contrast is typical in many cities on the west coast. In most, the inner circle of development is the best scaled for walking while the outer growth rings are not. In the case of Oceanside, the development circles are more like half circles or rectangles, with the ocean forming one side and the other boundary formed by Interstate 5. Areas east of I-5 grew in a different pattern than those west of I-5.

There are several specific challenges even on the west side of I-5. The beach areas attract a large visiting public, and part of the local economy is based on tourism related to this beach resource. However, the coastal bluffs and development patterns along the Strand and Pacific Street have made the use of sidewalks, where they exist, very difficult. The parking demands on Pacific Street along with the short driveways, lack of off-street parking and inconsistent walkway development presents a real challenge. The coastal bluff environment also makes access challenging, especially for those with any level of disability. Because of the quantity of pedestrians and the importance to local tourism, additional pedestrian access improvements to coastal resources (such as the Strand and the Pier) are needed. Most other areas west of I-5 are in good shape and very walkable. A few neighborhoods that may have traditionally been industrial in nature, are missing sidewalks and should receive a higher priority for adding these missing facilities.

Fortunately, much of the eastern half of the City of Oceanside is residential development with local streets, lower volume of traffic and lower vehicular speeds. Even though the street layout is not as conducive to walking as a grid network, the immediate neighborhoods are generally considered safe and accessible. For the majority of this area, pedestrian improvements are not critical, unless they are affected by high volume, high speed arterial streets. However, areas with commercial development, especially those serving neighborhoods and in walking distance of a relatively moderate density of housing, do warrant improvements for safety, convenience or access. This is especially true of important destinations such as transit facilities, recreational parks, community centers, and schools.

This document has identified opportunities for improvements to the walking environment throughout Oceanside. However, with limited funding for pedestrian facilities, a prioritized approach is essential. This study utilizes the latest in pedestrian computer models to predict and suggest where investments in pedestrian facilities will make the greatest difference and affect the greatest number of walkers. The study also shows a method in how to apply different levels of treatment to different types of walking facilities. Finally, the study identifies a variety of possible pedestrian projects and includes a methodology for how to prioritize these projects.

The City of Oceanside has done a commendable job in protecting and enhancing the pedestrian environment. Most importantly, staff and elected officials understand the importance of walkable communities in supporting smart growth, by balancing public and private parking requirements, lessening traffic congestion and in building a foundation for supporting local businesses, tourism and redevelopment efforts. These priorities have been formalized in a vision statement and supporting goals. The implementation of this Master Plan will go a long way in realizing the vision and in supporting these goals.

Chapter 1: Introduction

The City of Oceanside has developed this Pedestrian Master Plan (PMP) to guide how the city plans and implements pedestrian projects. This PMP will help the city to enhance neighborhood quality and mobility options by providing pedestrian improvement projects. The Plan identifies and prioritizes pedestrian projects based on technical analysis and community input. A prioritized list of projects will improve the city's ability to receive grant funding for implementing top priority projects.

The Pedestrian Working Group and the consultant team prepared an overall vision statement for the PMP:

"In the future, Oceanside will see major improvements in its walking environment by making pedestrian facilities safer, connected, and accessible. All natural areas (including beaches, rivers and open spaces) will be well connected with urbanized areas where citizens live, learn, work, shop and play. Improved pedestrian environments will support policies such as smart growth, transit and lower greenhouse gas emissions as well as healthy lifestyles. Pedestrian improvements will enhance neighborhood quality and promote walking as a practical, cost effective and attractive means of transportation that also supports tourism and commercial districts."

Chapter One lays out the input process and the PMP's Goals and Objectives. Supporting goals and objectives were developed to allow the city to focus on achieving the vision statement. The goals include improving Safety, Walkability, Connectivity, Accessibility, Alternative Transportation, Neighborhood Quality and Funding. Input for the plan was solicited from the general public, a working group, and city staff. A public workshop, paired with questionnaires, helped identify known pedestrian issues and highlight the city's needs and priorities.

Chapter 2: Policy Review

Chapter Two summarizes the relationship with other city planning documents. The Oceanside Circulation Element includes policies relating to non-motorized transportation, and pedestrian related goals that provide an integrated transportation network. The Pedestrian Master Plan aims to be consistent with the City of Oceanside's other policies including the Circulation Element, Land Use Element, Recreation Trails Element, Public Safety Element, Local Coastal Program, and the Bicycle Master Plan. Other ongoing studies the PMP incorporates are the Coast Highway Vision and Strategic Plan, Oceanside Boulevard Vision Plan, El Corazon Planning Effort, Downtown Redevelopment Projects, Downtown Walkable Community Plan, the School Pedestrian Safety Policies and Warrants, and the SANDAG Regional Comprehensive Plan.

Chapter 3: Issues and Potential Solutions

Chapter Three discusses issues affecting walkability and the pedestrian environment in the City of Oceanside. The existing issues and potential solutions associated with the city's goals of the Pedestrian Master Plan are discussed.

Safety Summary

Pedestrian collisions are analyzed to get a better understanding of the issues and to develop solutions to remedy the problems. Between 2000 and 2008, there were 615 pedestrian related collisions in the City of Oceanside, all but 38 of which resulted in injury or fatality. In a five city comparison, Oceanside's pedestrian collision rate per 1000 per year (.38) comes in third, following Santa Barbara (.95) and San Diego (.44).

Walkability Summary

Walkability is defined as a mixture of physical and perceptual elements that make up the built environment that are conducive to walking.

Connectivity Summary

Connectivity refers to the existence of safe, direct pedestrian paths (generally along streets) between where a walker starts and where he or she wants to go.

Accessibility Summary

The city's Accessibility Goal focuses on compliance with Federal and State standards. This section highlights locations within the city that are potentially in need of additional design treatments to accommodate a disabled person or those with limited mobility.

Alternative Transportation Summary

The city's Alternative Transportation Goal reinforces walking as a primary means of transportation that supports transit and non-motorized transportation options. This section highlights the existing Oceanside transit opportunities available and their walking environment, and look at opportunities to provide a more cohesive, interconnected walking environment to and from transit.

Neighborhood Quality and Funding Summary

Neighborhood quality is often the result of a variety of environmental and social elements that have been brought together to create a quality living and working environment.

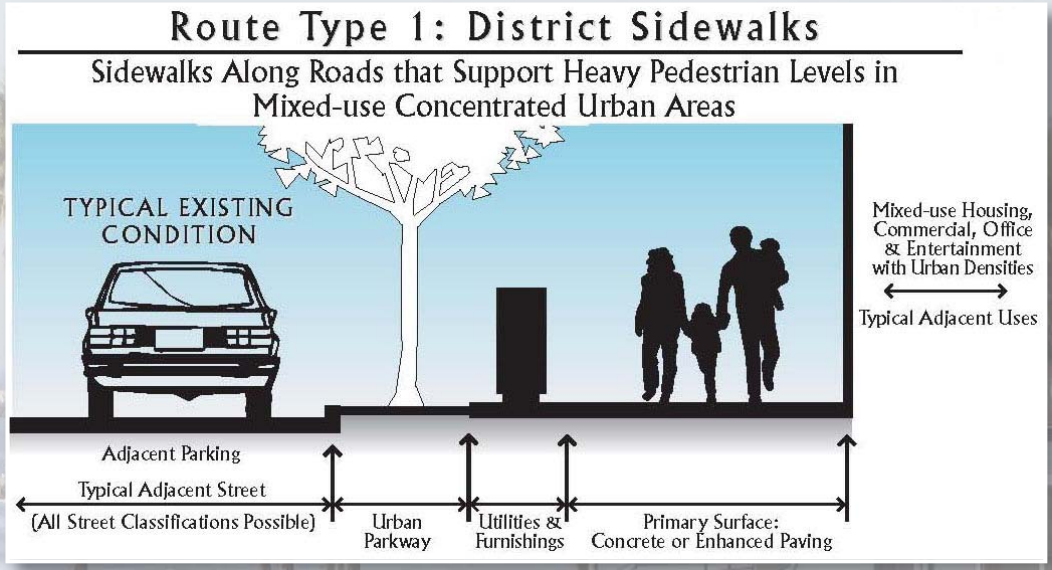
A final goal of this PMP is to assure cost-effective investment of private and public money for infrastructure needed to support a walkable community.

The Five "Es"
The "5 E's," Education, Encouragement, Enforcement, Engineering, and Evaluation, are further discussed in this chapter.

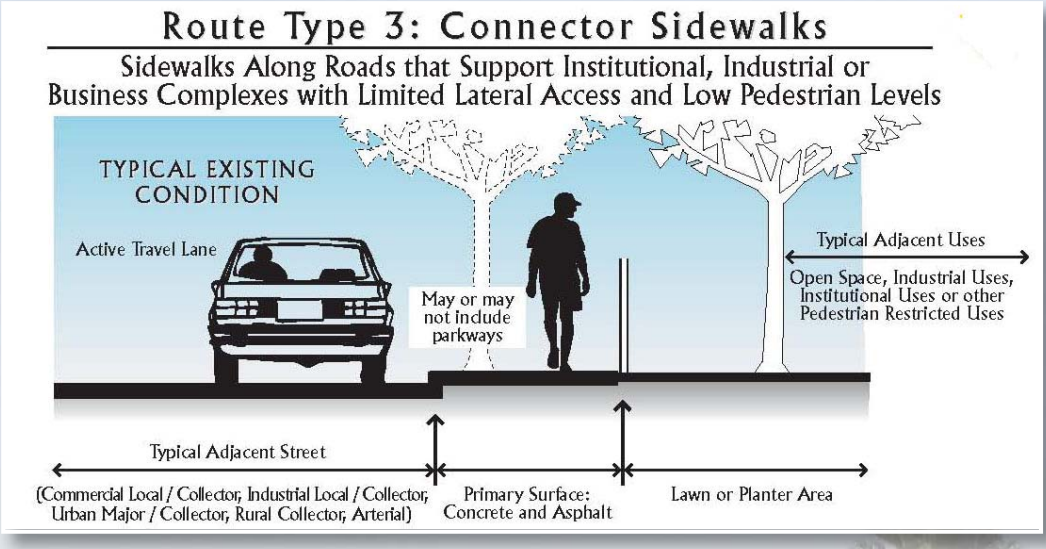
Chapter 4: Route Types and Treatments

Chapter Four includes a discussion on route types. All walking facilities found within the City of Oceanside fit into one of the following categories of walking facilities. Recommended treatment levels are also discussed for each route type. Route types include:

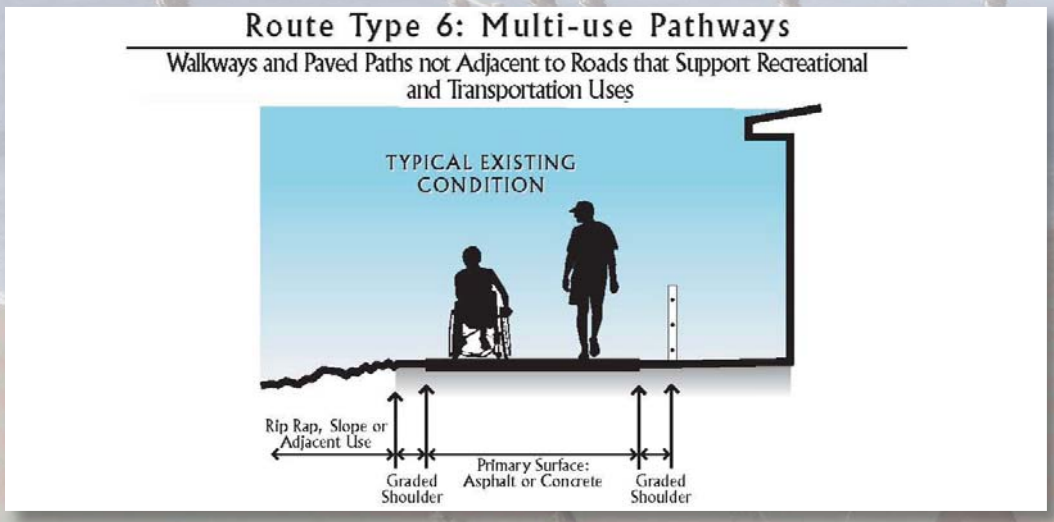
- Route Type 1: District Sidewalks are walks along roads that support heavy pedestrian levels in mixed-use concentrated urban areas.
- Route Type 2: Corridor sidewalks are walks along roads that support moderate density business and shopping districts with moderate pedestrian levels. They can range from wide walks along boulevards to small sidewalks along a heavily auto oriented roadway.



- Route Type 3: Connector sidewalks tend to have low pedestrian levels and are along roads with moderate to high average vehicular traffic. Connector sidewalks tend to be long and, in some cases, do not have accessible land uses directly adjacent to the sidewalk.

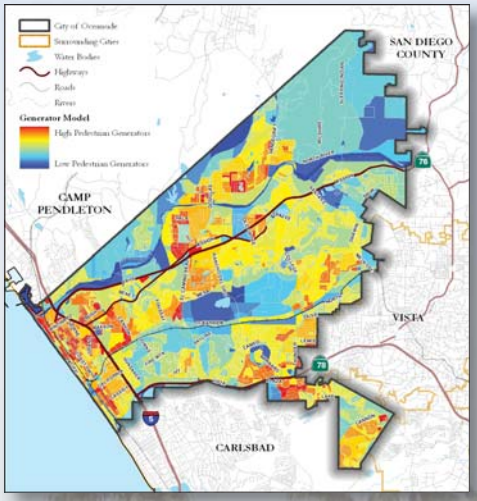


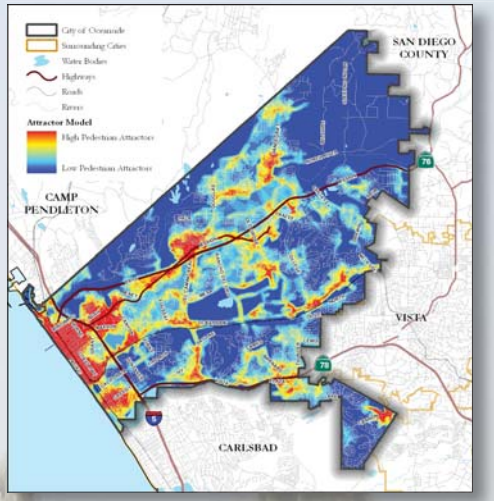
- Route Type 4: Neighborhood sidewalks are walks along roads that support low to moderate density housing with low to moderate pedestrian levels. Neighborhood streets and their associated walkways are generally lower volume streets, with low to moderate widths, single lanes in each direction and posted speed limits of 25 miles per hour.
- Route Type 5: Ancillary Pedestrian Facilities are facilities away from or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways. Many of these ancillary facilities attract local residents and workers and therefore generate moderate to high pedestrian use.
- Route Type 6: Paths are paved facilities with exclusive right-of-ways that act as corridors and have little or no vehicular cross flows. Many of these paths are exclusive to pedestrians and bicycles and are not associated with streets.
- Route Type 7:. Trails are separated from roads and support activities such as hiking, biking and walking primarily through parks and open space. They differ from paths in that they are not paved with concrete or asphalt.

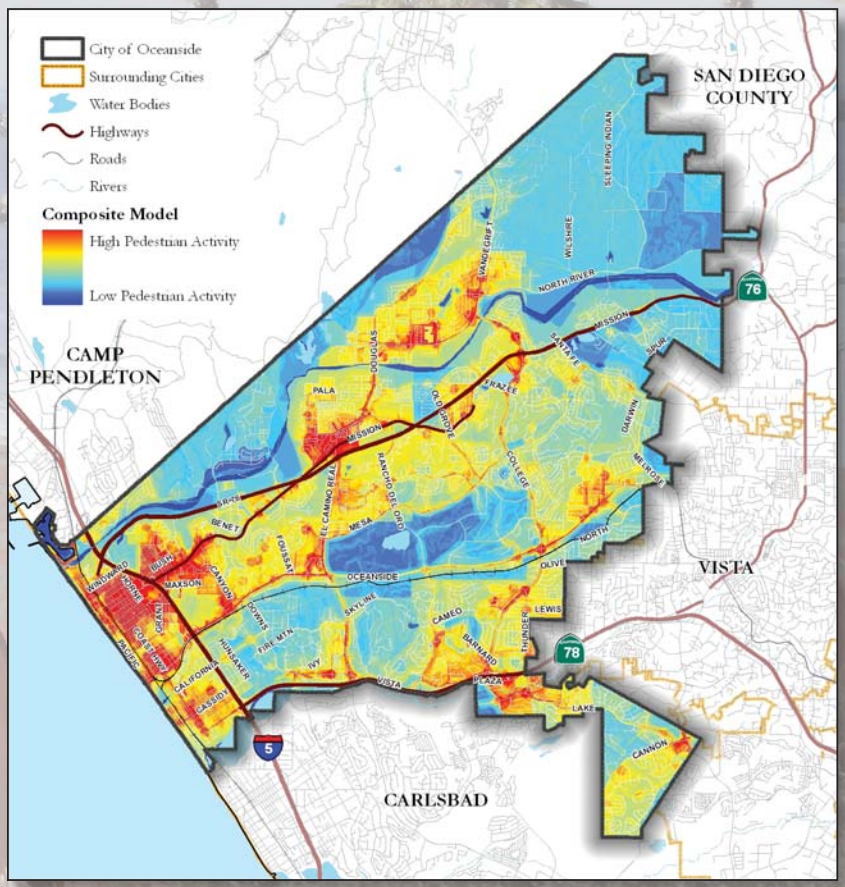


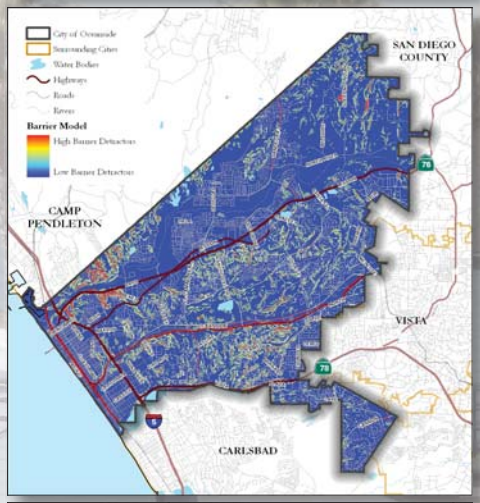
Chapter 5: Pedestrian Priority Model (PPM)

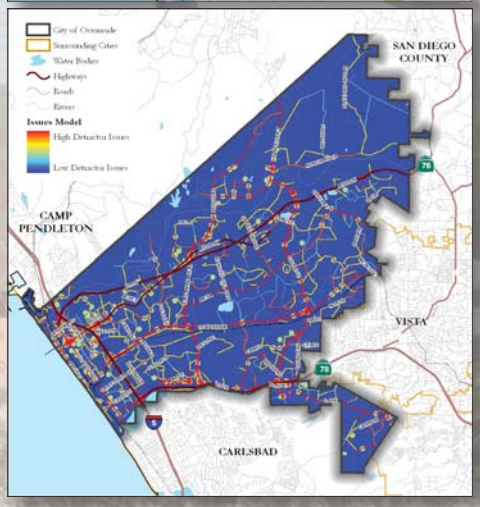
Chapter Five showcases the Pedestrian Priority Model (PPM) which was developed to determine the most likely areas within the City of Oceanside where pedestrians are likely to be (either currently or if improvements were made). The model was created to prioritize communities for the preparation of individual sections of the PMP and to help prioritize projects to affect the largest number of pedestrians possible. The PPM identifies existing and potential pedestrian activity areas city-wide. The model utilizes existing data available city-wide as part of an extensive GIS database. The model has four basic components, which include: Pedestrian Attractors, Pedestrian Generators, Pedestrian Issues and Pedestrian Barriers. When these four interim models are combined, they create a Pedestrian Priority Model.









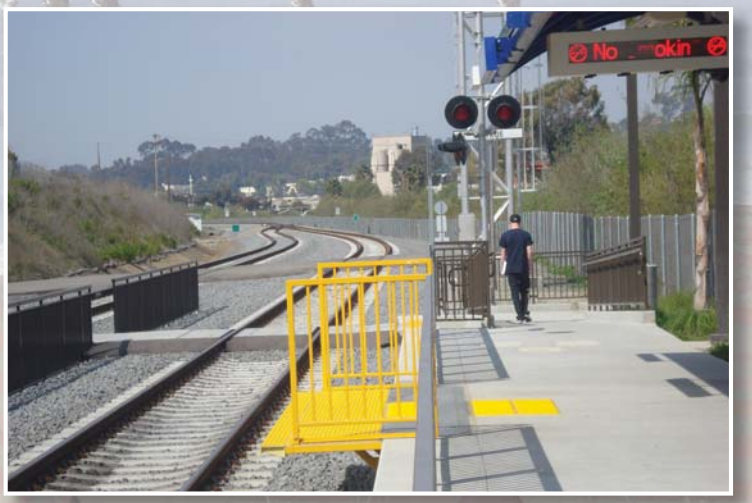


Chapter 6: Pedestrian Project Prioritization

Chapter Six reviews a project prioritization process. A substantial amount of funding is needed to bring all of the city's pedestrian facilities up to a standard that makes them safe, walkable, accessible, connected and assets to our neighborhoods. The amount far exceeds what is likely to be obtained. Because of this, the cost effectiveness of each project must be analyzed. To be cost effective, a system of ranking projects for priority funding needs to be fully developed. Matrices were developed by the working group to assist in prioritizing the individual pedestrian projects.

Chapter 7: Funding Sources

Chapter Seven reviews a variety of funding sources that may be available for pedestrian projects. Many sources require a local funding match and most are competitive based on project merit and adherence to grant criteria. There is a wide range of sources potentially available to improve the pedestrian environment. However, it is necessary to match each project with available sources. Chapter Seven summarized the possible local, regional, state, federal and private funding sources.



CHAPTER 1
INTRODUCTION

1.0 Introduction

The City of Oceanside Pedestrian Master Plan is an overall guide for the city to identify, plan, design, construct, and maintain pedestrian facilities to enhance pedestrian circulation within the city. It is intended to make walking a safer and more convenient mode of travel while being accessible by all persons in Oceanside. The development of this plan involved extensive input from the general public, in combination with a technical citizen advisory team, to identify and meet the City of Oceanside's needs and desires for a pleasant and safe walking environment.

The primary goal of the Pedestrian Master Plan is to make walking a safer and more convenient mode of travel.

The Pedestrian Master Plan will also serve as a key resource for the city in securing grants dedicated to pedestrian safety and walkable communities from various funding sources identified later within this document. The City of Oceanside will review and update the Pedestrian Master Plan in coordination with the update of the Circulation Element.

In this plan, there are recommendations that follow the Oceanside Coast Highway Vision and Strategic Plan that was approved by City Council on April 15, 2009. The plan is a Vision Plan and is subject to changes or deletions. There is no time table for the implementation of this plan; however, the Oceanside Coast Highway Vision and Strategic Plan were included in this Pedestrian Master Plan.

1.1 Project Purpose

A Pedestrian Master Plan can be broad in nature but beneficial to all pedestrians. Any person who walks to work, school, the park, the grocery store, the bus stop or simply walks for recreation or exercise is considered a pedestrian. Because walking is so pervasive, the quality of the pedestrian circulation network impacts everyone at some level every day.

The purpose of this Pedestrian Master Plan is to provide policies and guidelines for pedestrian improvements within the city to make walking safer, accessible, easier, and more attractive for pedestrians. The plan will also serve as a framework for implementation of city plans and policies that relate to the importance of the pedestrian in the planning process.

1.2 Plan Vision Statement

The City of Oceanside's vision statement and goals were developed by the Plan's working group, supported by city staff and adjusted based on public input.

"In the future, Oceanside will see major improvements in its walking environment by making pedestrian facilities safer, connected, and accessible. All natural areas (including beaches, rivers and open spaces) will be well connected with urbanized areas where citizens live, learn, work, shop and play. Improved pedestrian environments will support policies such as smart growth, transit, and lower greenhouse gas emissions as well as healthy lifestyles. Pedestrian improvements will enhance neighborhood quality and promote walking as a practical, cost effective and attractive means of transportation that also supports tourism and commercial districts."

1.3 Plan Goals and Supporting Objectives

The Pedestrian Master Plan goals represent specific topics that the city can focus on in order to achieve the vision statement.

Plan Goals

Goal 1 - Safety

Develop and maintain a safe pedestrian network that is free of barriers and hazards; that has sufficient lighting, signs, signals, street crossings, and buffers from vehicular traffic in order to create a sense of security for the pedestrian. Utilize corrective measures through engineering, education and enforcement.

Goal 2 - Walkability

Create pedestrian environments that encourage walking through the use of public art, street trees, furnishings and other amenities. Assure a positive walking environment by making the pedestrian feel protected, comfortable and connected with the environment and the city.

Goal 3 - Connectivity

Develop a complete pedestrian network that provides continuous and convenient access to transit, employment centers, retail, neighborhoods, schools, beaches, parks, public places and other essential pedestrian destinations.

Goal 4 - Accessibility

Assure that pedestrian facilities meet local, state and federal access requirements. Utilize "Universal Access" principles that go beyond the minimum standards, since all pedestrians benefit from this approach.

Goal 5 - Alternative Transportation

Support walking as a primary means of transportation that in turn supports transit and bike options. A positive walking environment is essential for supporting smart growth, mixed land uses, transit oriented development, traffic calming and essential for reducing traffic congestion and greenhouse gas emissions.

Goal 6 - Neighborhood Quality

When walkable communities are provided, they enhance neighborhood quality by providing opportunities for social interaction, enhanced economic development and healthy lifestyles. A walkable community can provide clarity to the physical organization of neighborhoods by making people familiar with their environment.

Goal 7 - Funding

Identify funding for pedestrian facilities to encourage walking as a key form of transportation within the city. Develop an action priority plan to acquire funding for pedestrian facilities to create an economical and efficient pedestrian network within Oceanside by partnering with private interests and other public agencies.

Supporting Objectives

Supporting Objectives are specific steps needed to accomplish each goal and ultimately achieve the Plan's vision. Objectives are measurable whenever possible.

Objective 1 – Safety

- Identify and work towards repairing sidewalks and public areas that have pedestrian hazards.
- Encourage pedestrian facility improvements such as signs, signals, street crossings and proper lighting.
- Develop education programs to improve driver and pedestrian knowledge of pedestrian rights.
- Continue to collect and monitor pedestrian-vehicular collision data.
- Strive to reduce annual pedestrian-related collisions and fatalities.
- Continue to enforce pedestrian right-of-way laws.
- Develop projects and programs to improve pedestrian safety around schools.

Objective 2 – Walkability

- Create both public and private open spaces that invite pedestrian activity.
- Orient new construction around plazas and pedestrian pathways and sidewalks.
- Encourage pedestrian public improvement projects such as public art, fountains, street trees, lighting, and directional signs.
- Encourage future developments to avoid sidewalk obstructions such as newspaper stands, signage, etc.

Objective 3 – Connectivity

- Support development patterns and site plans that promote walking and increase connectivity between buildings and sidewalks.

- Work towards closing existing gaps in Oceanside's pedestrian network.
- Create a comprehensive system of trails throughout Oceanside's open space areas.

Objective 4 – Accessibility

- Routinely ensure that pedestrian facilities comply with the Americans with Disabilities Act (ADA).
- Encourage sidewalk widths that go beyond the minimum ADA standards in areas with high pedestrian activity.
- Promote accessibility and mobility for all people including children, disabled, and the elderly.

Objective 5 – Alternative Transportation

- Encourage and promote quality pedestrian access to the Coaster and Sprinter stations.
- Work with NCTD to provide accessible pedestrian facilities at transit stops.

Objective 6 – Neighborhood Quality

- Encourage a mix of land uses and activities in development and redevelopment projects that will maximize pedestrian activity.
- Support the city's Traffic Calming Program for residential areas.

Objective 7 – Funding

- Identify and apply for public funding sources to finance pedestrian facilities, education, and safety programs.
- Dedicate adequate resources in the Capital Improvement Program for maintaining existing and future pedestrian facilities.
- Identify a process that prioritizes the investment in pedestrian facilities.

1.4 Plan Input Process

Input for the plan was solicited from the general public, a pedestrian working group, and city staff.

Several methods were used to gather public input to incorporate into the plan. This process is described below and in Figure 1: "Public Input Process Chart."

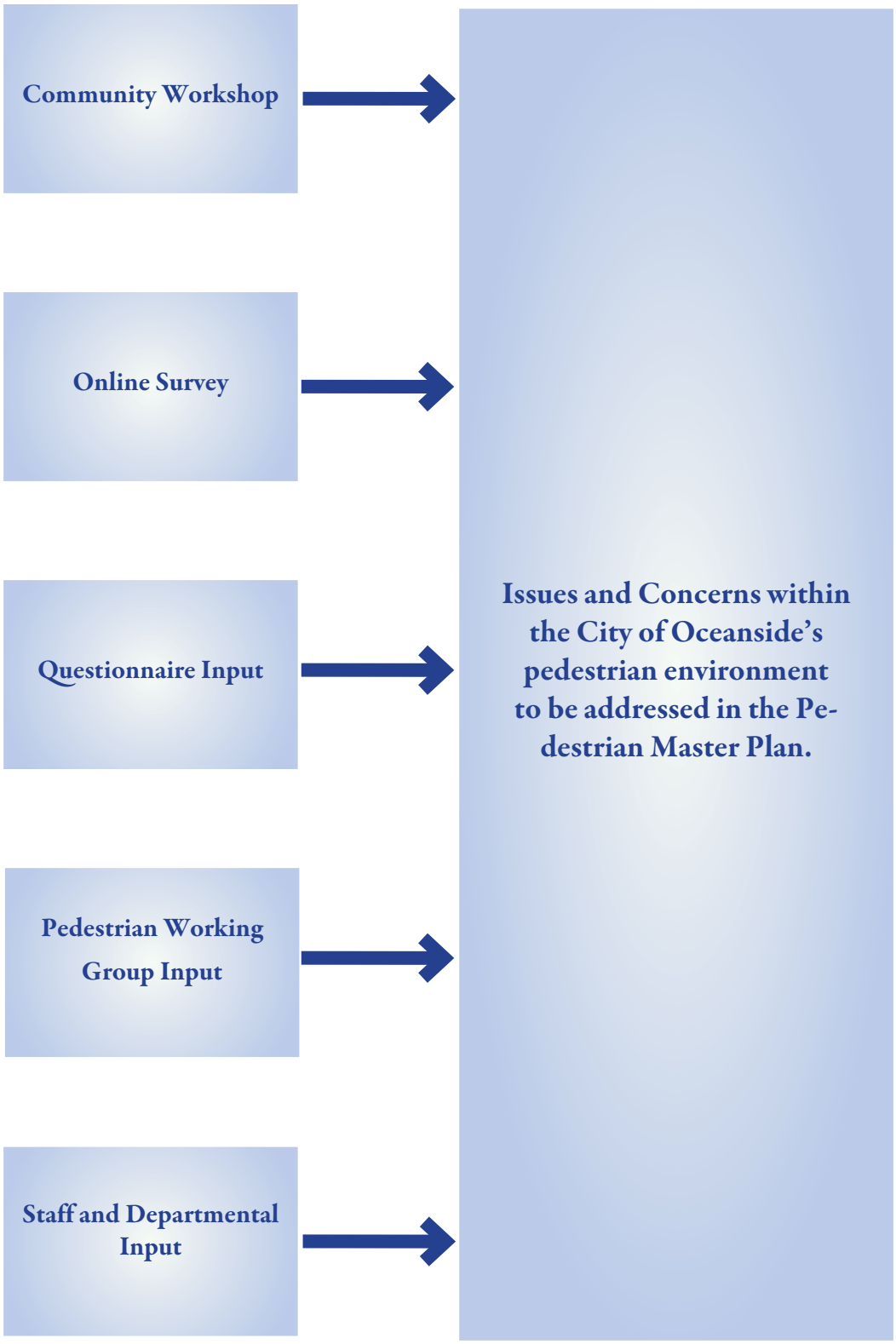
Pedestrian Working Group Input

A pedestrian working group was established that met once a month at Oceanside City Hall for nine months to guide the development of the Plan and to evaluate the quality and effectiveness of the work products. The public work group meetings were attended by representatives from city staff, Oceanside Transportation Commission, Main Street Oceanside, Highway 101 Association, Oceanside Coastal Neighborhood Association, and Oceanside residents.

Staff and Departmental Input

City staff and departmental input occurred throughout the plan development process since several city department representatives served on the Pedestrian Working Group or attended specific meetings during which applicable issues were addressed. These departments included Transportation Engineering, Planning, Economic and Community Development, the Police Department, as well as a representative from the city's Transportation Commission.

Figure 1: Public Input Process Chart



Inter-agency coordination is important to provide cohesiveness in project selection, implementation and to meet standards by each agency. The North County Transit District (NCTD) is an important working group member as they manage the extensive rail system throughout the City of Oceanside. They're cooperation for a pedestrian friendly environment helps to enhance the walkability, safety and access to their transit stations and rail crossings.

A public open workshop, paired with questionnaires helped identify known pedestrian issues and highlight the communities needs and priorities.

General Public Input

Input was solicited from the general public throughout the development of this plan. These include public survey questionnaires, requests for input from the web site through an online survey, a public workshop and presentation to a neighborhood community group, and a presentation at the publicly noticed City of Oceanside Transportation Commission.

Public Open Workshop Input

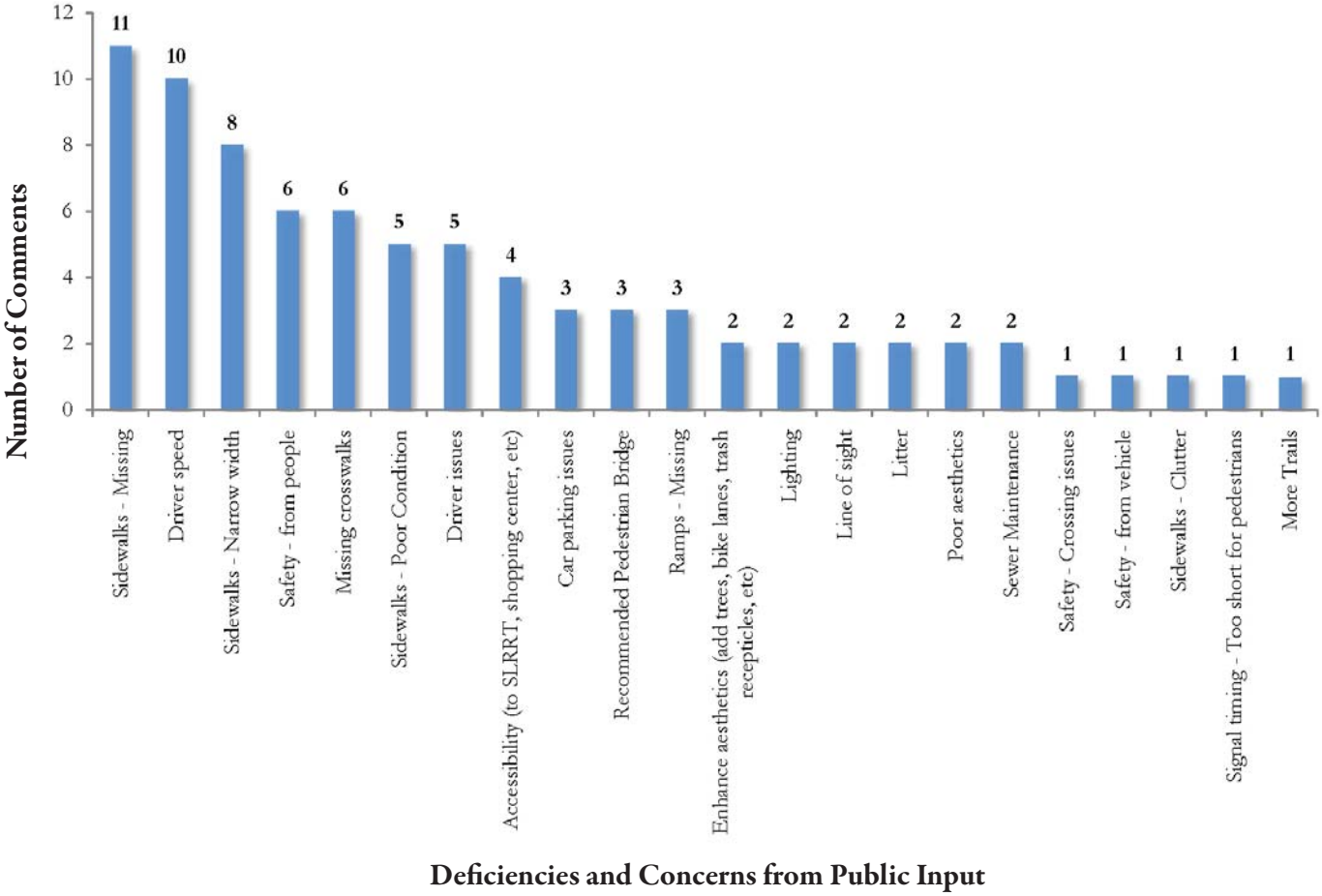
A public open workshop was held in February 2009 to gather public input on the Pedestrian Master Plan. The public workshop included a slideshow with general information on the plan, a vision statement and goals display area, typical route types and treatments, and maps identifying the high pedestrian priority areas. In addition, there was a large map provided for residents to identify known pedestrian issues. Participants were encouraged to provide input on the information presented, complete a pedestrian questionnaire, and write any additional comments on the board, or discuss them with city staff and the consultant team in attendance. The public open workshop announcement and layout can be found in Appendix A.

Questionnaire Input

A pedestrian issues questionnaire was developed with input from the pedestrian working group. The questionnaire was available on the web site that was established for the Pedestrian Master Plan. The questionnaires were also mailed to the city's school board, placed at City Hall counters, made available at the Sunset Market Main Street Oceanside information booth, made available on the City's website and distributed to various community groups.

The primary focus of the questionnaire was to gather opinions on Oceanside residents' walking patterns, what pedestrian facilities are needed, what factors are most important when considering a walkable community, etc. The questionnaires were made available in November 2008 and approximately 55 were completed through June 2009. A summary of the responses, including all comments, can be found in Appendix B.

Table 1: Summary of Public Questionnaire



1.5 Plan Components

The Oceanside Pedestrian Master Plan is organized by the following chapters:

Chapter 2: Policy Review

This chapter discusses the relationship between local, regional and other planning and policy documents and the goals of this Pedestrian Master Plan.

Chapter 3: Issues and Potential Solutions

This chapter discusses safety and other issues affecting walkability such as connectivity and accessibility.

Chapter 4: Route Types and Treatments

This plan classifies all pedestrian facilities into separate and distinct types of routes. The different types of treatments that can be applied to pedestrian issues by route type are described and shown in this chapter.

Chapter 5: Pedestrian Priority Model

This chapter presents the development of an extensive Geographic Information System (GIS) model that was developed to identify the existing and potential high pedestrian activity areas. There were several inputs into the model – pedestrian attractors, generators, detractors, and barriers – that together would help identify high pedestrian areas within the City of Oceanside.

Chapter 6: Recommended Pedestrian Projects

This chapter presents the pedestrian policies that will guide the city in planning for pedestrians by way of infrastructure projects, policy guidelines, and the development of programs related to education, enforcement and pedestrian awareness within Oceanside.

This chapter also presents pedestrian projects that are recommended to improve pedestrian safety, accessibility, and circulation in Oceanside. Project sheets are provided for the top 25 priority pedestrian projects. The methodology process was developed to assist in the ranking of the Top 25 priority pedestrian projects is also discussed in this chapter.

Chapter 7: Funding Sources

This chapter focuses on the various funding sources that are available for the implementation of the Pedestrian Master Plan and the recommended priority projects. This chapter outlines the historical, local, regional, state, federal, and private sources that can provide project funding along with a brief description of each program's features.

CHAPTER 2
POLICY REVIEW

2.0 Policy Review

This chapter summarizes the existing policy and planning documents as well as major projects that relate to the pedestrian environment in the City of Oceanside. These policies and documents are the foundation of the existing and future efforts to increase walkability and improve the pedestrian environment in the City of Oceanside.

The General Plan contains a broad range of goals and policies for the City of Oceanside. Most policies relating to non-motorized transportation are found within the Circulation Element while other guidelines and principles related to the pedestrian environment are found within a variety of other planning documents. The City of Oceanside's existing pedestrian related goals and policies are found within the Circulation Element and the School Pedestrian Safety Policies and Warrants. They are intended to provide safe pedestrian circulation throughout the city, including sidewalks, pedestrian routes to schools, pedestrian access to the beach, pedestrian malls, and hiking trails. They provide properly designed pedestrian facilities for the handicapped and elderly population to assure their safety and enhanced mobility.

The Oceanside circulation element includes policies relating to non-motorized transportation, and pedestrian related goals that provide an integrated transportation network.

2.1 Relationship to the Oceanside Circulation Element

The Circulation Element contains goals and policies that address all facets of transportation including non-motorized transportation. The Circulation Element is designed to identify the transportation needs and issues within the City of Oceanside and any regional relationships that affect the city's transportation system. The Pedestrian Master Plan will coordinate with the goals and policies of the on-going development of the Circulation Element. This includes, but are not limited to, providing an integrated transportation network to include pedestrian, bicycle, and equestrian facilities for the residents of Oceanside. This consistency will ensure that the goals and policies of the Pedestrian Master Plan will be fully integrated into any future long-range plans and capital improvement projects of the City of Oceanside.

The Pedestrian Master Plan aims to be consistent with the City of Oceanside's other policies including the Circulation Element, Land Use Element, Recreation Trails Element, Public Safety Element, Local Coast Program, and the Bicycle Master Plan.

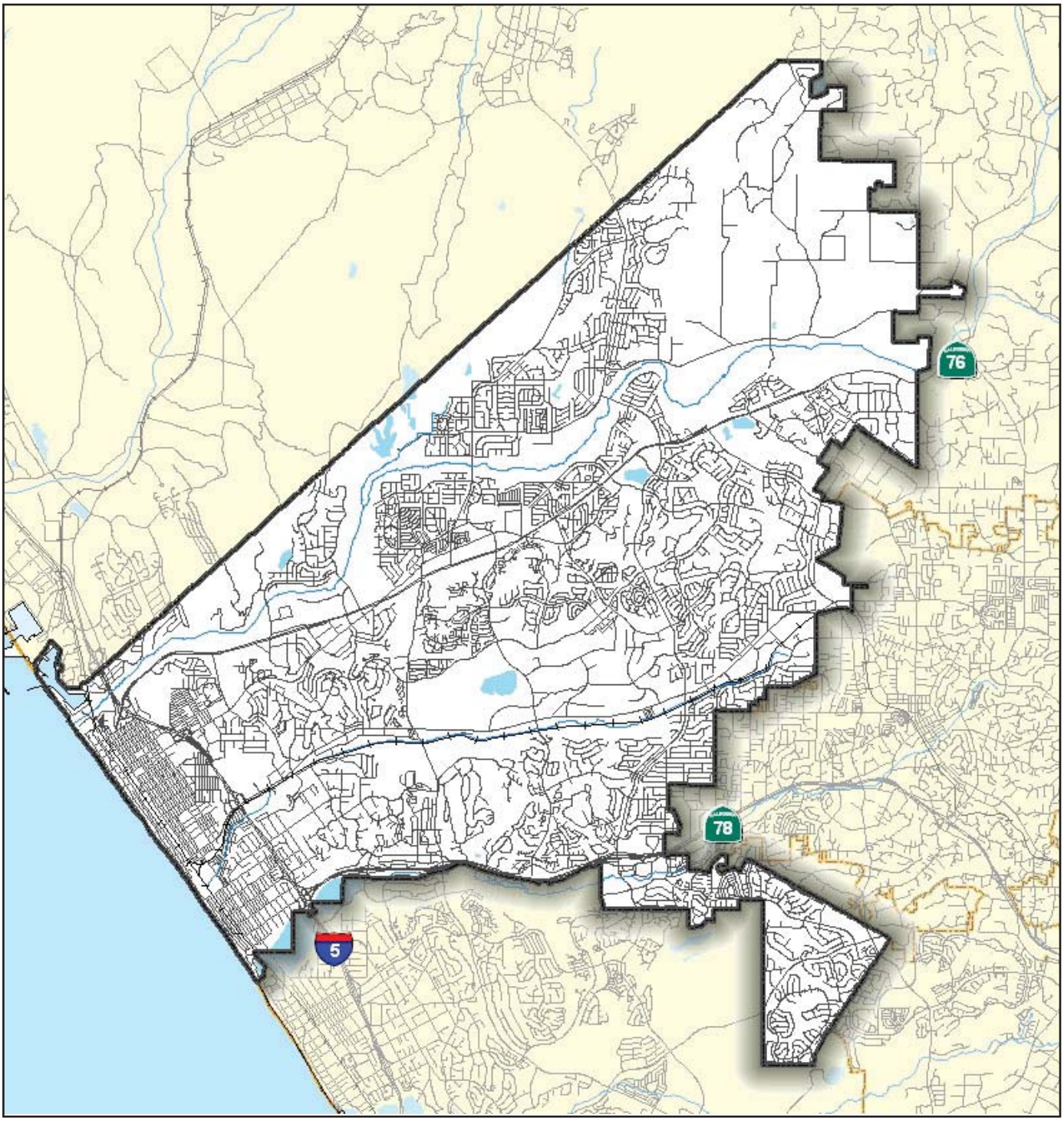
2.2 Relationship to Other Oceanside General Plan Elements

The Pedestrian Master Plan is intended to be complementary to other City of Oceanside existing goals and policies in the Oceanside General Plan. The elements of the General Plan with a relationship to the pedestrian environment are described below.

Land Use Element

The Land Use Element provides long-range policy direction and a land use plan for the City of Oceanside. The policies within the Land Use Element serve as guidelines for reviewing development proposals, planning facilities to accommodate growth, and accomplishing community development strategies. Figure 2 provides a general depiction of the city's neighborhoods and street networks.

Figure 2: General Study Area, Neighborhoods, and Street Networks



Recreational Trails Element

The Recreational Trails Element goal is to provide a safe and efficient trail network to enable residents access to the many resources within Oceanside. The framework of this element provides access for recreation and alternative circulation for non-motorized users through an interconnected system of trails linking residential neighborhoods to city and regional parks, schools, colleges, the San Luis Rey River, and the beach.

Community Facilities Element

The Community Facilities Element provides long-range policy direction and a community facilities plan. This element provides an overall direction for the provision of adequate public facilities necessary to serve the existing and future developed areas in the city in a coordinated and cost effective manner. The policies within the Community Facilities Element serve as guidelines to provide adequate levels of community services and facilities.

Public Safety Element

The Public Safety Element is meant to serve as a guide for introducing safety considerations into the planning process in order to reduce loss of life, injuries, damage to property, and economic and social dislocation resulting from fire, flooding, and seismic occurrences. This element serves as a direct source of data and city policies for developing land use districts and the circulation system as contained in the Land Use and Circulation Elements.

Local Coastal Program

The Local Coastal Program provides the Coastal Act policies and summary of findings as identified within the City of Oceanside for:

- Coastal/Beach Access
- Recreation and Visitor Serving Facilities
- Water and Marine Resources, Diking, Dredging, Filling, Shoreline Structures, and Hazard Areas
- San Luis Rey River Specific Plan
- Environmentally Sensitive Habitat Areas
- Visual Resources and Special Communities
- New Development and Public Works

It is contained within Appendix B of the Oceanside General Plan.

Bicycle Master Plan

The 2008 Bicycle Master Plan is a portion of the comprehensive update to the 1995 City of Oceanside Circulation Element and 1996 Recreational Trails Element. The Bicycle Master Plan objectives include establishing facility types to be implemented and identifying points where the city's bikeway system could integrate with the existing San Diego County regional bikeway system. The plan seeks to maximize the efficiencies offered by multi-modal connections between mass transit and bikeways, and to promote a viable alternative form of transportation in Oceanside.

2.3 Ongoing Oceanside Programs and Studies

In addition to the relationship to the General Plan Elements, there are other ongoing City of Oceanside programs and studies that correspond with the goals and efforts of the Pedestrian Master Plan. These programs and studies contain pedestrian elements that increase walkability or provide additional pedestrian infrastructure in support of a more connected and accessible pedestrian network in Oceanside. Below are brief descriptions of the ongoing Oceanside programs and studies.

Coast Highway Vision and Strategic Plan – The Vision and Strategic Plan serves as the blueprint for the revitalization and enhancement of the Coast Highway corridor. The project area encompasses approximately 485 gross acres of land and extends about three miles from Harbor Drive in the north to the Buena Vista Lagoon in the south. The Plan envisions a historic highway and surroundings based on Livable Communities and Smart Growth principles, and transforms it into a pedestrian-friendly and transit-oriented place that attracts and serves both visitors and residents.

Oceanside Boulevard Vision Plan – The Oceanside Boulevard Vision Plan is focused on the corridor between Interstate 5 and El Camino Real and to date has only produced a Vision Statement which is a list of general goals. The Vision Plan is still in progress and will ultimately result in a regulatory specific plan that establishes new land use and zoning designations that promote transit-oriented development and a walkable environment. The Vision for the corridor will include a set of recommended steps to create a well-planned, beautiful, safe, prosperous, and environmentally friendly place that defines the character of the community. One of the steps to create a well planned corridor includes developing new areas and retrofitting existing ones to offer quality services including shopping, restaurants, and a mix of uses.

El Corazon Planning Effort – The City of Oceanside is proposing to develop a 474-acre city owned property to contain the following mixture of land uses: natural open space (150 acres), park areas (160 acres), native open space greenbelt (46 acres), community public use (6 acres), Senior Citizen Center (6 acres), recreation center (6 acres), green waste facility (16 acres), trails and pathways (9 miles) infrastructure/other (20 acres), and commercial uses (55 acres). The use of park areas, native open space, and trails and pathways in the El Corazon Planning Effort enhances and promotes walkability in Oceanside as one of the goals for the Pedestrian Master Plan.

Downtown Redevelopment Projects – The Redevelopment Area comprises 375 acres, located west of Interstate 5, north to Harbor Drive, and south to Wisconsin Avenue, has approximately 29 downtown development projects pending (April 2009). Figure 3 is a map that shows the City's Economic and Community Development projects for the downtown area. The downtown redevelopment projects will enhance the vitality of downtown Oceanside in support of a more walkable environment.

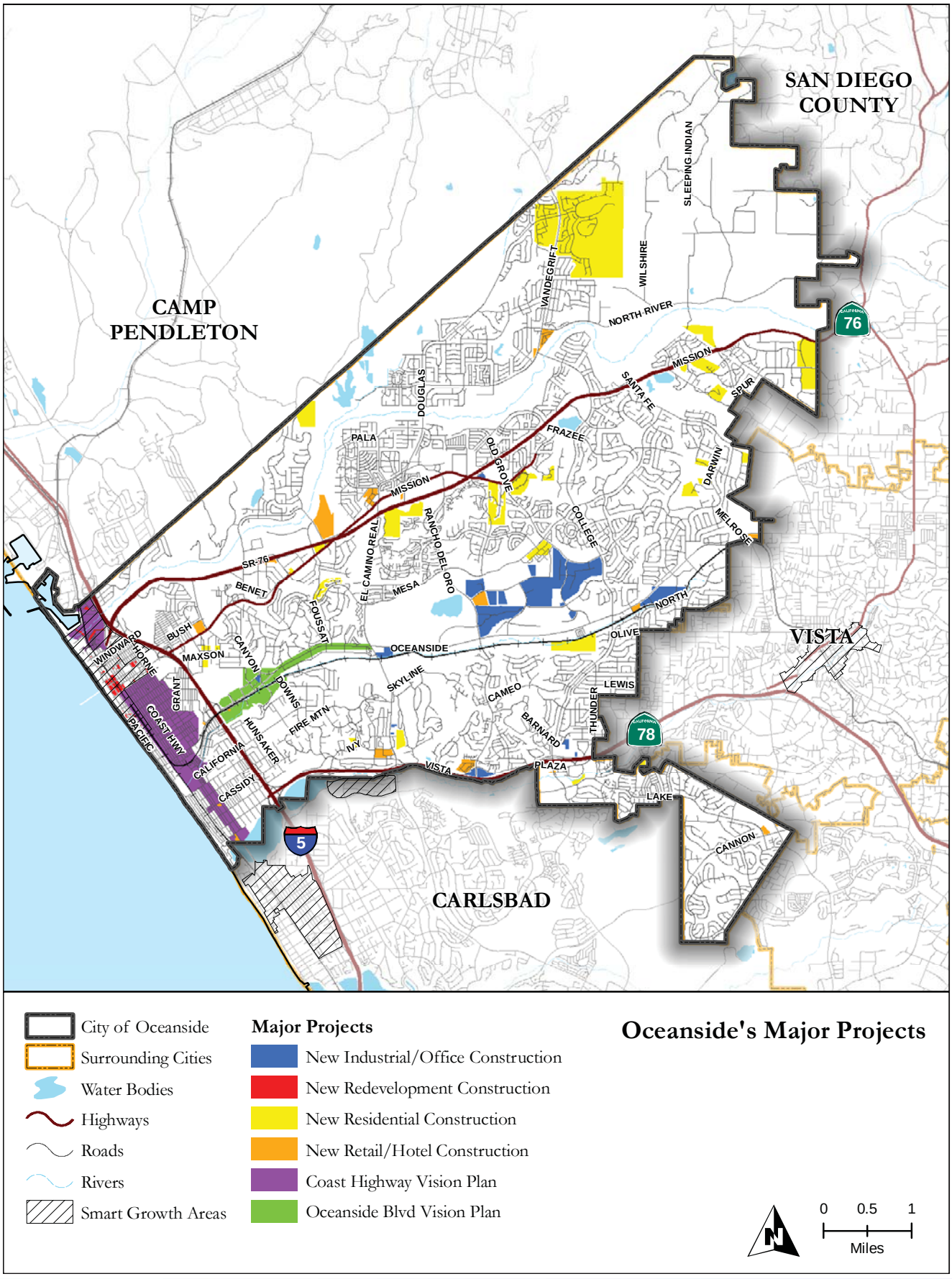
Downtown Walkable Community Plan – This August 2002 Plan outlines how to enhance the pedestrian network, create a safe environment, and increase opportunities for pedestrians to pass by businesses and restaurants in route to their destinations. The Plan addresses a hierarchy of mobility needs and recognizes a competition between modes. The Downtown Walkable Community Plan study area encompasses the area bound by the Pacific Ocean to the west, Clementine Street to the east, Sportfisher Drive to the north, and Seagaze Drive to the south. The study area also includes the Oceanside Transit Center located south of Seagaze Drive.

School Pedestrian Safety Policies and Warrants – This February 1973 document contains the official policies of the City of Oceanside relating to school pedestrian safety. This manual was created in an effort to group under one cover all policies, warrants, and practices for better references and coordination between departments and agencies that handle school pedestrian safety. This document is mostly outdated but outlines the policies for a safety advisory committee, signage and markings, flashing yellow school signals, school area traffic signal controls, school safety patrol, adult crossing guards, pedestrian separation structures, pedestrian walkways, and school area parking and loading controls. Given the date of this document, all policies and warrants within this document should be verified and updated using the most recent city policies and California Manual on Uniform Traffic Control Devices (MUTCD) warrants.

SANDAG Regional Comprehensive Plan (RCP) – In 2004, SANDAG produced the RCP as the strategic planning framework for the San Diego region. It creates a regional vision and provides a broad context in which local and regional decisions can be made that foster a healthy environment, a vibrant economy, and a high quality of life for all residents. The Plan balances regional population, housing, and employment growth with habitat preservation, agriculture, open space, and infrastructure needs. It moves the San Diego region toward a sustainable future through Smart Growth.

The Oceanside PMP provides a framework to begin the development of Smart Growth within the City of Oceanside. The RCP discusses the need for a better relationship between housing, commercial and transportation and identifies Smart Growth Opportunity Areas. Pedestrian access and walkability is key to the success of these areas and the PMP is a starting point to reach that success. Almost half of the projects within the PMP fall within the boundaries of the Smart Growth Areas helping to correlate the pedestrian needs with the goals of the RCP.

Figure 3: Map of Oceanside's Major Projects



CHAPTER 3
ISSUES & POTENTIAL SOLUTIONS

3.0 Issues and Potential Solutions

This chapter discusses issues affecting walkability and the pedestrian environment. The existing issues and potential solutions associated with the safety goals of the Pedestrian Master Plan are discussed.

A safe pedestrian environment depends on the quality, continuity, and perceived safety of the walking environment.

3.1 Safety Related Issues and Solutions

A safe pedestrian environment is part of the city's vision for a balanced transportation system. Establishing a pedestrian environment that is safe and efficient for all users depends in part on the quality, continuity, and perceived safety of the network. This section describes the existing conditions as it relates to pedestrian safety and collision factors in Oceanside.

Between 2000 and 2008, there were 615 pedestrian related collisions in the City of Oceanside, all but 38 of which resulted in injury or fatality.

Pedestrian Collisions and Injuries

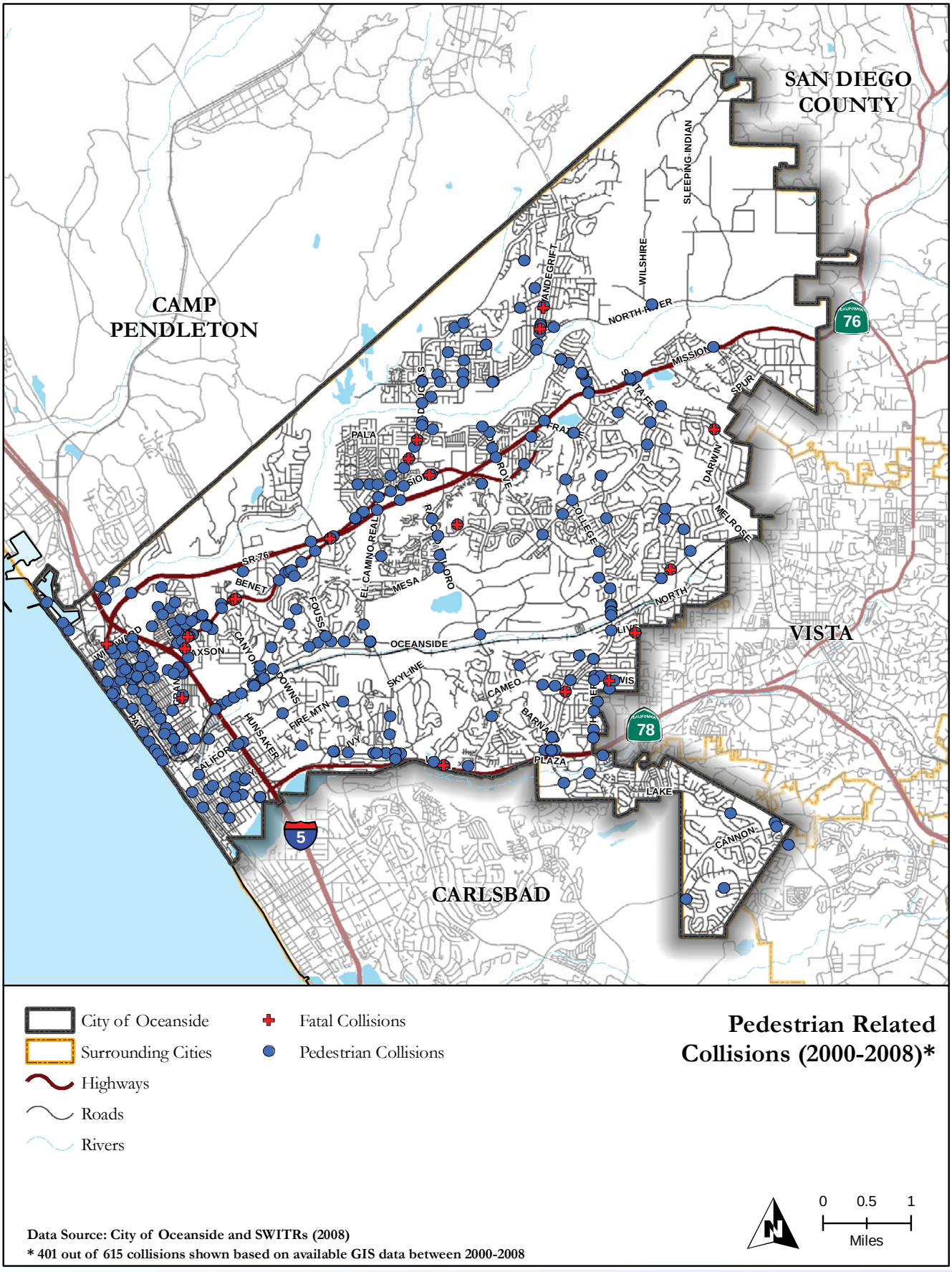
Pedestrian collision and injury data was derived from the Oceanside Police Department collision database for the years 2000 to 2008. Between the years 2000 and 2008, there were 615 pedestrian related collisions. Figure 4 shows the general location of the pedestrian collisions. Pedestrians are at a significant disadvantage when involved in a vehicular-pedestrian accident. As seen in Table 2, twenty-nine of the 615 accidents resulted in a pedestrian fatality and 549 accidents resulted in some type of physical injury to the pedestrian as a result of the collision. Of the 615 collisions, only 38 did not result in injury or fatality to the pedestrian involved.

Table 2: Pedestrian Related Accidents by Year (2000-2008)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
Total No. of Pedestrian Collisions	57	73	77	60	67	72	55	79	75	**615**
Injury-Related Collisions [a]	53	71	71	53	62	59	41	74	64	**549**
Non-Injury Collisions	3	1	5	6	1	6	6	2	8	**38**
Fatalities [b]	1	1	1	1	4	7	8	3	3	**29**
# Collisions Involving Alcohol/ Drug Impaired Drivers	2	2	2	4	4	4	8	1	5	**32**
# Collisions Involving Alcohol/Drug Impaired Pedestrians	5	11	6	7	4	9	8	1	4	**55**

Footnote:
a. The number of accidents that resulted in pedestrian injuries.
b. The number of fatalities is not included in the number of injury related accidents.

Figure 4: Location of Pedestrian Collisions



Data Source: City of Oceanside and SWITRs (2008)
*** 401 out of 615 collisions shown based on available GIS data between 2000-2008**

There are several cases in which the collision was due in part to drivers or pedestrians under the influence of drugs or alcohol. Table 2 shows that 32 of the 615 accidents involved an alcohol or drug impaired driver. However, there is a larger portion (55 out of the 615 pedestrian related collisions) of alcohol or drug impaired pedestrians that contributed to the cause of the collision.

Other local jurisdictions in San Diego County and surrounding regions were examined as a comparison to the number of pedestrian related collisions that occur in Oceanside. The data presented in Table 3 is what was available for each jurisdiction and does not directly correlate to the exact years of data available within Oceanside. The available data for each city was normalized per 1,000 persons per year to determine a rate of pedestrian collisions. Oceanside is found to have a rate of 0.38 collisions per 1,000 people per year. The rates were determined assuming an even distribution of accidents over the available time period provided for each city. In addition, the pedestrian collision rate was determined by the number of collisions per city street mile. Oceanside is found to have a rate of 0.44 collisions per city street mile which is comparable to the neighboring City of Carlsbad that has a rate of 0.42.

In a five city comparison, Oceanside's pedestrian collision rate per 1000 per year comes in fourth, following Santa Barbara, Huntington Beach and San Diego.

Table 3: Pedestrian Collisions Compared to Other Cities

City	Years	Population	Miles of Streets	Total Number of Accidents	Rate per 1,000 per year	Rate per mile of street	Fatalities	Injury Related Accidents [b]
Oceanside	2000-2008	178,806	1,407	615	0.38	0.44	29 [a]	549
Carlsbad	2001-2006	103,811	295	123	0.20	0.42	N/A	N/A
San Diego	2000-2004	1,336,865	4,207	2,936	0.44	0.69	107	2,777
Santa Barbara	1998-2002	90,305	N/A	428	0.95	N/A	5	387
Pima County (includes Tucson, AZ)	2001-2005	946,362	N/A	1,387	0.29	N/A	117	N/A
Huntington Beach	2005	198, 025	1,121	78	0.39	0.07	5	75

Footnote:
a. The number of fatalities is not included in the number of injury related accidents.
b. The number of accidents that resulted in pedestrian injuries.
N/A – information not available

The locations with the highest percentage of pedestrian-vehicular accidents are often at high volume, high speed roadways with unmarked mid-block crossings.

Pedestrian and Driver Actions

As seen in Table 4, the driver was at fault approximately 44 percent of the time in pedestrian related collisions. Pedestrians were at fault approximately 31 percent of the time. The fault for the remaining 25 percent was undetermined. Table 5 shows the locations with the highest percentage of pedestrian-vehicular accidents over the nine year period. These roadways often have accidents that are caused by pedestrians crossing mid-block on high volume, and some high speed, roadways where there are no marked mid-block crossings. Crossing a roadway mid-block without the proper pedestrian signage or roadway markings is a risky and sometimes fatal action for the pedestrian. Both driver and pedestrian educational programs should be supported to avoid these types of collisions.

Unfortunately, approximately 19 percent of the pedestrian related collisions that occur in Oceanside are "hit and run" incidents. Studies have shown that drivers involved in a "hit and run" collision are more likely to have had a previous arrest for driving under the influence and were more likely to be driving with an invalid or suspended license. The percentage of "hit and run" collisions in Oceanside suggests the need for more driver educational strategies that target offenders and risk-taking drivers, particularly since the rate of "hit and runs" have increased over the nine year period.

Table 4: Pedestrian Collisions Based on Fault (2000-2008)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total	%
Pedestrians at Fault	22	21	25	22	10	22	24	24	19	**189**	**31%**
Drivers at Fault	15	34	30	30	25	43	19	37	40	**273**	**44%**
No Fault/No Fault Assigned	20	18	22	8	32	7	12	18	16	**153**	**25%**
Hit and Run	7	8	18	9	11	15	10	15	26	**119**	**19%**

Footnote:
a. No fault/no fault assigned includes the number of Hit and Run collisions.

Table 5: Comparison of Collision Locations (2000-2008)

Location	Total Number of Accidents	Percentage of Total Accidents	Injury Related Accident	Fatalities [a]
Roadways:				
Mission Avenue	79	13%	69	8
Oceanside Boulevard	47	8%	42	2
Coast Highway	47	8%	47	0
College Boulevard	39	6%	37	1
Vista Way	26	4%	23	1
Pacific Street	15	2%	14	0
Intersections:				
Oceanside Boulevard and El Camino Real	9	1.5%	8	0
Oceanside Boulevard and College Boulevard	9	1.5%	8	0
Coast Highway and Mission Avenue	6	1%	6	0
Coast Highway and Pierview Way	6	1%	4	0
Mission Avenue and Canyon Drive	5	1%	4	0
College Boulevard and Vista Way	5	1%	5	0
El Camino Real and Vista Way	5	1%	5	0

Footnote:
a. The number of fatalities is not included in the number of injury related accidents.

Other Conditions Related to Collisions

Only a small percentage of pedestrian collisions are caused by external conditions such as slippery or wet streets, lack of proper lighting, or lack of pedestrian control measures.

There is often the perception that pedestrian related collisions are caused by some type of external conditions such as slippery or wet street surfaces, the lack of proper lighting, or the lack of pedestrian control measures. These types of conditions are present only for a small percentage of pedestrian collisions that occur in Oceanside. As seen in Table 6, the majority of accidents and fatalities occur when the street conditions are clear and pedestrian controls and lights are present.

Table 6: Pedestrian Collisions based on External Roadway Conditions (2000-2008)

	Total Number of Accidents	Percentage of Total Accidents	Non-Fatal Accident	Fatal Accidents
Slippery/Wet Road Conditions	22	4%	21	1
Pedestrian Controls Present	251	41%	234	17
Dark with Street Lights	171	28%	155	16
Dark with No Street Lights	25	4%	19	6

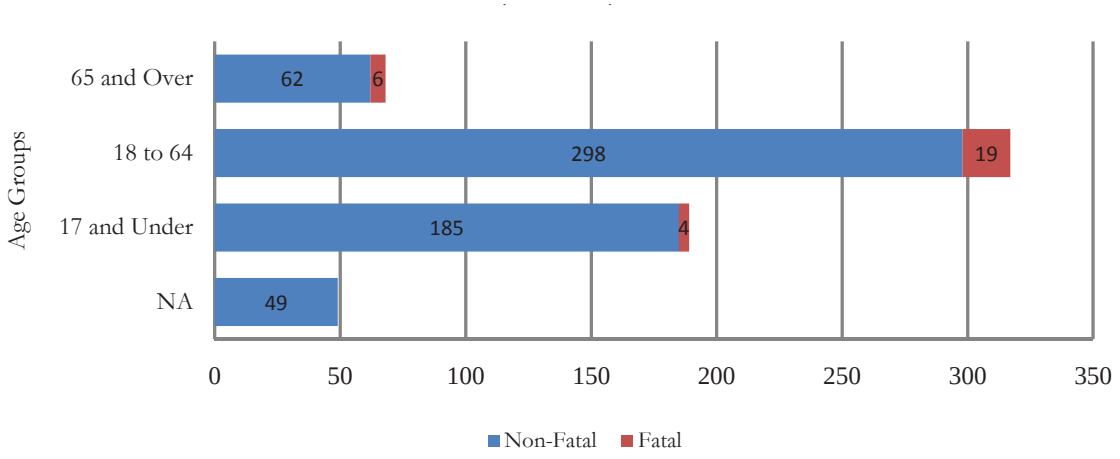
Note:
The total number of accidents per variable can overlap.

Pedestrian Collisions and Age

Children and seniors are the most at-risk to be involved in a pedestrian collision (42%) and are also the most likely to be injured.

As seen in Table 7, both the young and elderly are the most at-risk and vulnerable to pedestrian collisions and injuries. While seniors are less likely to be hit by a vehicle than children, when hit they are more likely to die or suffer severe injuries as a result of the collision. In Oceanside, seniors account for 11 percent of the total pedestrian collisions. Children, ages 17 and under, account for approximately 31 percent of the total pedestrian collisions in Oceanside.

Table 7: Pedestrian Collisions for Oceanside based on Age (2000-2008)



Given that both children and the elderly account for approximately 42 percent of the pedestrian collisions in Oceanside, the city should support or sponsor a new educational safety campaign for motorists and pedestrians with a focus on outreach efforts to the elderly population and local schools. The campaign should begin by familiarizing residents with local laws for walking across the street, including the operation of pedestrian signals. It should also focus on the responsibilities of motorists and how they relate to safe pedestrian mobility.

Education programs can help keep the number of pedestrian collisions down, especially for children and seniors.

School Aged Pedestrians

According to SANGIS, the City of Oceanside has 21 elementary schools and 6 middle schools located throughout the city. Figure 5 depicts the location of the schools within Oceanside. In the years 2000 to 2008, the City of Oceanside had 189 collisions involving children ages 17 and under. Of these accidents, 4 resulted in a fatality.

The "5 E's," Education, Encouragement, Enforcement, Engineering, and Evaluation, are the elements that should be taken into account when planning school routes.

Typically, elementary school children are more likely to walk to school based on close proximity of their home to the school. Table 8 shows the elementary schools with the highest number of collisions over the nine-year time period (2000-2008). School children are at a greater risk for injury when involved in a pedestrian-vehicular collision. Children are often smaller and less visible to drivers, particularly in areas where there is heavy landscaping or parked cars. In particular, elementary school children are generally developmentally unable to assess the safety of a situation and perceive speeds and distance in order to judge whether it is safe to cross a street. This poses a great challenge and disadvantage for children. Nationwide efforts have traditionally focused on providing cities with the attractive benefit of promoting walking as a way to encourage active lifestyles among students. However, creating a safe, inviting pedestrian route for school children can be approached in a number of different ways.

Table 8: Elementary School Collisions

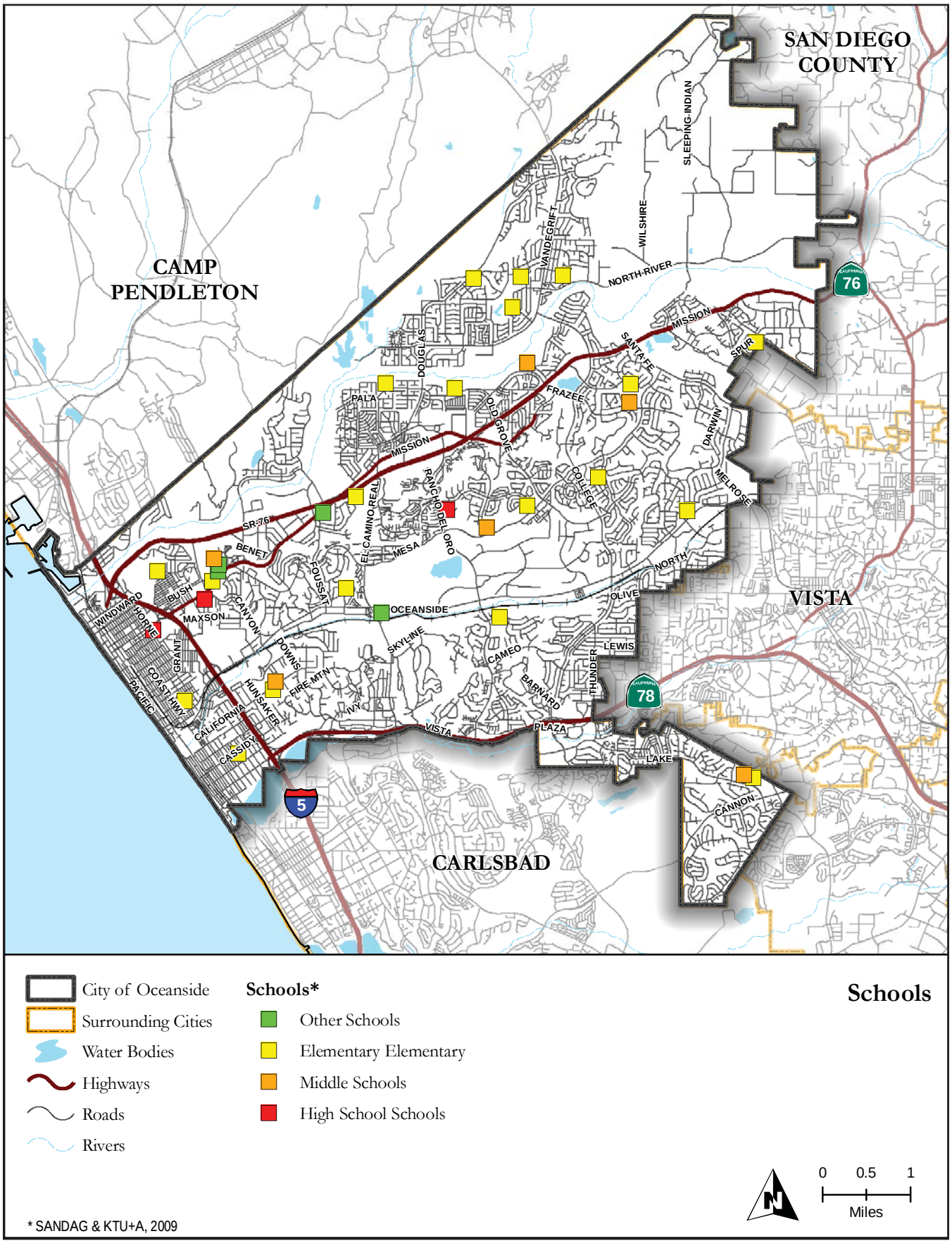
Elementary Schools	Number of Collisions[a]
South Oceanside Elementary	7
Ditmar and Mission Elementary Schools	6
E.G. Garrison, Laurel and Temple Heights Elementary Schools	2
Alamosa Park, Del Rio, Ivey Ranch, Lake, Pacifica, Palmquist and Reynolds Elementary Schools	1

Footnote:
a. Within ¼ mile distance from each school.

A nationwide, multi-disciplinary approach known as the "5 E's" has become the preferred way for cities to coordinate and develop suggested routes to schools. The concept of the 5 E's, consist of five elements that are designed to ensure a comprehensive and successful program to increase walking and bicycling to and from school. These 5 E's are education, encouragement, enforcement, engineering, and evaluation. The 5 E's are described below in more detail.

Engineering - The Federal Highway Administration produces a design document, The California Manual on Uniform Traffic Control Devices, Part 7 Traffic Controls for School Areas, which defines the standards used by road managers nationwide to install and maintain traffic control devices on all streets and highways. Engineering components for this program must be in compliance with the CA MUTCD.

Figure 5: Map of School Locations



The engineering task involves creating operational and physical improvements to the infrastructure surrounding schools to lower speeds, reduce potential conflicts with traffic, and establish safer and fully accessible crossings, walkways, trails, and bikeways. Engineering improvements should:

1. Create school walking and bicycling route maps using a variety of assessment tools and exercises.
2. Identify and regulate the school zone.
3. Provide and maintain bicycle and pedestrian facilities along the school route including sidewalks, on-street bicycle facilities, paths, bridges and tunnels.
4. Provide safe street crossings for bicyclists and pedestrians.
5. Slow down traffic.

Engineering entails operational and physical improvements aimed to lower speeds, reduce potential conflicts with traffic, and establish safer and fully accessible crossings, walkways, trails, and bikeways near schools.

In 2009, the city applied for three separate State-level SR2S grants aimed at engineering and traffic calming measures around schools. These include:

- A grant to install sidewalks at three school locations: Nichols Elementary School, Ditmar Elementary School, and South Oceanside Elementary School. This grant would give funding to provide continuous sidewalk for students going to and from school. Each of these school locations have portions of sidewalk that were never constructed.
- Install a sidewalk on the west side of the College Boulevard Bridge located between Mance Buchanon Park and North River Road. (**This project was completed in August 2009 and funded using the City CIP funds.**)
- A grant to install flashing beacons and/or radar feedback signs at various school locations. The schools included in this grant application were Mission Elementary School, Ivey Ranch Elementary School, King Middle School, Foussat Elementary School, Ditmar Elementary School, Lake Elementary School, Mission Meadows Elementary School, Madison Middle School, Reynolds Elementry School, Alamosa Park Elementry School, and Roosevelt Middle School.

The city did not receive funding for all these projects but will continue to seek funding for these and other projects.

Education - Aside from engineering improvements, education efforts are arguably the most effective component of a successful Suggested Routes to School Program. Activities include teaching pedestrians and bicyclists traffic safety and creating awareness of the benefits and goals of Suggested Routes to School.

One of the most popular education efforts done by other cities include small, laminated "tip sheets" or bookmarks (often in English and Spanish) to offer helpful guidelines for educating parents, teachers and children on suggested ways to walk and bike to school. These can be behavioral tips or wayfinding tips designed to educate pedestrians on suggested routes to school and what to do in the presence of high-speed traffic or challenging intersections. Tip sheets should be developed for students of all ages and grade levels.

"Tip Sheets" offer helpful guidelines for educating parents, teachers, and children on suggested ways to walk and bike to school. "Tip Sheets" have been successful in other cities.

Encouragement - Successful encouragement strategies for schoolchildren focus on using walkability and Suggested Routes to School to encourage activity and have fun; they generate excitement and interest in walking and bicycling. Special events like the International Walk to School Day, mileage clubs, contests, and other ongoing activities all provide ways for parents and children to discover, or rediscover, that walking and bicycling are possible, even preferred, and are a lot of fun.

Generate excitement in walking and bicycling through special events that are inexpensive, quick, and easy.

Encouragement activities often:

- Are quick and easy to start.
- Require little funding.
- Can be organized by parents, students, teachers or community volunteers.
- Catalyze a community's interest in walking and bicycling.
- Return quick success and generate enthusiasm for other strategies that may require a greater investment of time and resources.
- Reinforce safe walking and bicycling behaviors.

Enforcement - The primary goal for enforcement strategies is to deter unsafe behaviors of drivers, pedestrians and bicyclists, and to encourage all road users to obey traffic laws and share the road safely.

Deter unsafe behaviors and encourage users to obey traffic laws through the use of local law enforcement or Schools Resource Officers (SRO).

Enforcement can include partnering with local law enforcement or School Resource Officers (SRO) to ensure traffic laws are obeyed in the vicinity of schools (including enforcement of speeds, yielding to pedestrians in crossings, and proper walking and bicycling behaviors), as well as initiating community enforcement such as crossing guard programs.

Potential Enforcement activities include:

- Identifying unsafe driver behaviors on the streets around the school such as: speeding through residential streets and school zones; failing to yield to students walking or bicycling, especially in crosswalks; running red lights or stop signs; passing stopped school buses; and parking or stopping in crosswalks.
- Teaching safety issues to children, school officials, parents and the community.
- Evaluating local traffic concerns, observe problem areas and behaviors, and providing input about safe routes.
- Providing an enforcement presence that discourages dangerous behavior on and off the school campus. This may mean issuing warnings to drivers breaking traffic laws. Drivers who have made a minor error will often respond to a warning from an officer by being more careful. Drivers who continue to violate traffic laws need to be ticketed.
- Monitoring crossing guards and making sure they are acting safely in the street and are not taking chances or over-stepping their duties as guards.
- Monitoring students to ensure that they cross at the suggested locations and do not take unnecessary risks.

Evaluation - This task involves monitoring outcomes and documenting trends through data collection before and after suggested route to school activities. Data collection examples can include surveys of students, educators, and parents are to determine how many students walk and bike to school, and why or why not.

Create a standing committee of school personnel and city staff designed to evaluate and monitor suggested routes to school.

In addition to surveys and other formal activities, the creation of a standing committee of school personnel and city staff designed to evaluate and monitor suggested routes to school should be done. City staff have indicated the existence of this committee in the past in Oceanside, and the existence of a current committee for the neighboring City of Vista. An evaluation committee could provide a quick, efficient way to develop and maintain an inventory of possible issues and potential improvements to be addressed as funding for improvements become available.

State and Federal Safe Routes to School Programs

There are two separate and distinct Safe Routes to School programs. One is the State-legislated program referred to as SR2S and the other is the Federal program called SRTS. It is important to understand the differences between the two programs to fully understand the available funding opportunities and source.

While the Federal SAFETEA-LU designated a total of $612 million towards the development of nationwide SRTS programs, this money is largely apportioned at this point in time. Additional federal legislation will likely continue to provide SRTS funding, and the city should monitor legislative efforts to best-position itself for funding when the new cycle commences. SR2S funding is ongoing and the key characteristics of each program are summarized in Table 9 along with existing Federal SRTS legislation.

Funding from both the State and Federal Safe Routes to School Programs is very competitive. New cycles of funding will continue to appear, so the City of Oceanside should monitor these opportunities closely.

Table 9: State and Federal Safe Routes to School Programs

Program Features	State-Legislated Program - SR2S	Federal Program - SRTS
Legislative Authority	Streets & Highways Code Section 2330-2334	Section 1404 in SAFETEA-LU
Expires	AB 57 extends program indefinitely	SAFETEA-LU expires September 30, 2009
Eligible Applicants	Cities and counties	State, local, and regional agencies experienced in meeting federal transportation requirements
Eligible Projects	Infrastructure projects	Stand-alone infrastructure or non-infrastructure projects
Local Match	10% required	None
Project Completion Deadline	Within four state FYs after project funds are allocated	Within four federal FYs after funds are obligated
Restriction on Infrastructure Projects	Must be located in the vicinity of a school	Infrastructure projects must be within two miles of a grade school or middle school
Targeted Beneficiaries	Children in grades K-12	Children in grades K-8
Cycles Completed	Eight cycles	Two cycles
Current Status	Cycle eight project lists were released on 8/10/09	Cycle two projects list approved in October, 2008
Funding	$48.50M worth of projects were released in Cycle 8	$46M was available in Cycle 2

Source: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

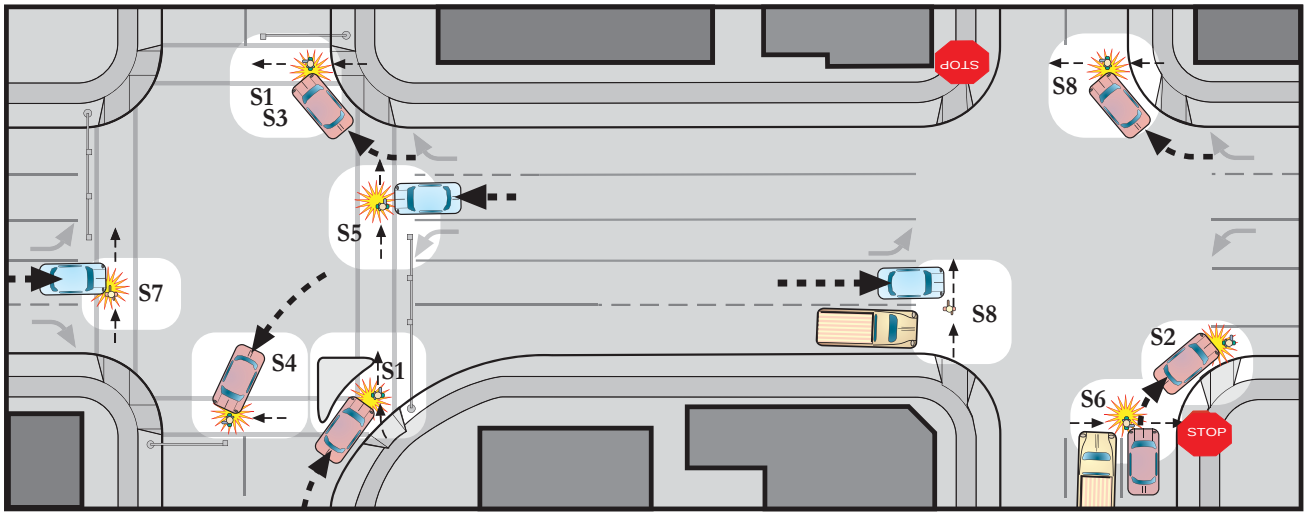
Solutions that Address Safety Issues

There are several typical safety issues and solutions associated with pedestrian crossings at intersections, driveways, and mid-block crossings. Figure 6 and 7 have been developed to describe the typical safety issues associated with pedestrians crossing at intersections and walking or crossing along roadway segments. Figure 8 makes recommendations for possible solutions that can fully or partially address the safety issues. Examples of these solutions are illustrated on the pages following.

Figure 6: Intersection Safety Issues

Safety Issues (at Intersections)

These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design.

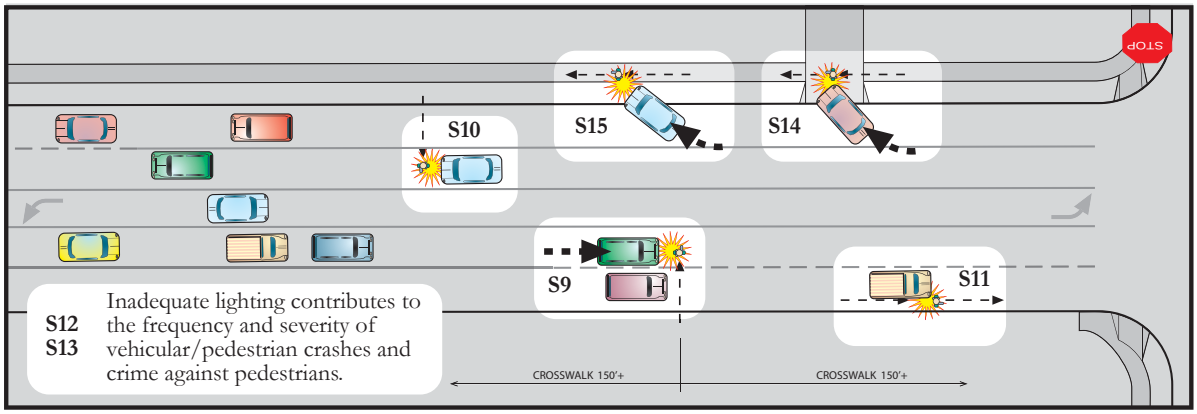


Issues	Potential Solutions (See legend*)
S1 - Right turning collisions. Collisions can occur between right turning vehicles and pedestrians even though both may have a green light. High speed right turns may divert the driver's attention from watching for pedestrians, to watching for vehicles approaching from the left. Dual right turn lanes and wide-radius corners with channeled right turn lanes can make collisions more frequent and severe.	**2S, 3S, 4S, 7S, 8S, 9S, 11S, 17S, 18S, 19S**
S2 – Turns from minor road stop-controlled intersection. Turning vehicles may violate the pedestrian right-of-way.	**2S, 3S, 4S, 7S, 17S, 19S**
S3 – Right turns at red lights. Right turning vehicles at red lights may violate the pedestrian right-of-way during the pedestrian signal or when the pedestrian illegally walks against the red light.	**2S, 3S, 4S, 17S, 19S**
S4 - Left turning collisions. Left turning vehicles at permissive left turns (green light yield) may violate pedestrian right-of-way, or at protected left turn (green arrow) if pedestrians walk illegally against the light.	**1S, 3S, 4S, 8S, 11S, 17S, 19S**
S5 – Wide streets. Age, ability and street crossing distance may make it difficult for some pedestrians to cross wide streets in one cycle. Pedestrians may enter the crossing signal phase illegally without time to cross.	**1S, 2S, 3S, 4S, 8S, 11S, 17S, 18S, 19S**
S6 - Multiple lane crosswalk collisions. Pedestrian collisions with vehicles can occur in crosswalks at stop signs with multiple lanes in each direction. Larger vehicles can shield views of pedestrians and drivers from each other. Drivers may also encroach on the crosswalk in an attempt to see oncoming traffic.	**2S, 3S, 4S, 5S, 17S, 18S, 19S**
S7 - Controlled intersection collisions. Pedestrian collisions with vehicles may occur at intersections with signals or stop signs. Collisions may occur due to high speeds, signal running, or either a driver or pedestrian violating the other's right-of-way.	**1S, 2S, 3S, 4S, 6S, 9S, 11S, 17S, 18S, 19S**
S8 - Uncontrolled intersection collisions. Collisions may occur at intersections with no stop signs or traffic signals. Multiple lanes in each direction intensify this problem dramatically, as well as poor visibility and lack of median refuges. Drivers may not understand that pedestrians have the right-of-way at intersections, regardless of crosswalk markings.	**1S, 2S, 3S, 4S, 5S, 7S, 17S, 18S, 19S, also see 5W**

Figure 7: Roadway Safety Issues

Safety Issues (along Streets)

These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design.



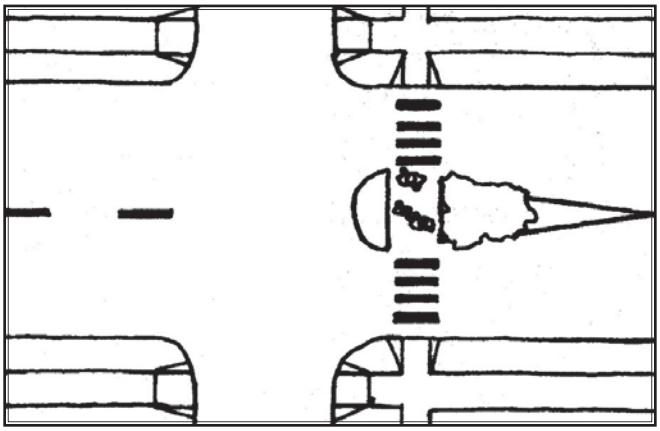
Issues	Potential Solutions (See legend*)
S9 – Lack of legal or safe crossings. Uncontrolled, restricted or excessively spaced crossings without stop signs or signal control can encourage mid-block crossings (whether legal or illegal).	**1S, 5S, 10S, 11S, 12S, 13S, 14S, 17S, 18S, 19S**
S10 – Mid-block "jay walking." Safe, controlled intersection crossings often exist within typical blocks. However, some adjacent uses and high levels of pedestrian use may encourage illegal crossings, putting the pedestrian at risk, especially if crossing from between parked vehicles.	**1S, 5S, 10S, 11S, 12S, 13S, 14S, 17S, 18S, 19S**
S11 - Street collisions where no sidewalk exists. Where sidewalks are missing or damaged pedestrians may be required to walk in the street, exposing them to collisions. Walking in the street is especially unsafe if vehicular speeds are above 25 mph, the travel lane is next to the curb or edge of the roadway, and the roadway is relatively narrow.	**18S, 19S, 20S**
S12 - Unsafe conditions in the dark. Where lighting and/or building forms do not allow for defensible space, the walker may be subjected to robbery or personal harm.	**17S, 18S**
S13 - Disincentive to walk in the dark. Inadequate light levels can influence a pedestrian's decision to not walk at night and can also result in collisions due to low visibility.	**17S, 18S, 19S**
S14 - Turning into or out of driveways and alleys. Vehicles turning into or out of curb-cuts, driveways or alleys can collide with pedestrians on sidewalks. The driver is violating pedestrian right-of-way, but this collision is difficult to control through physical changes.	**15S, 16S, 17S, 18S, 19S**
S15 - Out-of-control collisions on sidewalks. Pedestrians may be exposed to high speed vehicles where no buffers exist (such as trees, bike lane or parked cars). The problem is worse where there is no buffer between travel lanes and sidewalks.	**6S, 15S, 16S, 17S, 18S, 19S**

Figure 8: Safety Solutions

1S) Median refuges (a safe place to stand in the street)
2S) Pedestrian pop-outs (curb/sidewalk extensions into street)
3S) High-visibility crosswalk striping
4S) Elevated and/or specially paved crosswalks
5S) Advance stop barsat least 15 feet but ideally 30 feet from crosswalks
6S) Radar speed monitoring and display
7S) Reduced curb radii
8S) Early pedestrian start at crossing signal
9S) No right turn on red at intersection
10S) Mid-block crosswalks with pedestrian flashers, but no traffic control
11S) Automatic pedestrian detection and signal control
12S) Mid-block crosswalks with signs, median or curb extensions and flashing lights in the roadway
13S) Mid-block crosswalks with pedestrian-actuated traffic control devices
14S) One-lane mid-block crossing with high contrast markings, signs, and center lane marker)
15S) Parkway planting buffer between cars and pedestrians
16S) On-street parking buffer between cars and pedestrians
17S) Adequate pedestrian lighting levels
18S) Various traffic calming measures
19S) Enforcement and education solutions
20S) Missing sidewalk added or provide adequate walkway width clear of obstructions

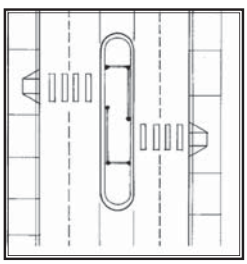
* The potential solutions are a possible list of methods to address the problem. Implemented solutions will be determined by actual site conditions, interpretation of policies and engineering evaluation.

1S) *A good example of a median refuge that provides access without ramps and protects a walker unable to make it across. Photo credit: Andy Hamilton*

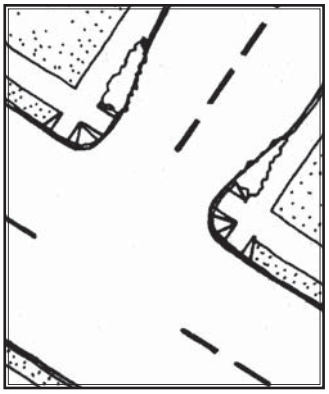


1S) *Median refuges should be considered at intersections with or without traffic control. Multi-lane roadways should utilize solutions that include traffic control. Illustration credit: Planning & Designing for Pedestrians, SANDAG, June 2002*

1S) *Median refuges are essential where mid-block crossings are contemplated. They can include a straight cut-through or a staggered or coral style crossing. Photo credit: Dan Burden*

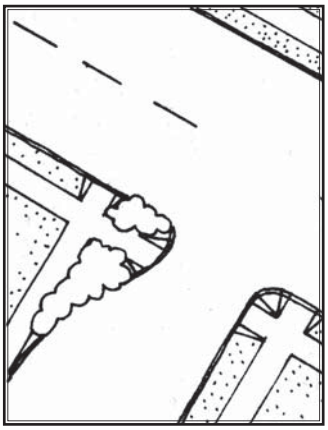


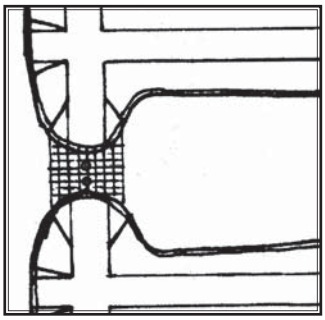
2S) *Pedestrian pop-outs (curb extensions) can provide increased safety, improved visibility of pedestrians, protection for parked cars, and a shorter crossing distance for the pedestrian. They also provide for street furnishings, landscaping and social areas. Photo credit: Dan Burden*



2S) *Pedestrian pop-outs (sometimes referred to as curb extensions when not on all edges) decrease crossing distance and can help slow down traffic. Illustration credit: Dan Burden*

2S) *Pedestrian pop-outs can also serve to narrow a two lane one-way street into one lane or restrict entrance onto a two-way or one-way street. Illustration credit: Dan Burden*



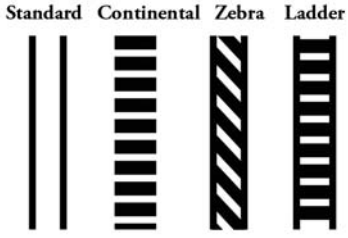


2S) *Pedestrian pop-outs in conjunction with bollards can serve to block a street from vehicular traffic. Illustration credit: Dan Burden*

3S) *Ladder style markings can be modified and spaced to lower the wear from vehicle tires. Photo credit: Dan Burden*

3S) *Increased visibility can be obtained through a change of paving materials and striping. Photo credit: Mike Singleton*

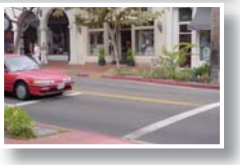
3S) *Certain urban areas (that are pedestrian dominant) should utilize high visibility markings in the entire intersection. Photo credit: Michael Singleton*



3S) *A variety of crosswalk stripings are used in the United States. All are typically used in California except for the solid and the dashed. The standard would suffice for many intersections. Intersections with higher levels of pedestrian use, should utilize a spacing modified continental style (see 3S at the top of the page). Illustration credit: Dan Burden*

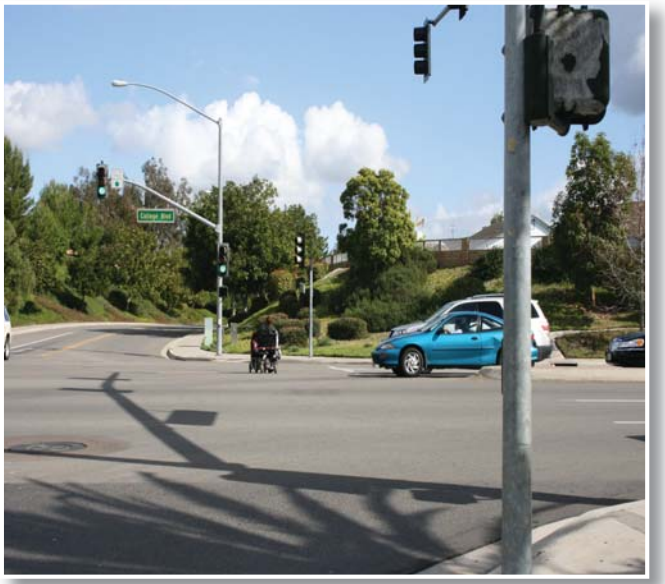
4S) *Raised crosswalks (speed tables) provide clear signs of a pedestrian crossing but need to be limited to lower speed, lower volume streets. Photo credit: Andy Hamilton*

5S) *Adequate lighting, pop-outs, the latest MUTCD approved signs and high visibility markings are essential for non-controlled multi-lane mid-block crossings. Note the stop bar should be located at least 15 feet from the actual crosswalk (see image on right). Photo credit: Michael Ronkin*

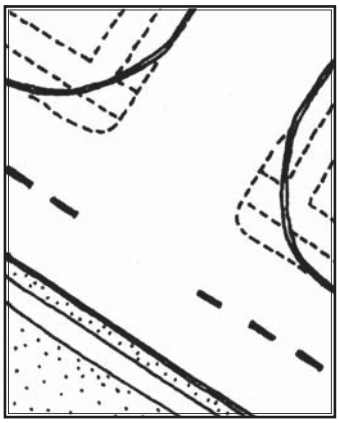


6S) *Many cite increased regulation and enforcement as the solution to controlling speeding and reckless driving. Physical improvements provide a long term solution. However, some devices such as radar speed display systems, can help to educate the public and will slow the driver down while in use. Photo credit: Joe Punsalan*

Safety Solutions



7S) *Wide radius corners can promote high speed turning movements that can conflict with pedestrians. A high speed right turn can also take the driver's focus away from the crossing and its users and place the focus only on vehicles approaching from the left instead of pedestrians in the crosswalk. Photo credit: Michael Ronkin*



7S) *Reducing the radius of corners also serves to decrease the crossing distance for a pedestrian and places them in a higher visibility zone. Illustration credit: Dan Burden*

8S) *Right turn on red restrictions with an advance lead for the pedestrian crossing phase can reduce right hand turning conflicts. Photo credit: Michael Ronkin*

9S) *Right turn on red restrictions can lessen the conflicts between users and, if signs are properly handled, can increase awareness of these types of pedestrian / vehicle conflicts. Photo credit: Michael Ronkin*

10S) *A number of flashing pedestrian crossing warning signs are used throughout the region. Other solutions may be more appropriate where multi-lanes of travel on high volume streets exist. This crossing has visible signage and crosswalks along with a median refuge. Improved street lighting and advance stop bars could increase safety, but a pedestrian actuated traffic signal would provide for the safest condition. Photo credit: Mike Singleton*

11S) ***A traffic signal or special pedestrian crossing can be controlled by sensors that note when a pedestrian approaches and / or leaves an intersection or a mid-block area. Photo credit: Michael Ronkin***

11S) ***This signal uses both a pedestrian crossing symbol as well as a red light when actuated. Photo credit: Michael Ronkin***

12S) ***This crossing utilizes lighting in the pavement and in the signs to indicate a pedestrian is in the walkway. Sensors pick up when a pedestrian approaches and if the crosswalk is clear of pedestrians. Photo credit: Mike Singleton***

13S) *This mid-block crossing utilizes standard traffic signals, a stop bar, ladder style crosswalks, median refuge and a pedestrian controlled actuator. Photo credit: Mike Singleton*

14S) *If traffic control is not provided at an intersection, signage and striping along with a center pedestrian zone marker may help to make these crossings as safe as possible. This type of sign may require changes to existing policies, though it is allowed under MUTCD. Photo credit: Joe Punsalan*

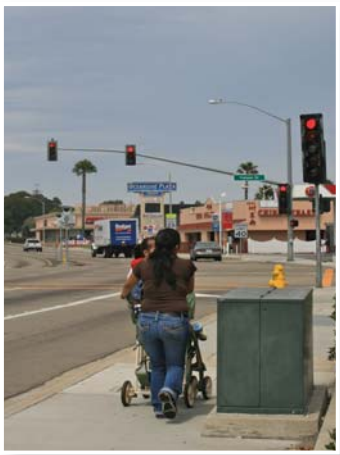
13S) *The response time for stopping traffic for this mid-block crossing was quick, assuring that pedestrians will tend to wait for the lights. The design of the adjacent walkways concentrated pedestrians into this walkway crossing. Photo credit: Mike Singleton*

14S) *This type of crossing should only be used on streets with one lane each direction or two one way lanes. The center marker is collapsible. It works to slow traffic and concentrate attention on the crosswalk. Photo credit: ITE Pedestrian and Bike Council*

13S) *This mid-block pedestrian activated crosswalk in Linda Vista includes standard traffic signals, ladder style markings, signage and a median refuge. Photo credit: Mike Singleton*

14S) *This crossing is on a one lane in each direction street with curb extensions, striping, signage and trees that all help to slow a driver down. There is no multi-lane, multi-direction threat to this use of an uncontrolled mid-block crossing. Photo credit: Portland Office of Transportation*

Safety Solutions



15S) ***Sidewalks placed against the curb, against a high speed and high volume street are not comfortable to walk on because of a fear (perceived or real) of being hit by a passing vehicle. Photo credit: Mike Singleton***

15S) ***Having an outside striped shoulder or bike lane along with a parkway strip and street trees can dramatically reduce collision potential and increase comfort levels for pedestrians. Photo credit: Michael Ronkin***

15S) ***Trees placed in a parkway strip with the sidewalk away from the edge of the curb are much safer for pedestrians since the trees provide a level of collision protection and the distance increases the ability to get out of the way. Tree lined streets also tend to slow speeds slightly. Photo credit: Brooke Pietz***

16S) ***Adjacent parallel or angled parking provides an increased level of protection and comfort along major streets. Photo credit: Mike Singleton***

15S) ***Even if a parkway strip does not exist, such as in this urban area, trees planted within close proximity of each other afford some level of comfort and protection for the pedestrian. Photo credit: Mike Singleton***

16S) ***As a last resort, barriers may be required to protect pedestrians along high speed streets, especially on high speed horizontal curves. Photo credit: Mike Singleton***

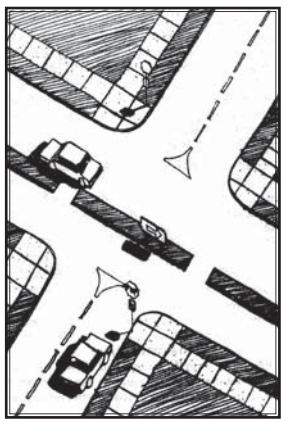
17S) *Adequate levels of pedestrian lighting are critical for public safety related to vehicular collisions or for the avoidance of crime related incidents. Photo credit: Mike Singleton*

17S) *Lighting levels are determined by spacing, height, lumens of the light fixture and orientation. Lighting should be concentrated in areas with collision potential. However, a minimal amount of lighting is needed along the entire walkway in order to make the general public feel safe when walking at night. Photo credit: Mike Singleton*

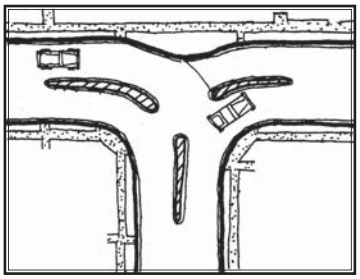
18S) *Roundabout. Photo credit: Michael Ronkin*

18S) *Mini-traffic circle. Photo credit: Michael Ronkin*

18S) *Modern roundabout with properly planned pedestrian crossings, markings, signage and lighting. Photo credit: Dan Burden*

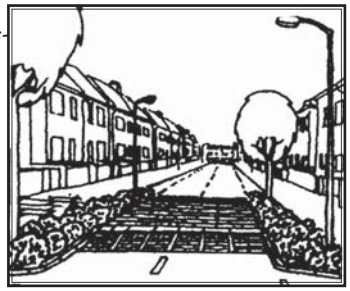


18S) *Traffic divertors and median control points. Illustration credit: Dan Burden*



18S) *Speed tables (raised intersection). Illustration credit: Dan Burden*

18S) *Raised crosswalks. Illustration credit: Dan Burden*



19S) *Engineering, education or enforcement solutions can include, engineered physical solutions, increased regulatory enforcement through citations and warnings and the development of a public campaign to improve pedestrian and driver actions and awareness or other programs that encourage proper driving and awareness of pedestrian and cycling safety.*

20S) *Fill in missing sidewalks or provide adequate walk width clear of obstructions.*

Safety Solutions

3.2 Walkability Issues and Solutions

Walkability is defined as a mixture of physical and perceptual elements that make up the built environment that are conducive to walking. The physical elements include the walkway itself, amenities along the walkway, items that provide protection from harsh environmental conditions adjacent to or above the walkway and the uses (usually vehicular on one side and some form of development on the other side). The perceptual elements are factors that contribute to the feeling of safety, protection from collisions, avoidance of crime, buffering from activity, noise, and the comfort and interest that the visual environment provides. The ultimate measure of walkability is whether pedestrians seek out the walking environment, ignore the environment as they pass through it, or actually avoid it because of it being perceived as not being walkable.

The ultimate measure of walkability is whether pedestrians seek out the walking environment, ignore the environment as they pass through it, or actually avoid it because of it being perceived as not being walkable.

Basic Requirements for Walkability

In addition to providing a safe, accessible and connected pedestrian environment, a walkable environment includes some additional elements and requirements including:

- The introduction of elements such as shade trees, subdued pedestrian-level lighting, street furniture and appealing plazas not only enhance the pedestrian walking experience, but create streetscapes of superior urban design that improve the city's image and even make the driving experience more pleasant.
- Protection from the elements: This is mostly handled through the use of street trees that add shade and reduce ground reflection of heat and light during warm weather. They provide protection from wind and rain during cold weather. They add visual interest to the streetscape. Trees also serve an important role in increasing safety from passing traffic and the improved perception of safety by buffering adjacent busy uses.
- The arrangement of physical elements must be handled in a way that promotes defensible space. Any element that can block the view of a person standing or crouching will not promote spaces where people feel safe and comfortable.
- Visual access into adjacent land uses such as windows of stores or residences, or an unfenced yard, park, or garden add interest and provide a sense that other people are providing "eyes on the street."
- Public art, water fountains, benches, trash receptacles, drinking fountains and quality lighting is welcoming and inviting and encourages people to linger. These amenities can improve the success of business establishments.

Solutions that Address Walkability Issues

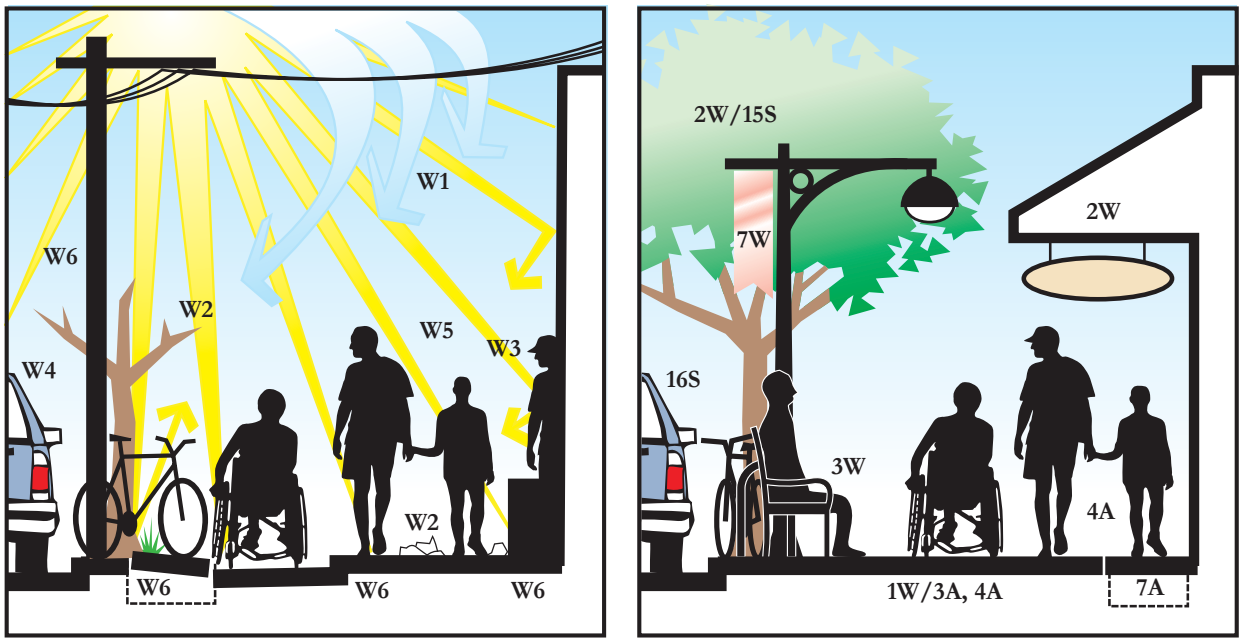
Figure 9 has been developed to describe the typical environmental elements that prevent an area from being considered as walkable and proposes changes to this environment that will make it more walkable. In order for a facility to be truly walkable, however, it must also be mostly void of the issues shown on the Safety, Accessibility and Connectivity matrices. Figure 10 provides solutions to the walkability issues. Examples of these solutions are illustrated on the pages following.

For a facility to be truly walkable, it must be void of major issues related to safety, accessibility, and connectivity.

Figure 9: Walkability Issues

Walkability Issues

These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design.



An unwalkable environment...made walkable

Issues	Potential Solutions (See legend*)
W1 - Harsh environmental conditions. Direct sun, noise, vehicle fumes and wind can all contribute to an unpleasant walking environment.	**1W, 2W, also see 15S, 16S**
W2 - Poor maintenance. Trash, weeds, derelict structures and graffiti can discourage people from walking.	**1W, also see 19S**
W3 - Perceived unsafe walkways due to fear of crime. The actual or perceived threat of theft, assault or panhandling can discourage walking.	**1W, 7W, also see 19S**
W4 - Lack of buffer from high speed or high volume traffic. Proximity to high speed, high volume traffic creates an unpleasant walking environment.	**1W, 2W, 3W, also see 2S, 15S, 16S, 18S**
W5 - Absence of site amenities. Streets lack amenities such as places to sit, shade, drinking fountains, trash receptacles, bicycle racks and pedestrian signage.	**3W, 7W, also see 15S**
W6 - Walkway obstructions. This issue goes beyond minimum ADA standards and includes obstructions that force a sidewalk user to go around an obstruction, crowded sidewalks, or the presence of multiple surfaces, slopes and trip hazards.	**1W, also see 3A, 4A, 7A**
W7 - Limited street crossing options. Walkability can be impaired when it takes a long time to get from origin to destination.	**4W, 5W, 6W, also see 2S, 7S, 8S, 10S, 11S, 12S, 13S, 14S, 20S**

Figure 10: Walkability Solutions

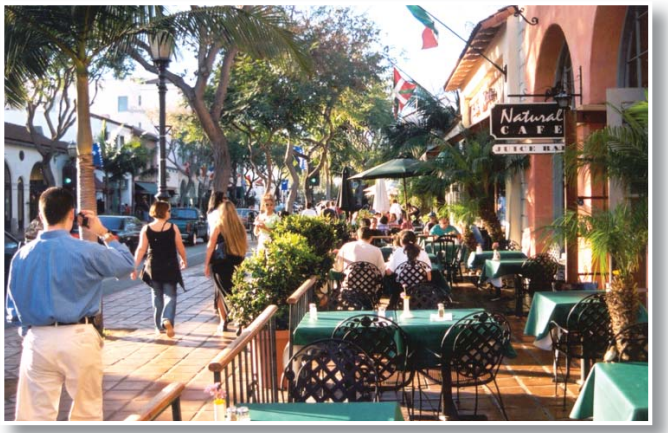
1W) Provide greater than minimum walkway widths (>5 feet)
2W) Provide trees, awnings or building overhangs to shade walkways
3W) Provide street furnishings for comfort and enjoyment
4W) Provide countdown display crosswalk signals
5W) Provide traffic control for crossings such as traffic signals or "all way stops"
6W) Provide "pedestrian scrambles" (simultaneous crossing allowed in any direction, including diagonally)
7W) Provide public art such as decorative paving, tree grates, banners, art pieces, signage, etc.

* The potential solutions are a possible list of methods to address the problem. Implemented solutions will be determined by actual site conditions, interpretation of policies and engineering evaluation.

1W) ***Match the sidewalk width to the intended use. Only suburban residential areas should be allowed at or below a 5' width. Photo credit: Mike Singleton***

2W) ***Trees provide filtered shade as well as protection from adjacent cars. Other site amenities compel people to stop for a while. Photo credit: Mike Singleton***

1W) ***Commercial area widths should approach at least 10' in width since they must accommodate a variety of uses, street furniture and utilities. Photo credit: Andy Hamilton***



3W) ***If an active street is desired, then accommodations for street furnishings and street uses must be made. Photo credit: Mike Singleton***

1W) ***Residential area widths should be at least 5' in width but no more than 10'. A walkway can feel smaller or larger depending on adjacent walls or fences and the presence of a landscape buffer. Photo credit: Andy Hamilton***

3W) ***Public art or public amenities with varied and interesting materials can be used for their aesthetic value, as well as for their functional value. Photo credit: Mike Singleton***

3.3 Connectivity Issues and Solutions

Connectivity is one of the four neighborhood factors that most influence the decision to walk. The other three are east of street crossings, sidewalk continuity and topography.

Connectivity refers to the existence of safe, direct pedestrian paths (generally along streets) between where a walker starts and where she or he wants to go. A 1993 study of pedestrian activity in Portland, Oregon found that connectivity was one of the four neighborhood factors that most influence the decision to walk. The other three were ease of street crossings, sidewalk continuity and topography.

Community structure is the basis for a pedestrian-friendly environment. Neighborhoods should be compact, walkable, and mixed-use. The ideal size for a walkable neighborhood is just over a quarter-mile radius from center to edge, less than 2,000 lineal feet. Where this environment already exists, it is often coined as a "village" or "district". This 1/4 mile distance is equivalent to a five- to ten-minute walk at an easy pace. Within this ten-minute radius, residents should be able to walk to the center from anywhere in a neighborhood to take care of daily needs or to use public transit. The pedestrian system is an integral component of the overall transit system and serves as a connector between where we live and where we work and how we connect to the city. It is an objective of this pedestrian master plan to create a safe, highly functional and complete pedestrian network that provides a pragmatic and appealing transportation alternative.

Typical Connectivity Issues

In Oceanside, sidewalk obstacles that make walking difficult include gaps in the sidewalks, difficult to cross roads and rail line barriers, and sidewalk capacity and obstruction barriers especially along the coast and in the downtown area.

In Oceanside, sidewalk obstacles include: sidewalk gaps, road and rail road barriers, unlit areas, sidewalk capacity and obstruction, and street patterns that limit or extend pedestrian connections.

Sidewalk Gaps- Throughout the city, there are gaps where sidewalks have not been completed because of development phasing. A typical situation occurs where development takes place on a parcel that is only a portion of an undeveloped block and the sidewalk is constructed to serve only the developed parcel. Until the remainder of the block is developed, there is no connection to other sidewalks in the area. Lack of sidewalk facilities exist at the local site level as well. Often movement around a development, community or commercial center is difficult because there is no separation between the vehicular driving and parking environment and the pedestrian.

Road and Rail Road Barriers - Designing for the movement of cars had often relegated the pedestrian to a secondary status. This included practices of wide curb radii that allowed cars to make turns without reducing speed, and freeway-like ramping, turn lanes and merge lanes that required a pedestrian to thread themselves through high speed traffic. Also, high speed, high volume and wide streets represent barriers because of the length of time to wait between cycles, the overall crossing distance and the fear of safety issues. These roadway related barriers do affect connectivity. In addition to roads, the Coaster rail line that runs north and south through the city acts as a major barrier limiting pedestrian access in the east/west direction, and the Sprinter light-rail line that runs east and west acts as a major barrier limiting pedestrian access in the north/south direction.

Unlit Area Barriers - The typical spacing of streetlights is often a deterrent to pedestrian movement. In some areas of the city, the streetlights are located only at the intersections. The lack of pedestrian scale streetlights deters walkers who do not feel comfortable or safe on the dark sidewalks. This becomes a deterrent for transit riders if, after alighting from the bus, they must walk from a bus stop located at the opposite corner from the streetlight to reach their destinations. Longer routes may be selected that are well lit, avoiding the darker areas, thereby contributing to a connectivity problem.

Sidewalk Capacity & Obstruction Barriers - The location and size of sidewalks can also be a connectivity problem if the route is avoided because of other walkability issues. A sidewalk, even one that meets the city's minimum required width, is often a deterrent to pedestrian travel. Poles for streetlights, traffic signal poles, utility boxes, newspaper racks, backflow preventors, vending machines, etc., are often located in the path of travel making it difficult to maneuver even if there is only a small number of pedestrians using the walkway. There are also several key locations where sidewalk widths do not allow for the number of pedestrians utilizing the walkway forcing pedestrians off the sidewalk.

The typical suburban street layout, with its hierarchal designation of streets, long blocks without cross-streets and streets ending in cul-de-sac, make it difficult for pedestrians to walk from home to school, to shopping, or to recreation, because the street pattern does not allow easy access to destinations, even if they are relatively close by.

Street Patterns that Limit or Extend Pedestrian Connections - The typical suburban street layout, with its hierarchal designation of streets, long blocks without cross-streets and streets ending in cul-de-sac, make it difficult for pedestrians to walk from home to school, to shopping, or to recreation, because the street pattern does not allow easy access to destinations, even if they are relatively close by. In turn, this forces potential walkers to rely on the automobile. In some of the region's newer developments, a "connected" street system has been put in place. While not as formalized and geometrically arranged as the street systems in older communities, these systems do allow many options for people to walk to their destinations and they allow people to walk around the block. In neighborhoods where the street connectivity is not possible due to topography or traffic, pedestrian-only walkways have been put in place and some cul-de-sacs have pedestrian connections to adjacent areas.

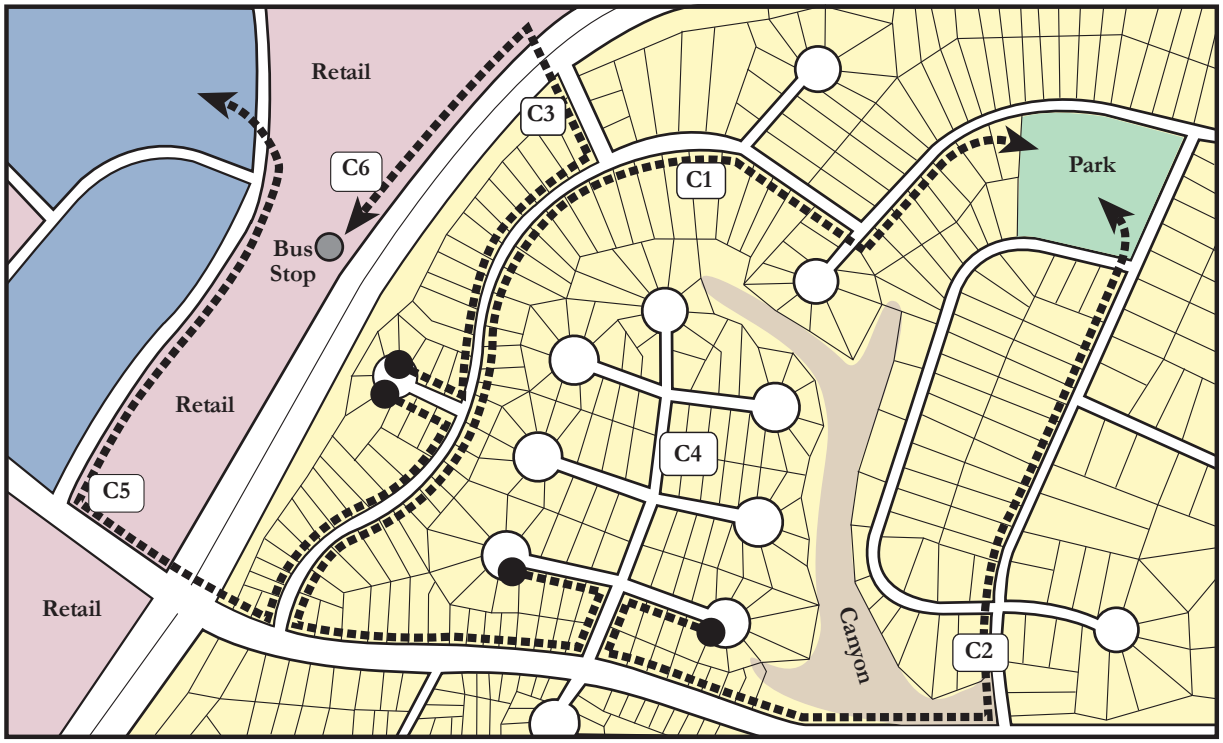
Solutions that Address Connectivity Issues

Figure 11 has been developed to describe the typical connectivity issues associated with public rights-of-way and development patterns. Many of these solutions need to occur at the site planning and project approval stage. Under new policies and smart growth strategies, it is incumbent upon the developer or property owner to prove that the new project will be connected with land uses with direct facilities. This requires connections that lead beyond the immediate limits of the project parcel. The distance that most are willing to walk is a real determinant on intra-community vehicular use, trip generation and off-street parking since walking and transit use tends to reduce multiple car ownership and vehicular trips. If the new or retrofitted environment is not fully connected at a pedestrian scale, then it will not support the objectives of smart growth.

Figure 11: Connectivity Issues

Connectivity Issues

These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design.



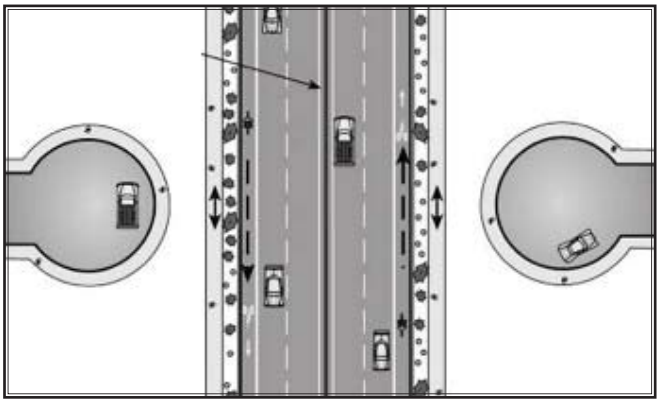
Issues	Potential Solutions (See legend*)
C1 - Street patterns are not connected. Pedestrians are required to take a long route to reach neighborhood attractors, schools and transit. Curvilinear and dead-end streets (cul-de-sacs) tend to discourage walking.	**1C, 2C, 3C, 5C**
C2 - Walking barriers. Natural barriers (canyons or slopes) or man-made barriers (freeways or rail lines) tend to discourage walking.	**6C**
C3 - High speed roadway barriers. High volume, multi-lane and high speed roads create a perceptual and/or safety barrier that discourages crossing and may require pedestrians to walk blocks out of direction to safely cross.	**4C, 5C, 6C, 7C, also see 1S, 2S, 3S, 4S, 10S, 11S, 12S, 13S**
C4 - Complete lack of walkways. Entire neighborhoods may lack pedestrian facilities. Except in some rural locations or other special circumstances, all streets should have sidewalks.	**2C**
C5 - Isolated land uses. If the distance between where people live and where they work, shop, learn or play is more than a mile, most people will never walk. Curvilinear streets and non-connected street patterns contribute to this effect.	**3C, 5C, 8C**
C6 - Isolated transit facilities. Transit systems are often not close enough to origins (generators) or destinations (attractors) to make walking between them feasible. Transit systems generate pedestrian activity, which, in turn, supports transit if the stops are within a reasonable walking distance.	**1C, 2C, 3C, 4C, 5C, 6C, 7C, 8C**

Figure 12: Connectivity Solutions

1C) Missing sidewalk segments added in areas where sidewalks mostly exist
2C) Missing sidewalks added in areas where no sidewalks exist at all
3C) Connecting pathways added between streets
4C) Street widths reduced or features added to narrow crossing distance
5C) Destinations added or made more connected within walking distance of origins
6C) Pedestrian bridges added that avoid excessive ramp lengths
7C) Pedestrian crossing opportunities added for all sides (legs) of intersections
8C) When reviewing projects, verification that pedestrian routes and distances between land uses are reasonable and direct

* The potential solutions are a possible list of methods to address the problem. Implemented solutions will be determined by actual site conditions, interpretation of policies and engineering evaluation.

1C) ***Sidewalk gaps affect the ability to connect areas by walking. They are especially unfair to those with physical challenges. All urban areas need to have sidewalks. Photo credit: Mike Singleton***



3C) ***Missing connections for pedestrians between streets designed not to allow through vehicular traffic are unfriendly to walkers but sometimes can be retrofitted or at least avoided with new development. Illustration credit: Michael Ronkin***

2C) ***Where signs of continual pedestrian use are present along higher volume and higher speed streets, the addition of sidewalks should be a top priority. Photo credit: Michael Ronkin***

3C) ***A variety of barriers exist in the curvilinear and hierarchical street patterns of many suburbs. These should be avoided since fixing them later is very difficult. Photo credit: Michael Ronkin***

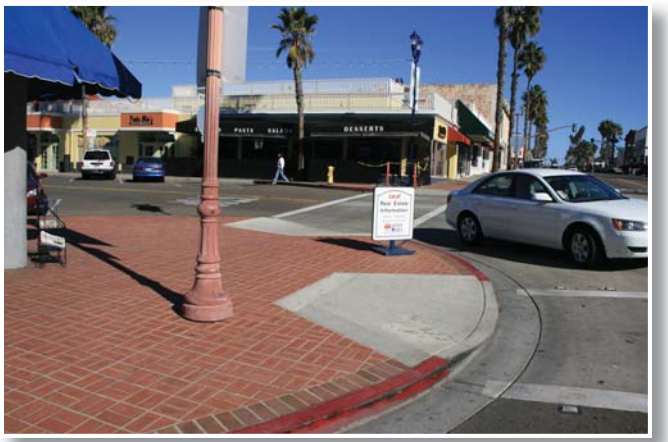
2C) ***In areas currently without sidewalks, where the street volume and speed is very low and the character is rural, sidewalks may not be needed. Photo credit: Brooke Pietz***

3C) ***Even heavily traveled urban streets can act as barriers to pedestrians if appropriate crossings have not been provided. Photo credit: Mike Singleton***

Connectivity Solutions

4C) *Wide intersections are more difficult for pedestrians to feel comfortable crossing because of the distance to travel and wait time between crossings. Those that enter the crossing after the pedestrian light begins flashing can find themselves caught in traffic. Photo credit: Mike Singleton*

4C) *Wide streets negatively affect walkability and pedestrian safety. Narrow streets on the other hand, calm traffic and are more conducive for walking along and crossing. Photo credit: Joe Punsalan*



4C) *Retrofitting wide streets and intersections to improve walkability, can be very expensive. It is generally far less expensive to build these streets with pedestrians and cyclists in mind than to retrofit later. Photo credit: Mike Singleton*

5C) *Mixed use compact development supports both transit and walking by providing destinations within short distances of trip origins. Photo credit: Dan Burden*

5C) *The proper pedestrian environment can support a variety of retail businesses and mixed land uses while offering a pleasant urban design. Photo credit: Brooke Pietz*

5C) *Streets should be designed for more than moving vehicles. When all elements come together, a socially interactive environment will evolve. Photo credit: Dan Burden*

6C) ***Grade separated pedestrian crossings should generally be avoided because of the expense and low level of use. Some circumstances warrant their use such as over freeways, railroads and other intensive surface uses where at-grade crossing may not be safe. Bridges that limit the amount of vertical climbing or do not go dramatically out of direction, will be used. Photo credit: Joe Punsalan***

7C) ***Some circumstances, such as dual left turn lanes, may require pedestrian restrictions on crossing in order to avoid safety issues. In other locations, the restrictions may have been primarily used to increase turning movements through the intersection. A case-by-case analysis is required to determine the right balance. Photo credit: Mike Singleton***

6C) ***To meet accessibility requirements, long ramps are required to access activity centers such as beaches. Photo credit: Mike Singleton***

7C) ***There are valid reasons for closing one or more segments of an intersection including intersection geometry, such as shown above. Photo credit: Mike Singleton***

8C) ***Verify that pedestrian distances between land uses are reasonable and direct. Projects claiming reduced parking requirements and density bonuses for supporting smart growth, transit oriented development or mixed use projects, should provide for access and walkability in and around their sites. The applicant should submit plans showing actual distances along walking routes to transit, neighborhood services, parks, schools and other destinations found within the normal 1/4 mile walking distance radius.***

3.4 Accessibility Issues and Solutions

This section discusses the existing issues of pedestrian access with regards to the Americans with Disabilities Act (ADA). The city's accessibility goal focuses on compliance with federal and State standards. This section will highlight locations within the city that are potentially in need of additional design treatments to accommodate a disabled person or those with limited mobility.

The existing issues identified within the City of Oceanside that present challenges for those with limited mobility include the following:

- Tripping hazards on sidewalks or driveways
- Discontinuous sidewalks
- Driveways with visibility issues (particularly for those in a wheelchair or a small child)
- Driveways with greater than 2% cross slope
- Single curb ramps that force wheelchairs into the lanes of oncoming traffic
- Slopes steeper than ADA standards
- Other features identified by ADA as impediments to access and mobility

Federal and State Disabled and Universal Access Guidelines

The Americans with Disabilities Act was enacted in July 1990 and effectively set the Federal standard for disabled accessibility. Prior to this federal law, California had some of the most comprehensive standards regarding accessibility. The standards are contained in the published State Title 24, first enacted in 1978 and updated periodically. Newly constructed facilities must be free of architectural barriers that restrict access or use by individuals with disabilities.

Cities in California use two technical standards for accessible design: the Americans with Disabilities Act Accessibility Guidelines (ADAAG) for places of public accommodation and commercial facilities covered by Title 3 of the ADA and the State Architectural Regulations for Accommodation of the Physically Handicapped in Public Facilities, found in Title 24 of the California Code of Regulations, also known as the California Standards Building Code.

Although local building agencies are limited in that they can only enforce the provisions of the state of California (Title 24), a provision was added to the California Civil Code that determines that a violation of ADA is also a violation of the California Civil Code. Compliance with Title 24 does not preclude a potential violation of the Federal ADA standard.

A relatively new set of access guidelines has recently been developed for all users of public facilities. Known as "Universal Access," it is defined as the ability of all citizens to reach every destination served by the public circulation network. With regards to pedestrian and disabled design, these principles dictate that if an access point is provided for motor vehicle traffic, reasonably safe accommodation must also be provided for pedestrians and cyclists, including disabled and senior pedestrians, who may require additional treatments.

Universal Access is defined as the ability of all citizens to reach every destination served by the public circulation network.

The City of Oceanside currently adheres to the State Title 24 guidelines and the Federal ADA legislation in lieu of developing its own additional set of disabled access standards, so fieldwork was conducted towards identifying state and federal disabled access issues.

It is important to understand that the design of pedestrian facilities takes into account the disabilities and abilities of all pedestrians. While mobility impairment is most often considered when referring to a disabled individual, sensory and cognitive disabilities must also be considered. With these distinctions in mind, the following eight summary characteristics of ADA design-compatible design were the focus of the field inspections.

- Grades
- Walkways
- Ramps
- Curb Cuts at Ramp Intersections
- Driveway Design
- Textural Audible, Vibrating, and Visual Cues at Crossings
- Surfaces

The following sections present summaries of the ADA design guidelines for each of these characteristics and illustrate existing issues found within Oceanside.

Grades

There should be adequate sidewalk cross-slope to allow sufficient drainage and yet the cross-slope should not exceed 2 percent for ADA compliance.

Where grades are excessively long or steep, the City should provide level rest areas every 400 feet for the pedestrian to stop and rest. In areas where a rest area is impossible to accommodate, an alternative route should be provided.

Older segments of the Oceanside Pier present challenges to disabled visitors

As seen in the picture to the left, Oceanside Pier (built in 1987) contains some pedestrian features which are not up to current ADA or California Title 24 standards. The City of Oceanside should examine ways to incorporate current ADA design treatments to the Pier and ensure that all future developments at the Pier meets the current ADA standards.

Walkways

Disabled individuals often lack the mobility necessary to navigate excessive obstructions in their path of travel, including utilities, signposts, news racks, or other impediments.

ADA Accessibility Guidelines for Buildings and Facilities state that the minimum clear width of an accessible route shall be 36 inches except at doors. However, current transportation industry guidelines generally exceed the 36-inch minimum and provide a minimum of 48 inches of unobstructed walkway. The minimum width should be expanded when there is either a vertical barrier fronting the walkway or a vehicle travel lane. If a walkway is less than 60 inches (5 feet) wide there shall be a 60 inch x 120 inch (5 feet x 10 feet) passing space every 200 feet of length along the walkway.

The Oceanside Pier

Oceanside is home to hundreds of miles of public walkways, and the large majority of them are free of obstacles. In constrained areas, measures should be taken to retrofit existing access challenges such as the one seen in the picture to the right, at the intersection of Oceanside Boulevard and Crouch Street, which is near the Crouch Street Sprinter Station, in a way that allows for freedom of movement and the accommodation of the disabled.

Constrained, poorly-designed path of travel

Curb Ramps and Curb Cuts

Curb ramps create a transition between the raised sidewalk and the crosswalk at street grade. Curb ramps are necessary for people who use wheelchairs, scooters, or other mobility aides, but their presence benefits all pedestrians.

According to the ADA, ramps are defined as locations where the grade exceeds 5 percent, but may be a maximum ratio of 1:12 or 8.3 percent. The maximum rise for any single run should be 30 inches. Where grades exceed 5 percent, hand rails are required with the exception of curb ramps and some other special conditions.

Two common curb ramp types exist in Oceanside: diagonal and perpendicular. ADA language dictates that wherever possible, curb ramps should align in the direction of crosswalks, with two ramps per corner at each intersection and at right angles to the curb, rather than having one diagonal curb ramp per corner. The majority of curb ramps found in Oceanside are diagonal.

Existing standards dictate perpendicular curb ramps are preferred for pedestrian safety because they align directly with the crosswalk, unlike diagonal crosswalks, which force wheelchair users and other pedestrians to travel a less direct route into the crosswalk.

However, perpendicular ramps take up more space, and in some cases are not feasible at a corner due to site conditions, drainage, or utilities. Often, a single diagonal curb ramp at the apex of the corner may be the only option.

Examples of truncated domes at intersections

At crossings, curb ramps or full cut-thrus 48 inches in width should be provided at channelization and pedestrian refuge islands. The installation of pedestrian bulb-outs should be considered in areas with a concentration of disabled pedestrians (such as senior living facilities) or other facilities in order to reduce crossing times and exposure to traffic. Bulbouts also allow extra maneuvering space for those in wheelchairs, as well as larger pedestrian ramps.

Crossings that are unusual or uncommon, such as at midblock locations, should receive additional attention to assist disabled pedestrians, such as tactile warning strips, truncated domes at ramp accesses, or audible signals.

Higher contrast crosswalk materials and striping can be seen from a distance

Countdown timer and ADA-compliant pushbutton control

Driveway Design

Driveway crossings permit cars to cross the sidewalk and enter the street. Driveway crossings can be both dangerous and inconvenient for pedestrians. Driveway curb cuts that extend into the through passage zone can present a tripping hazard to pedestrians or wheelchair users.

Driveway designs without level landings – ones that force sidewalk users to travel over the sidewalk flare – are not allowed under ADA guidelines; the maximum allowable cross slope is 2 percent. A design greater than a 2% change in cross slope, compromises balance and stability for people in wheelchairs and can also increase tripping hazards for pedestrians.

Pedestrian Crossings (Intersection or Mid-block)

To comply with ADA and California Title 24 language, the following conditions should be met:

Tactile cues should be used where crossings occur in an unexpected location. Wayfinding strips should extend between the expected and actual crossing location, while tactile bumps or grooves may be placed at either side of the crossing itself.

In areas with significant numbers of vision-impaired pedestrians, audible signals and Braille instructions at pushbuttons should be considered. Pedestrian pushbuttons should be installed at signalized intersections in accessible locations and located no higher than 36 inches on the support pole. In addition to these cues designed for visually impaired pedestrians, all pedestrians and drivers benefit from the use of countdown timers at intersections.

Since 2002, the use of truncated domes has become the predominant tactile cue in use at crossings and curb ramps throughout the region. There are few crossings in Oceanside that feature truncated domes, but Oceanside should continue to retrofit existing crossings with this beneficial design treatment.

Surfaces

Not all pedestrians travel on paved surfaces, and not all disabled pedestrians can adapt to the challenges of uneven, loose, or difficult terrain. For maximum ADA compliance, all surfaces should be stable, firm, and slip-resistant.

Example of slippery, unpaved path at transit stop

In addition, surface treatments which include irregular surfaces such as cobblestone can be difficult to navigate and should be avoided within the primary walkway area. In paved areas prone to slippage, sand should be added to the paint or thermoplastic used at crosswalks to reduce the risk of slipping in both wet and dry conditions.

As the city continues to retrofit existing built environments, it would be desirable to examine ways to employ visually appealing yet ADA-compliant materials and designs to increase the mobility of disabled individuals.

Solutions that Address Accessibility Issues

There are typical accessibility issues associated with the public right-of-way that requires pedestrian access and non-vehicular access. Figure 13 shows a summary of typical accessibility issues and Figure 14 provides a summary of solutions to address accessibility issues. The following photos depict solutions that have been implemented throughout Oceanside and other jurisdictions that can be utilized to resolve the identified accessibility issues in Oceanside.

Several solutions are suggested, but it remains the responsibility of the property owner or agency to make sure that all reasonable efforts have been made to make as much of the environment universally accessible as possible and that the intent and the letter of ADA and Title 24 regulations have been met.

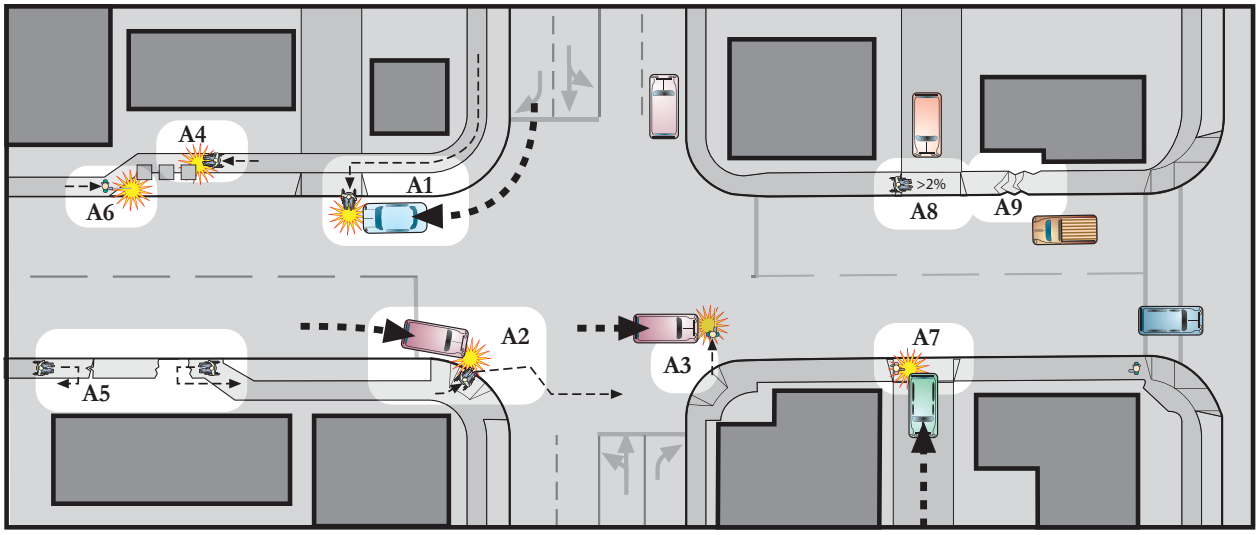
The PMP suggests that accessibility is second only to safety in terms of priority for projects and solutions to public issues faced by pedestrians. This plan also suggests that coordination of standards, guidelines, policies, field inspection and repair of facilities all need to take into account the importance and responsibility for creating an accessible public realm along the full travel route. Substantial savings can be accomplished when improvements are centered on combining the goals of pedestrian safety, accessibility, connectivity and walkability. New development and redevelopment are resolving a substantial percent of the non-compliant facilities. However, older neighborhoods, where redevelopment or infill development often only affects a small portion of the right-of-way, remains substantially out of conformance with no significant funding source to correct. It is imperative that all funds (public or private) spent on pedestrian improvements address the existing serious compliance issues and strive to make all portions of the walking environment accessible.

This plan suggests that coordination of standards, guidelines, policies, field inspection and repair of facilities all need to take into account the importance and responsibility for creating an accessible public realm along the full travel route.

Figure 13: Accessibility Issues

Accessibility Issues

These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design.



Issues	Potential Solutions (See legend*)
A1 – Missing pedestrian ramps. Pedestrians requiring the use of ramps for maneuverability may not be able to cross the street, or may be forced to travel in the street, increasing the risk of vehicular/pedestrian collision.	**1A, 2A**
A2 – Pedestrian ramps do not meet standards. Ramps that lack tactile indicators, or ramps that are constructed with steep running slopes, large gutter transitions or excessive cross slopes, decrease accessibility. Some intersections require two ramps per corner for safety and access.	**2A, 3A, 4A, 6A, 7A**
A3 – Missing pedestrian signals. Missing or non-accessible (height or location) pedestrian signals or signal actuators diminish maneuverability.	**2A**
A4- Sidewalk obstacles. Site furnishings, above-grade utilities and temporary construction fencing can create vertical clearance and protruding barriers.	**3A, 4A**
A5 – Sidewalk gaps. Missing sidewalk segments can make an entire route inaccessible for some pedestrians.	**4A, also see 20S**
A6 – Inconsistent sidewalk design. Meandering walkways or abrupt changes in the travel path can be difficult for the visually impaired to navigate.	**4A**
A7 – Cross slopes. Excessive cross slopes, often at driveways, can decrease accessibility.	**5A**
A8 – Steep grades. Excessive grades, often at intersections with alleys, can make maneuverability difficult.	**6A**
A9 – Substandard walking surfaces. Slick or uneven walking surfaces, or trip hazards, can make maneuverability difficult.	**7A**

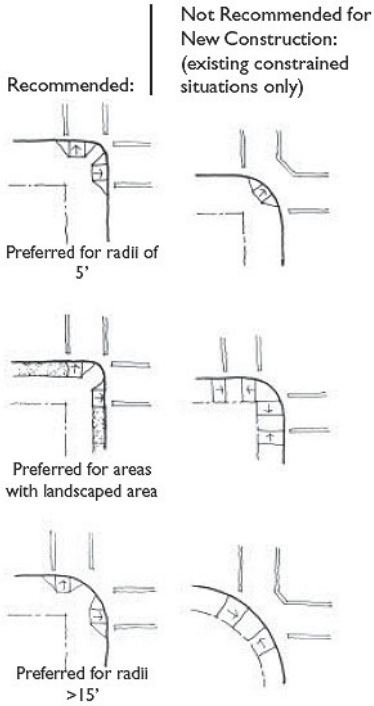
Figure 14: Accessibility Solutions

1A) Pedestrian ramps
2A) Audible/visual crosswalk signals
3A) Walkways and ramps free of damage or trip hazards
4A) Pedestrian paths free of gaps, obstructions and barriers
5A) Sidewalks with limited driveways and minimal cross-slope
6A) Re-grade slope of walkway to meet ADA/Title 24 standards
7A) Repair, slice or patch lifts on walking surfaces and re-set utilities boxes to flush

1A) *Typical Two Directional Curb Ramp (note: tactile strips and truncated domes needed but not shown). Photo credit: ITE Pedestrian Bike Council*

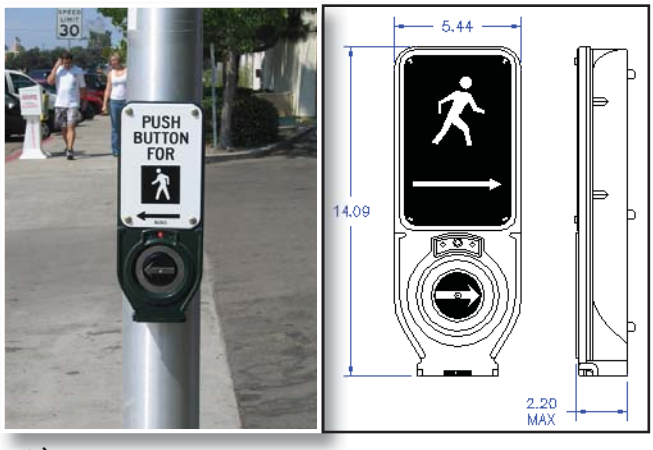
1A) *Curb ramp meeting latest tactile strip and truncated dome requirements. Photo credit: Mike Singleton*

1A) *Apex ramps (single ramp on corner), should be avoided on high volume streets with travel lanes at the curb. Photo credit: Dan Burden*



1A) *Match the right ramp to the right circumstance. Source: Planning & Designing for Pedestrians, SANDAG, June 2002*

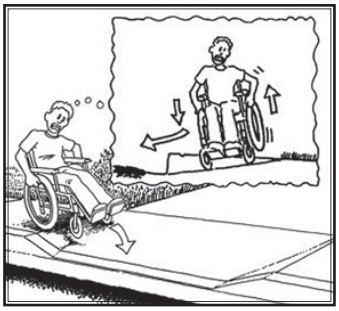
2A) *Pole mounted pedestrian signal actuator placed in accessible area next to the curb ramp. Photo credit: Michael Ronkin*



2A) *Pedestrian actuator (Polara). Photo credit: ITE Pedestrian Bike Council*

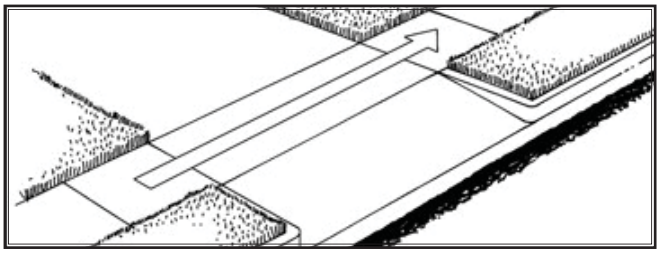
2A) *Accessible and audible crossing pedestrian heads are required on most major intersections in Oceanside. Audible signals do need to meet warrants. Photo credit: Dan Burden*

3A) Some of Oceanside's sidewalks are in disrepair and represent both trip hazards as well as accessibility issues. Shared cost programs to repair and replace damaged sidewalks do exist. Photo credit: Mike Singleton



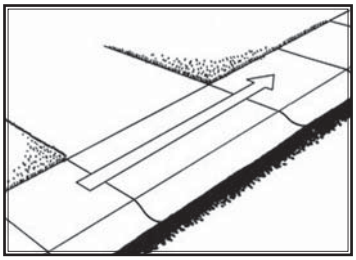
5A) *The cross slope and transition area for many driveways are excessive for those in wheel chairs or those with other walking disabilities.*

Illustration credit: Gail Payne



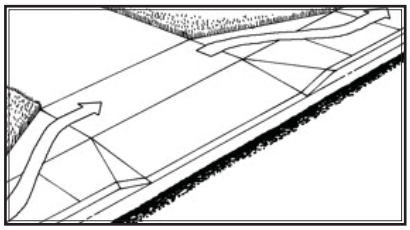
5A) *A walkway separated from the curb with a parkway strip is the preferred solution. Illustration credit: Gail Payne*

4A) *Even though this project provided a wide walkway to start with, some equipment has been placed outside of the furnishings zone and in the throughway zone. Photo credit: Andy Hamilton*



5A) *A mountable curb can resolve existing situations. Illustration credit: Gail Payne*

5A) *A modified right of way can also solve the issue. Illustration credit: Gail Payne*



6A) *Re-grade slope of walkway to meet ADA / Title 24 standards where technically possible. Some exceptions exist such as when conformance would damage the natural or cultural environment. Illustration credit: Gail Payne*

7A) *Repair, slice or patch lifts on walk surfaces and/ or reset ground level utility boxes to be flush. Photo credit: Mike Singleton*

Accessibility Solutions

3.5 Alternative Transportation Goals

Walking for Commuting

Alternative transportation and public transit are an important component of creating a walkable environment that encourages walking as a form of transportation, particularly for commuting to and from public transportation. North County Transit District (NCTD) provides the public transit service for the City of Oceanside which operates 12 bus routes within the city. NCTD operates the Sprinter Light Rail System which has seven stations in Oceanside. In addition, Amtrak, Coaster, and Metrolink also provide service to Oceanside at the Oceanside Transit Center station. The Oceanside Transit Center has the highest demand of all transit facilities in Oceanside, averaging over 6,000 boardings and alightings per day.

The 12 bus routes, the Sprinter Light Rail system, Amtrak, Coaster, and Metrolink, make Oceanside an ideal place to advocate walking as a form of transportation.

The city's alternative transportation goal reinforces walking as a primary means of transportation that supports transit and non-motorized transportation options. This section will highlight the existing Oceanside transit opportunities available and their walking environment, and look at opportunities to provide a more cohesive, interconnected walking environment to and from transit.

Transit Stops and Ridership

The transit stops with high levels of pedestrian activity were determined by the daily boardings and alightings on the fixed transit routes that serve Oceanside. Table 10 on the following page, highlights the 20 busiest transit stops in Oceanside (2006 counts) and identifies any issues associated with the stops or accessibility to the stops.

In general, the highest ridership activity (both boardings and alightings) is centered around downtown Oceanside, particularly the Oceanside Transit Center and eastward along Mission Avenue (with stops at Nevada and Horne Streets) and west of Oceanside High School. This area has several hundred riders daily. Other locations with a high number of boardings include the Wal-Mart Shopping Center at College Boulevard and SR76, plus several stops north of SR76 along North River Road and El Camino Real, particularly at the intersection of North River Road and Douglas Drive.

The highest ridership activity is centered around downtown Oceanside, particularly the Oceanside Transit Center and eastward along Mission Avenue.

In general, a well-designed transit stop should include a 5 foot by 8 foot concrete pad to enable wheelchair boardings plus seating and shelter. The majority of the high-volume bus stops include the recommended transit stop amenities. However, there were some stops that had accessibility issues such as inadequate or missing sidewalk segments leading to the transit stop or the stop had inadequate concrete resting areas or little to no amenities. Often the stops with minimum amenities corresponded with areas of low transit ridership.

While each of the NCTD Sprinter stations in Oceanside are compliant with existing federal and state regulations governing disabled access, there are several stations within the system that should incorporate surrounding land uses better. Better land use integration with the Sprinter stations should be considered with the revitalization of Oceanside Boulevard and other development projects located near the stations. One improvement would be to provide additional directional signage at the stations directing passengers to bus loading zones and adjacent streets that are not visible due to parking or commercial businesses. In addition, providing a mixed land use, medium to high density environment will support increased transit ridership.

Table 10: Highest Volume Transit Stops in Oceanside (cont. on next page)

Stop Location	Total Daily Boardings	Total Daily Alightings	Total Daily Passengers	Access Issues Identified
Oceanside Transit Center	3,301	3,022	6,323	Lack of available seating during peak periods, confusing pavement markings
SR76 & College Blvd. (Wal-Mart)	750	655	1,405	Congestion, high traffic volumes
Mission Ave. & N. Nevada St.	288	273	561	Several commercial driveways
N. El Camino Real & Los Arbolitos Blvd.	212	282	494	None Found
North River Rd. & Douglas Dr.	235	234	469	None Found
Mission Ave. & Canyon Dr.	229	170	399	None Found
Mira Costa College	203	168	371	None Found
Mission Ave. & El Camino Real	237	133	370	Transit "island" requires riders to wait in street ROW
Oceanside High School	112	249	361	None Found
Oceanside Blvd. & Coast Highway	179	177	356	None Found
North River Rd. & Calle Montecito	164	148	312	Sidewalk gaps along north side of North River Rd.
S. El Camino Real & Mesa Dr.	141	164	305	Sidewalk gaps along east side of El Camino Real
Mission Ave. & Carey Rd.	90	154	244	None Found
Mission Ave. & Brooks St.	146	90	236	None Found
Mission Ave. & Airport Rd.	116	114	230	Sidewalk gaps along south side of Mission Ave.

A successful public transportation system is reliant upon a walkable, pedestrian friendly environment. The issues and solutions identified surrounding alternative transportation are often the same issues and solutions identified with safety, accessibility, connectivity, and walkability. By identifying and providing solutions to achieve these goals, walking as a form of transportation by itself or in conjunction with public transportation is greatly enhanced for the pedestrian. Issues related to public transportation that can be resolved are identified in the list of priority projects in Section 6.0 of this report.

Table 10: Highest Volume Transit Stops in Oceanside (cont.)

Stop Location	Total Daily Boardings	Total Daily Alightings	Total Daily Passengers	Access Issues Identified
North River Rd & Avenida Descanso	99	110	209	Sidewalk gaps along south side of North River Rd.
S. El Camino Real & Vista Way	112	92	204	Congestion, high traffic volumes, slope
Waring Rd. & Thunder Dr.	98	96	194	None Found
Mission Ave. & San Diego St.	83	109	192	None Found
Vandegrift Blvd. between E Parker St. & Castellano Way	113	76	189	None Found

3.6 Neighborhood Quality Goals

Walkable communities, and the elements that make an area walkable, often lead to more satisfaction in neighborhood quality.

Though not a primary issue and solution topic, neighborhood quality is often the result of a variety of environmental and social elements that have been brought together to create a quality living and working environment. If a public environment has been provided that is safe, accessible, connected and walkable, a quality neighborhood is almost assured.

Research has demonstrated a link between the physical environment and the degree of social interaction in a community (and social interactions correlate with better health status). Streets and neighborhoods that promote pedestrian activity provide opportunities for the development of social networks. The physical environment of neighborhoods is also known to correlate with the incidence and/or fear of crime and violence. Certain building designs, the presence of trees and green space, good street lighting and community gathering places are all known to provide residents with a greater sense of security and to serve as an actual deterrent to crime and violence. People like places that are more than just walkable, as pedestrians they also enjoy places that are more "stayable," "lingerable," "standable," and "sittable".

3.7 Funding Goals and Issues

A final goal of this PMP is to assure cost-effective investment of private and public money for infrastructure needed to support a walkable community. Other sections of the plan (Chapters 5 and 6) address the goals of cost-effective investments and prioritization processes.

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CHAPTER 4
ROUTE TYPES & TREATMENTS

4.0 Route Classifications

Different areas require differing levels of pedestrian improvements based upon adjacent roadways, levels of use, topography and land uses. This chapter defines some of the walkway classifications and the corresponding levels of treatment that each type warrants.

All walkway facilities in Oceanside can be classified into one of seven types.

4.1 Types Defined

All walking facilities found within Oceanside fit into one of the following categories of walking facilities (see Table 11 and Figure 14 a through 14g).

Table 11: Route Types Defined

ROUTE TYPE:	1. District Sidewalks	2. Corridor Sidewalks	3. Connector Sidewalks	4. Neighborhood Sidewalks	5. Ancillary Pedestrian Facilities	6. Path	7. Trail (Included for Reference Only, not a Focus of this Plan)
Purpose	Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas	Sidewalks Along Roads that Support Moderate Density Business & Shopping Districts with Moderate Pedestrian Levels	Sidewalks Along Roads that Support Institutional, Industrial or Business Complexes with Limited Lateral Access & Low Pedestrian Levels	Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels	Facilities Away or Crossing Over Streets such as Plazas, Paseos, Promenades, Courtyards or Pedestrian Bridges & Stairways	Walkways and Paved Paths that are not Adjacent to Roads that Support Recreational and Transportation Purposes	Unpaved Walk Not Adjacent to Roads Used for Recreational Purposes
Typical Adjacent "Street Design Manual" Classifications	All types of adjacent streets are possible	Commercial, Urban Collector, Urban Major & Arterial	Commercial, Industrial, Urban Major, Rural Collector & Arterial	Rural, Low Volume Residential, Residential Local & Sub-collector	Not associated with a street	Not associated with a street	Not associated with a street
Cross Reference to Related "Strategic Framework Plan" Definitions	Existing: Regional Centers, Urban Villages & Neighborhood Villages	Existing: Sub-regional Districts and Transit Corridors	Existing: Sub-regional Districts, Transit Corridors, & Suburban Residential along Major Arterials	All other Residential Areas not Classified under the Strategic Framework Plan	Most common in Regional Centers, Urban or Neighborhood Villages but can be in any area	Can occur in any area, but most often found in Recreation, Tourist or Open Space Areas	Can occur in any area, but most often found in Recreation or Open Space Areas
Typical Adjacent Land Uses	Mixed-use Housing, Commercial, Office & Entertainment with Urban Densities	Multiple Land Uses but may be Separated. Often Strip Commercial or Office Complex.	Open Space, Industrial Uses, Institutional Uses or other Pedestrian Restricted Uses	Single-family and Moderate Density Multi-Family with Limited Supporting Neighborhood Commercial	Adjacent Land Uses Vary	Adjacent Uses Vary, Often Recreational or Open Space or Housing	Open Space, Parks and Natural Areas

District Sidewalks

A district route includes sidewalks in the more intensive mixed use and concentrated areas of the city.

District Sidewalks, labeled as Route Type 1, are sidewalks along roads that support heavy pedestrian levels in mixed-use concentrated urban areas. Usually, the district is an urbanized area with special functions, such as theater districts, office parks, shopping centers, or college campuses. The district may be adjacent to neighborhoods, but can be distinguished from neighborhood streets by looking at adjacent land uses, densities and urban form. It has an identifiable focus that provides orientation and character, and reinforces a sense of community among users by encouraging walking.

Corridor Sidewalks

A corridor sidewalk is associated with major arterials and linear corridors that provide for mixed uses with at least a moderate level of density.

Corridor sidewalks, labeled as Route Type 2, are defined as sidewalks along roads that support moderate density business and shopping districts with moderate pedestrian levels. They can range from wide sidewalks along boulevards to small sidewalks along a heavily auto oriented roadway. They may connect moderate to high density residential areas, but only if they are located along major arterials.

Connector Sidewalks

A connector sidewalk is often along a lower density corridor with few connections to adjacent land uses.

Connector sidewalks, labeled as Route Type 3, tend to have low pedestrian levels and are along roads with moderate to high average vehicular traffic. Connector sidewalks tend to be long and, in some cases, do not have accessible land uses directly adjacent to the sidewalk. This can include sidewalks along major arterials that run parallel to open space and canyon lands. Often, they are along land uses that require buffering from the street noise, resulting in noise walls that further isolate the pedestrian from the adjacent land uses.

These sidewalks have limited pedestrian use levels typically due to their remoteness and lack of nearby destinations. Often they lead to nowhere, with the sidewalk stopping a distance away from other uses. For pedestrians, neighborhood streets are less difficult to cross and result in less pedestrian collisions than higher traffic streets. This is partially due to lower speed limits typically where topography restricts the width of the road or where a development ends its improvements. Even though they have limited use, they are often along high speed streets. Without the existence of these walkways, the pedestrian may be forced to walk in a high speed and high volume street.

Neighborhood Sidewalks

A neighborhood sidewalk is limited to areas of lower density and single use residential areas.

Neighborhood sidewalks, labeled as Route Type 4, are sidewalks along roads that support low to moderate density housing with low to moderate pedestrian levels. Neighborhood streets and their associated walkways are generally lower volume streets, with low to moderate widths, single lanes in each direction and posted speed limits of 25 miles per hour. They are not as difficult to cross as a pedestrian and pedestrian collisions occur less frequently because the driver has ample time to see, react and brake. However, excessive speeding does occur on these streets, and often physical design cannot address carelessness of drivers.

Ancillary Pedestrian Facilities

Route Type 5, Ancillary Pedestrian Facilities, are facilities away from or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways. Many of these ancillary facilities attract local residents and workers, generating moderate to high pedestrian use.

A variety of special use facilities that do not fit the above definitions can be classified as ancillary. These are often away from street edges.

Paths

Route Type 6, Paths, are paved facilities with exclusive right-of-ways that act as corridors and have little or no vehicular cross flows. Many of these paths are exclusive to pedestrians and bicycles and are not associated with streets. Paths as defined by the Pedestrian Master Plan, are often associated with recreational uses. Many of these paths can be found in parks, near open space preserves and away from streets in residential areas. They are defined in this plan as being paved, away from a street edge and not shared with vehicles (except for emergency or maintenance vehicles). They are often shared with runners, skaters, cyclists and other recreational users.

A path is a linear hard surface that is not connected to the edge of a street.

Trails

Unpaved walkways or roads used for recreational use or open space maintenance are classified as Trails, Route Type 7. Trails are separated from roads and support activities such as hiking, biking and walking primarily through parks and open space. They differ from paths in that they are not paved with concrete or asphalt. Only authorized vehicles are permitted to access these trails, which in many cases are not ADA-compliant.

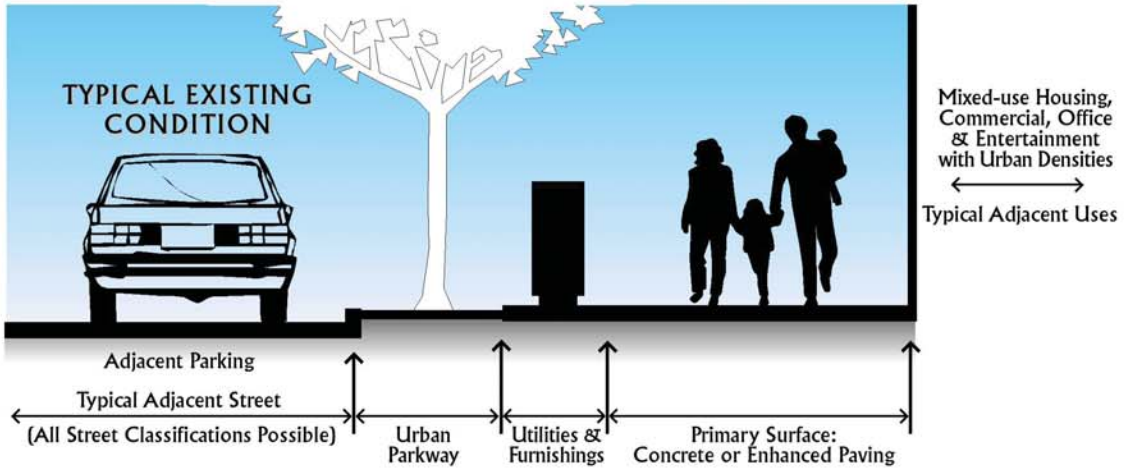
A trail is unpaved and is not a focus of this plan.

Figure 14a: Route Type 1

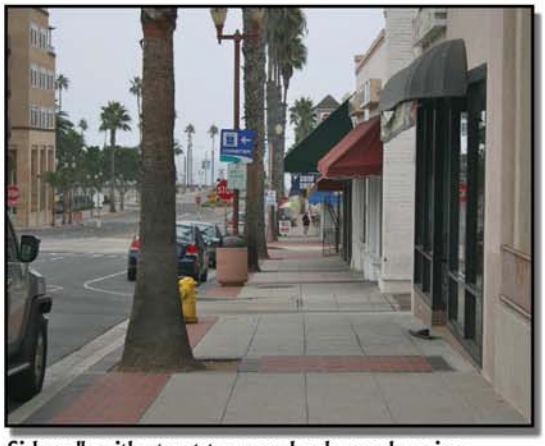
OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 1: District Sidewalks

Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas



Sidewalk with furnishing and frontage zones


Sidewalk with street trees and enhanced paving

Sidewalk with outdoor cafes

Sidewalk with wide clear paths in a business district

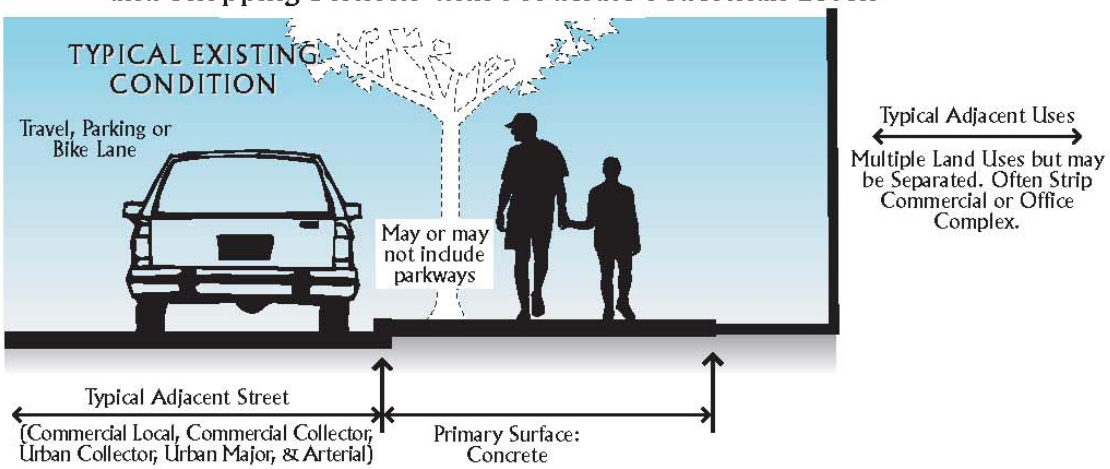
EXAMPLE LOCATIONS

Figure 14b: Route Type 2

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 2: Corridor Sidewalks

Sidewalks Along Roads that Support Moderate Density Business and Shopping Districts with Moderate Pedestrian Levels



Sidewalk at curb on Mission Avenue near high school and strip commercial complex

Sidewalks with street trees supporting adjacent businesses along Coast Highway

Smaller scale sidewalk with street trees

Typical commercial district with supporting sidewalks

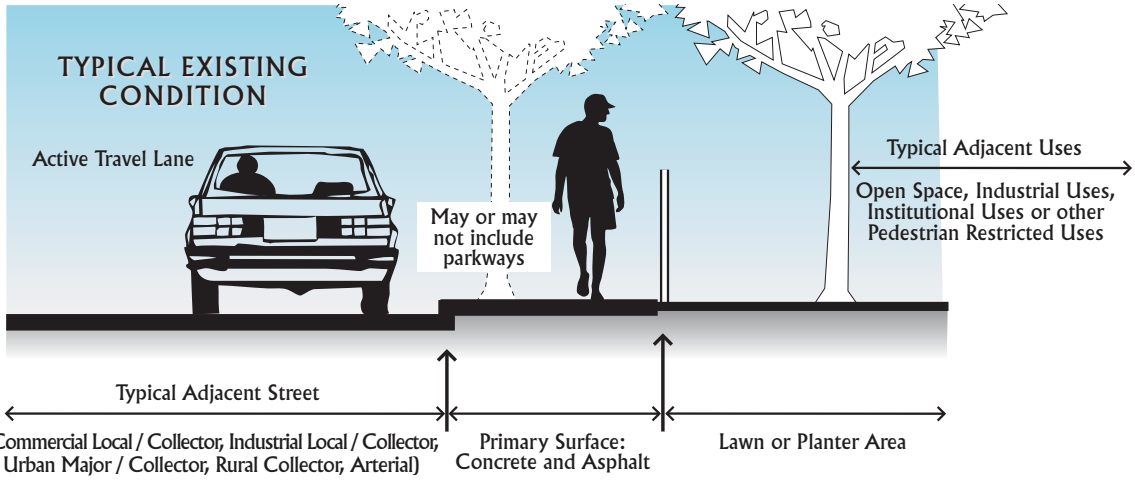
EXAMPLE LOCATIONS

Figure 14c: Route Type 3

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 3: Connector Sidewalks

Sidewalks Along Roads that Support Institutional, Industrial or Business Complexes with Limited Lateral Access and Low Pedestrian Levels



Street with sidewalk connection over Interstate 5

Sidewalk connection under Interstate 5

Connector sidewalk through residential area

Though in a residential area, there are no connections to adjacent land uses

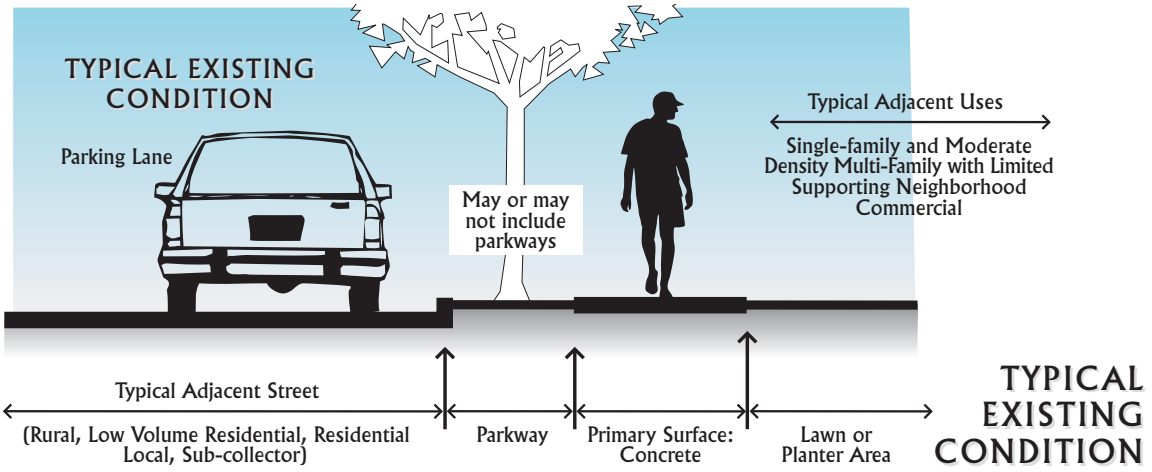
EXAMPLE LOCATIONS

Figure 14d: Route Type 4

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 4: Neighborhood Sidewalk

Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels



Sidewalk and parkway near downtown

Sidewalk with wide driveways

Sidewalk with parkway

Sidewalk without parkway in older neighborhood

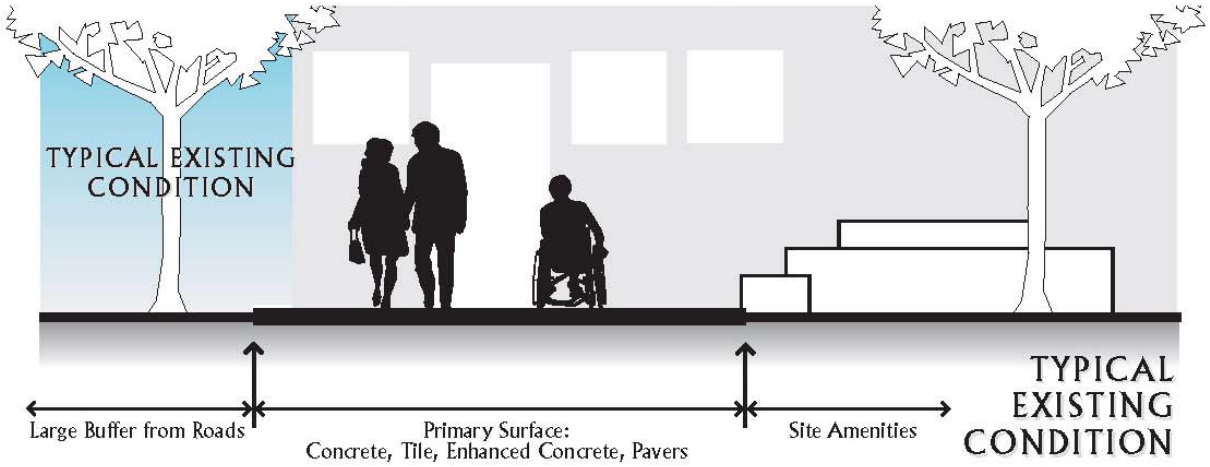
EXAMPLE LOCATIONS

Figure 14e: Route Type 5

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 5: Ancillary Pedestrian Facilities

Facilities Away From or Crossing Over Streets such as Plazas, Paseos, Promenades, Courtyards or Pedestrian Bridges and Stairways



Oceanside Pier

Pedestrian undercrossing at Pierview Way

Oceanside Civic Plaza

Oceanside Transit Station & Plaza

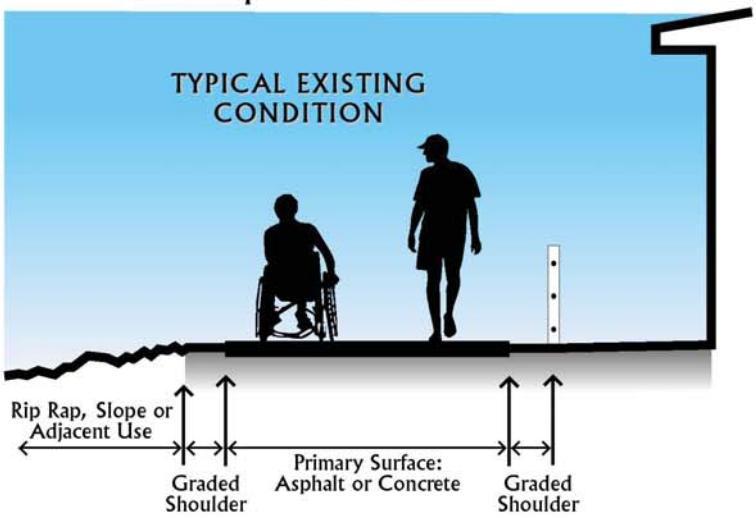
EXAMPLE LOCATIONS

Figure 14f: Route Type 6

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 6: Multi-use Pathways

Walkways and Paved Paths not Adjacent to Roads that Support Recreational and Transportation Uses



Multi-use path along Myers Street

Coastal path along beach

San Luis Rey River Trail by I-5

San Luis Rey River Trail by Douglas Drive

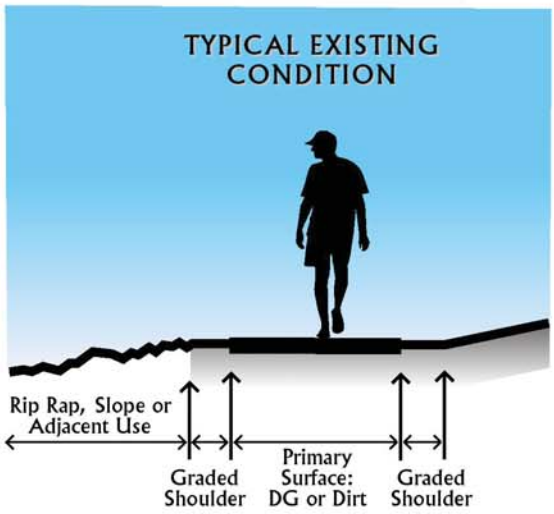
EXAMPLE LOCATIONS

Figure 14g: Route Type 7

OCEANSIDE PEDESTRIAN MASTER PLAN

Route Type 7: Walking or Hiking Trail

Unpaved Walk Not Adjacent to Roads, Used for Recreational Purposes



Dirt road/trail

Narrow trail

North side of the San Luis Rey River Trail

North side of the San Luis Rey River Trail by Douglas Drive

EXAMPLE LOCATIONS

4.2 Route Types Found in Oceanside

Figure 15 shows a summary of route types found throughout the city based on GIS analysis of available data for adjacent land use, street classification, ADT and speed. Connectors were also determined based on known adjacent conditions. Corridor and District streets utilized similar data to determine their extent. However, many factors can affect the classification of route types. This study was not able to conduct city-wide field work to verify the actual on-site conditions of all walkways. Therefore, the map should only be used to indicate the relative extent of these different route types.

4.3 Treatment Levels

Treatment levels range from Basic to Enhanced to Premium levels and are based on the area's mixture of land uses, types of destinations, and roadway classifications.

There should be flexibility in the specific conditions of any pedestrian facility; different route types deserve different treatments.

Table 12 describes four treatment levels ranging from intensive (and expensive) treatments, to basic and inexpensive treatments for pedestrian facilities. Each of the treatment levels indicates the types of special circumstances that, if present, may warrant increasing the treatment up to the next level.

Table 12 also summarizes all of the pedestrian facilities, techniques, and enhancements that could be used in any particular area. Table 12 and the described treatment levels have been created to help guide the appropriate use of treatments and public funding.

A major premise of the "Basic Level" is that it is the minimum level that should be provided in all circumstances. In the case of certain neighborhoods and along certain connector streets, this "Basic Level" is adequate to provide the minimum level of safety, connectivity, access, and walkability.

In other areas, however, the "Basic Level" may not be enough to assure safety and walkability. In certain areas, the presence of major roadways and other detractors from pedestrian activity require a much higher level and expense associated with pedestrian treatments. In these situations, an "Enhanced Level" is recommended.

In yet other areas, the urban densities and design requirements and the presence of certain safety issues require a "Premium Level" to meet safety, connectivity, accessibility, and walkability minimums. Pedestrian amenities and proper design of facilities is required throughout the city; however, the intensity of these amenities and design treatments would be at the highest level under the "Premium Level" of treatment.

Please refer to the previous chapter for these issues and potential solutions provided by Table 12. Though this guidance has been provided, it should remain the responsibility of Development Services Departments which includes planning, engineering and building divisions to determine which of these treatments are appropriate for specific areas or issues.

Figure 15: Route Types Map

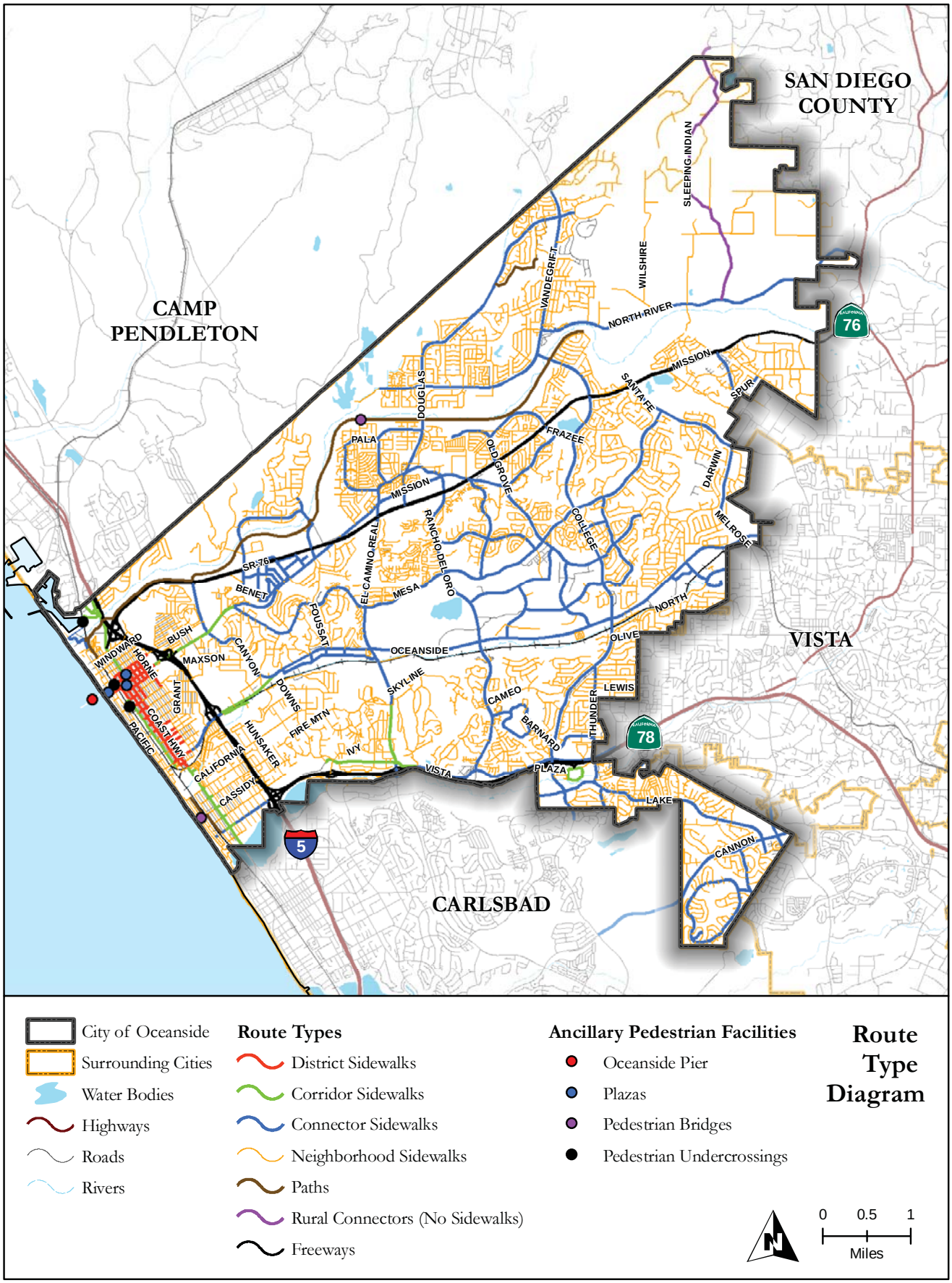


Table 12: Treatment Levels and Potential Improvements

TREATMENT LEVEL:	Treatment Level 1 "Premium" Walkway Improvements	Treatment Level 2 "Enhanced" Walkway Improvements	Treatment Level 3 "Basic" Walkway Improvements	Treatment Level 4 "Special Use" Walkway Improvements
Route Types Receiving These Treatment Levels (Unless Special Circumstances Exist*)	District Route Type / Special Pedestrian Zone	Corridor Route Type	Connector and Neighborhood Route Type	Path & Ancillary Route Types
***Special Circumstances that Warrant a Higher Treatment Level than Normal. Requirements in Each Column would Increase to the Column on its Left**	Already Uses Highest Treatment Level	If within 1/4 mile of Transit/ School/ Ped. High Use/ Major Arterial	If within 1/4 mile of Transit/ School/ Maj. Commercial Facilities/ Maj. Arterials	Case-by-Case Basis
Provide Accessible Facilities Such As:				
1A) Curb ramps	!	!	!	?
2A) Audible/visual crosswalk signals	!	!	?	?
3A) Walkways & ramps free of damage or trip hazards	!	!	!	4
4A) Pedestrian paths free of obstructions and barriers	!	!	!	4
5A) Sidewalks with limited driveways and minimal cross-slope	!	4	4	4
6A) Re-grade slope of walkway to meet ADA / Title 24 standards	?	?	?	?
7A) Repair, slice or patch lifts on walk surfaces or reset utility boxes to be flush	?	?	?	?
Provide Safety Features Such As:				
1S) Median refuges (a safe place to stand in the street)	!	✔	-	-
2S) Pedestrian popouts (curb / sidewalk extensions into street)	✔	✔	-	-
3S) High visibility crosswalk striping	!	✔	-	?
4S) Raised crosswalks or special paving materials to denote crosswalks	✔	✔	-	?
5S) Advance stop bars at least 15 feet from crosswalk	✔	✔	-	?
6S) Radar Speed Monitor & Display	?	?	?	?
7S) Reduced curb radii	✔	✔	✔	-
8S) Early pedestrian start at crossing signal (Lead Pedestrian Interval)	✔	?	-	?
9S) No Turn on Red at Intersection	?	?	?	?
10S) Mid-block crosswalks with ped. flashers but no traffic control	-	-	✔	-
11S) Automatic pedestrian detection & signal control	✔	-	-	?
12S) Mid-block crossing with signs, median or curb ext. & flashing lights in road	?	?	-	?
13S) Mid-block crosswalks with ped. actuated traffic control device	✔	?	-	-
14S) 1-Lane Mid-block with high contrast crossings, signs & center lane marker	?	?	✔	?
15S) Parkway planting for buffer between sidewalk and cars	!	!	✔	?
16S) On-street parking for buffer between sidewalk and cars	!	✔	✔	-
17S) Adequate levels of pedestrian lighting	!	!	✔	✔
18S) Various traffic calming measures	✔	✔	✔	-
19S) Enforcement, education or encouragement solutions	?	?	?	?
20S) Missing sidewalks added or provide adeq. walk width clear of obstructions	?	?	?	?
Improve Walkability by Providing:				
1W) Above minimum walkway widths (> 5')	!	✔	?	?
2W) Trees that provide shade on walkways	!	!	✔	✔
3W) Street furnishings for comfort and enjoyment	!	✔	?	✔
4W) Countdown display crosswalk signals	✔	?	?	-
5W) Traffic control for crossings such as traffic signals or "All way stops"	!	✔	✔	✔
6W) Pedestrian scrambles (cross all directions of street)	?	-	-	?
Ensure Connectivity by Adding:				
1C) Missing sidewalk segments in areas where sidewalks mostly exist	!	!	✔	✔
2c) Missing sidewalks in areas where no sidewalks exist at all	!	✔	?	✔
3C) Connection pathways between streets	!	✔	✔	✔
4C) Narrow street widths or adding features to narrow for pedestrians	!	✔	✔	✔
5C) Destinations within walking distance of origins	!	✔	✔	✔
6C) Pedestrian bridges that avoid excessive ramp lengths	?	-	-	?
7C) Pedestrian crossing opportunities for all sides (legs) of an intersection	!	✔	✔	-
8C) Verify that pedestrian distances between land uses are reasonable & direct	?	?	?	?

LEGEND ("!"= required, "✔" = suggested, "?"= suggested if conditions or standards met & "-" = not applicable)

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CHAPTER 5
PEDESTRIAN PRIORITY MODEL

5.0 Pedestrian Model

Not all potential pedestrian improvements are as critical as others. With limited funding, an effort is needed in order to prioritize the investment of public money for the benefit of improvements in the public right-of-way. This chapter discusses the methodology and results of the pedestrian modeling effort.

Limited funding requires prioritizing investments.

5.1 Model Overview

The Pedestrian Priority Model (PPM) was developed to determine the most likely areas within the City of Oceanside where pedestrians are likely to be, either currently or if improvements were made. The model was created to prioritize areas and projects in order to affect the largest number of pedestrians possible. The PPM identifies existing and potential pedestrian activity areas citywide. The model utilizes existing data available city-wide as part of an extensive GIS database.

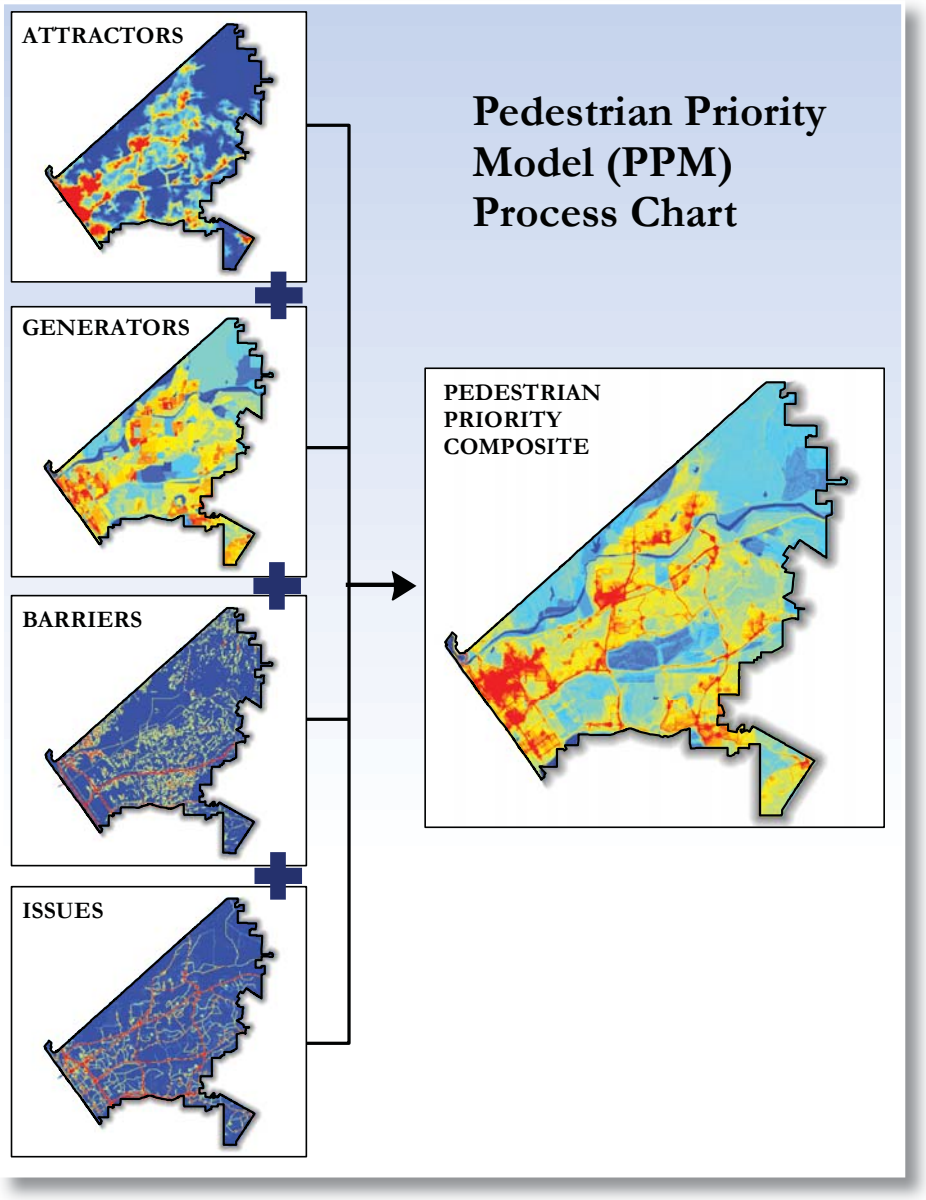
5.2 Pedestrian Priority Model Description

The model has four basic models which include:

- Attractor Model
- Generator Model
- Barrier Model
- Issues Model

When these four interim models are combined, they create the Pedestrian Priority Model (See Figure 16, Pedestrian Priority Model (PPM) Process Chart). The city is divided into a grid of cells that represents 11,500 square feet (107 x 107 feet cell size). This cell size was chosen to match existing digital elevation models already in the database and to capture the best detail possible in relation to the overall scale of the datasets and geographic size of the City of Oceanside.

Figure 16: Pedestrian Priority Model Process Chart



A point system was developed to classify geographic areas and to recognize the importance of walking distance around generators and attractors. A simple mathematical weighting system was used to prioritize certain factors above other less important factors.

The model identifies the characteristics of each particular area in geographic space and assigns a numeric value for each of these characteristics. The score per area is then added to create a ranking for that particular area in geographic space.

Pedestrian Attractors

The PPM identifies activity areas by utilizing pedestrian-related geographic features that area likely to attract pedestrians. See Table 13 for the features used in the Attractor Model. The following lists the variables that went into the Attractor Model.

a. The seven features that were used are:

1. Schools
2. Parks and recreation facilities including beaches
3. Neighborhood and community retail
4. Neighborhood and community serving destinations (post offices, libraries, etc)
5. Transit stations and stops
6. Major attractions (the Oceanside Pier, Strand and Harbor)
7. Future Projects

b. Points were assigned to several categories in each feature type, recognizing certain features were more likely to attract pedestrians than other features.

c. Once identified, network buffers were applied to each location using the GIS street database to simulate the actual street network and to get an accurate distinction of walking patterns. Each network buffer increases in distance from the features center point.

d. Weighted distance values were assigned to each buffer. For example, a 1/8-mile network buffer is assigned a higher value than a 1/2-mile network buffer, since more people are likely to walk 1/8 of a mile than 1/2 of a mile.

Table 13: Attractor Factors and Scoring

Pedestrian Attractors	Points	Weighted Multiplier	Final Score
Oceanside Pier, Strand and Harbor	5	1	5
Major Transit Stops (>250 boardings and alightings per day)	4		4
Beach Access	4		4
Transit Stops (<250 boardings and alightings per day)	3		3
Elementary Schools (Including Private)	3		3
Future Projects	3		3
Neighborhood Civic Facilities (Libraries, Post Office & Religious Facilities)	2		2
Middle Schools	2		2
Neighborhood and Community Retail	2		2
High Schools	1		1
Parks and Recreation (excludes non-useable open space)	1		1

Weighting Values Based on Distance to Attractor			
1/8 Mile	1.5	1	1.5
1/4 Mile	1		1
1/3 Mile	0.75		0.75
1/2 Mile	0.5		0.5

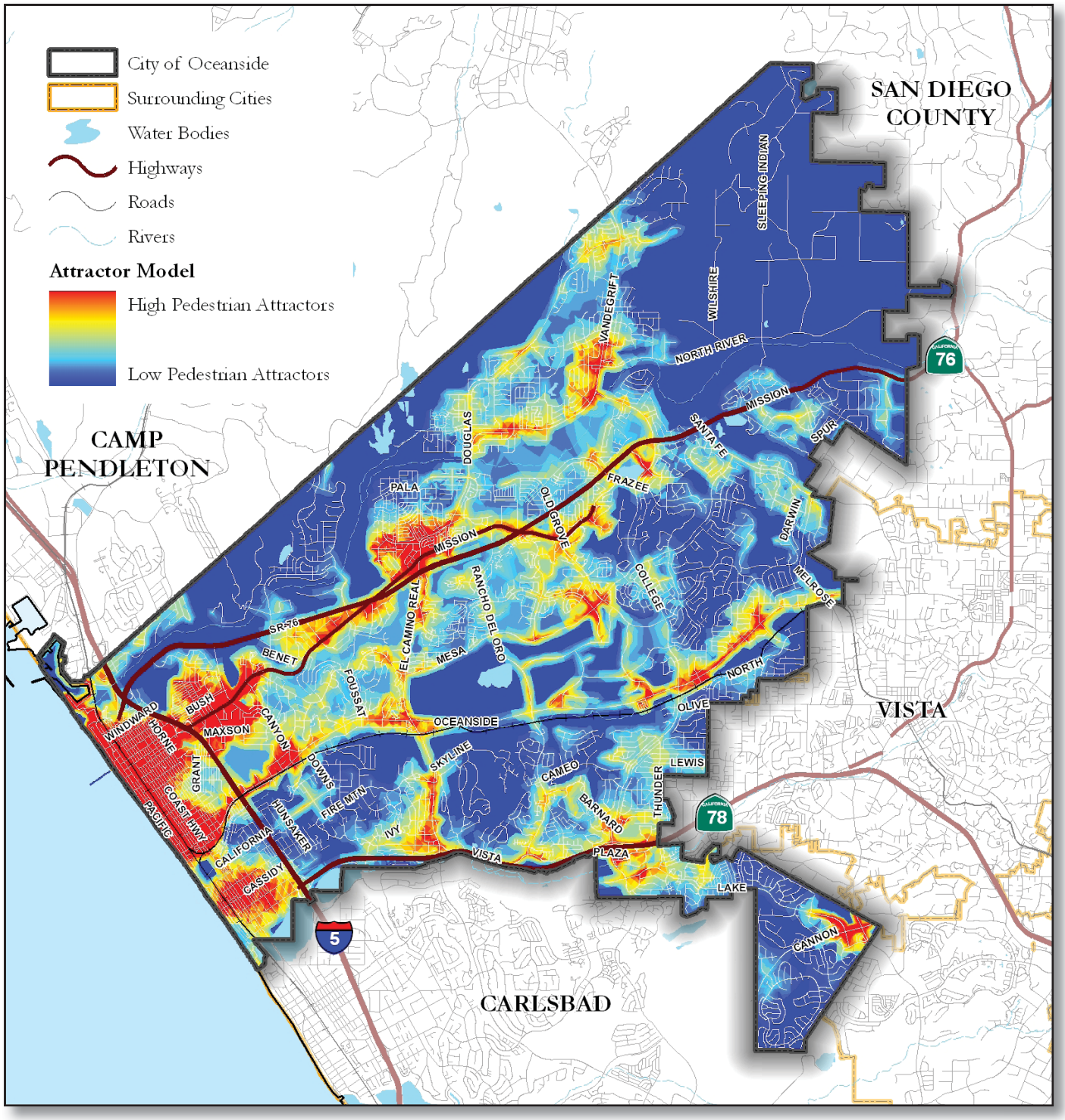
e. The values assigned to each feature type were multiplied by the weighted distance values for each network buffer. For example, if major transit stops were given a value of 4, elementary schools a value of three, then a major transit stop with a 1/2-mile network buffer would have the same multiple weighted value as an elementary school with a 1/8-mile network buffer.

f. Each of the individual buffered feature types with their multiplied weighted values were overlaid on the city-wide cell grid.

g. Within each cell, the features points were multiplied by the weighted values and then added to the other feature point scores with a resulting total attractor value assigned to the cell.

h. The areas that have high concentrations of cells with high values were identified. These high concentration areas identify existing and potential high pedestrian activity areas with known barriers throughout the city. The results of the Attractor Model are shown in Figure 17.

Figure 17: Attractor Map



Pedestrian Generators

The Pedestrian Priority Model also utilizes demographic data as indicators of the potential volume of pedestrians based on how many people live or work within the pedestrian activity areas identified in the Attractor Model. This particular model is called the Generator Model. Existing and projected total population and employment were used as well as other demographic data such as age, income and disabilities. Pedestrian activity areas that contain a greater number of people living or working within them were more likely to have more people walking. The model uses SANDAG defined pseudo Census blocks called Major Geographic Reference Areas (MGRA) citywide and U.S. Census Bureau Census Block Groups. SANDAG Smart Growth Areas were also used to determine areas of potential development that could have high pedestrian activity due to their mixed land use criteria.

Table 14: Generator Factors and Scoring

Pedestrian Generators	Points	Weighted Multiplier	Final Score
Census Mobility: People who walk to work per acre			
> .2	2	2	4
< .2	1		2
Population Density (People per acre)			
> 25	3	2	6
5 - 25	2		4
1 - 5	1		2
Employment Density (Employees per acre)			
> 15	3	2	6
5 - 15	2		4
1 - 5	1		2
2020 Population Density (People per acre)			
> 25	3	2	6
5 - 25	2		4
1 - 5	1		2
2020 Employment Density (Employees per acre)			
> 15	3	2	6
5 - 15	2		4
1 - 5	1		2
Age Density: Senior Citizens per acre (65 years old & over)			
> 2	3	2	6
1 - 2	2		4
< 1	1		2
Household Income (Affects Transportation Options)*			
< $34,500	3	1	3
$34,500 - $63,400	2		2
> $63,400	1		1
Age Density: Children per acre (under 16 years old)			
> 2	3	1	3
1 - 2	2		2
< 1	1		1
Disability Density: People with disabilities per acre			
> 5	3	1	3
1 - 5	2		2
< 1	1		1
Smart Growth Areas (SANDAG)			
Adopted Smart Growth Area	3	1	3
Mixed Transit Corridor	2		2
Community Centers	1		1

*Based on 2005 SD Housing Comm. & US Dept. of Housing & Urban Development (2/11/05)

The following explains the data that went into the Generator Model.

a. The existing and future MGRA total population is divided by the MGRA area to determine existing and future population density.

b. The existing and future MGRA total employment is divided by the MGRA area to determine existing and future employment density.

c. The total population less than 16 years old and 65 years and older is divided by the Census Block Group Area to determine the density of these two age classes.

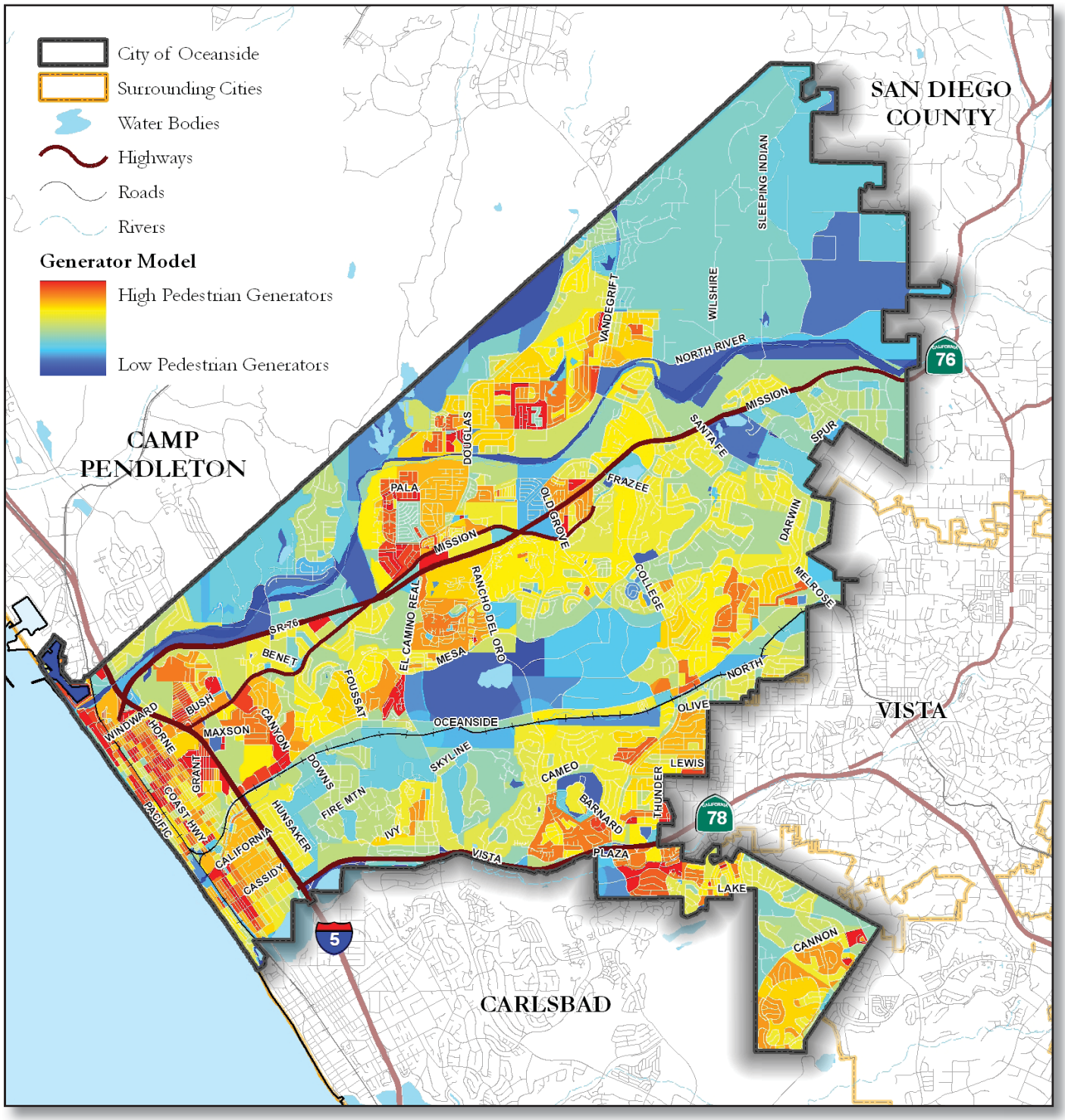
d. The employment and population MGRA densities as well as age densities were categorized into density ranges and assigned points so that MGRAs with higher density ranges received higher initial points.

e. Median Household Income, Census Mobility, Age Densities and Disability Density were based on the Census Block Group and data was received from the Long Form taken in the year 2000.

f. The points from the age densities, income and disabled density were overlaid to make a citywide cell grid.

g. Table 14 shows the features used in the Generator Model, and Figure 18 displays the Generator Model results of the mapping exercise.

Figure 18: Generator Map



Examples of barriers include physical limitations of topography, roadway width, and rail road crossings.

Pedestrian Barriers

Pedestrian Barriers are features that are likely to discourage or detract people from walking. These barriers are physical limitations of topography, lane width and railroad crossings that prevent pedestrians from getting around from their origin to their intended destination.

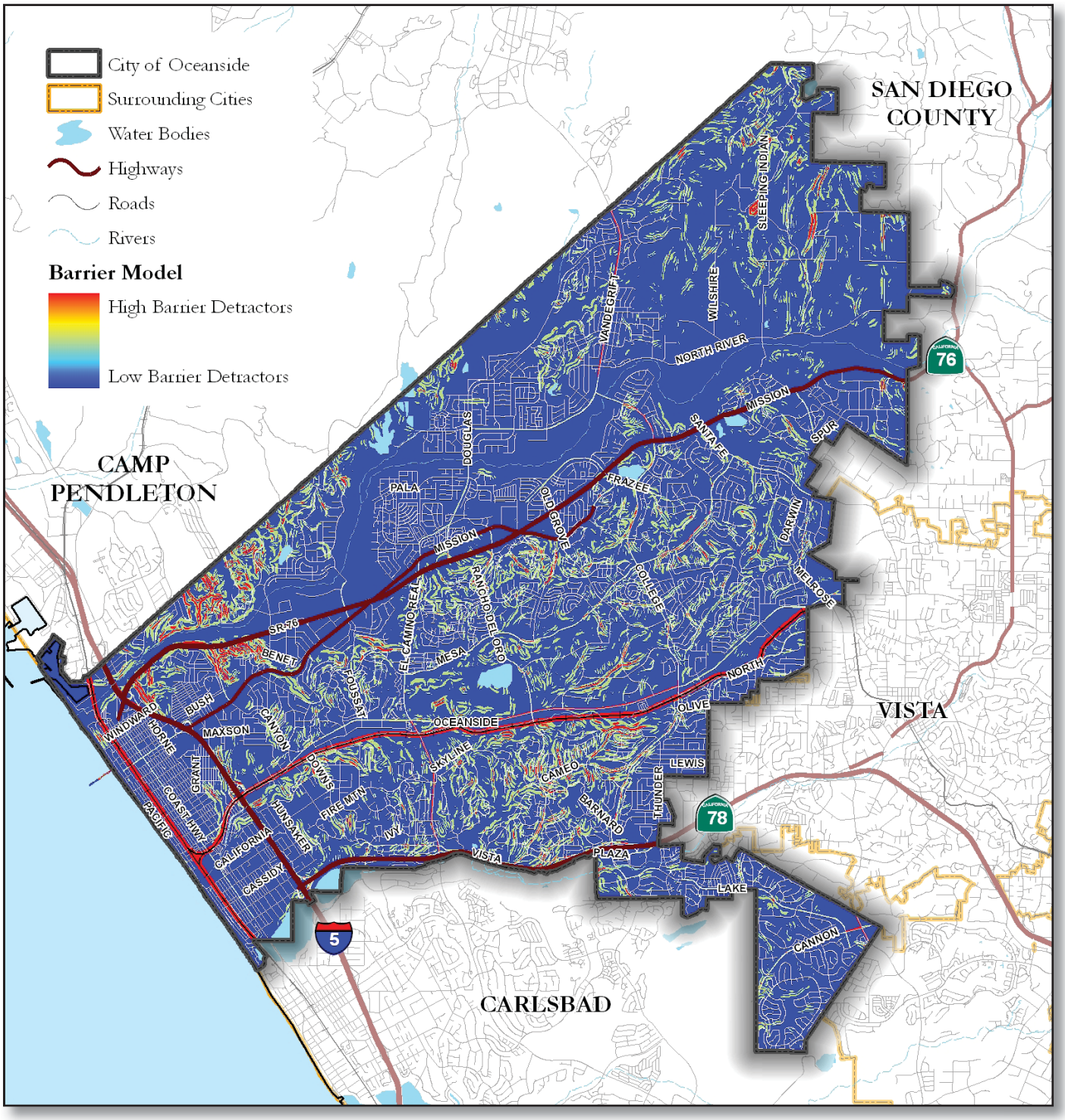
Table 15 shows the features used in the Barrier Model, and Figure 19 displays the map of the Barrier Model.

Table 15: Barrier Factors and Scoring

Pedestrian Detractors	Points	Weighted Multiplier	Final Score
Pedestrian Barriers			
Railroads & Light Rail as Barriers to Pedestrian Travel			
	2	1	**2**
Lane Width			
8+ lanes	3	1	**3**
6 lanes	2		**2**
4 lanes	1		**1**
Slope & Canyons as Barriers to Pedestrian Travel			
Landform Feature with Slope > 25%	2	1	**2**
Landform, Walkway or Street Slope 10-25%	1		**1**
Walkway Slopes < 10%	0		**0**

The railroad in Oceanside is considered a major barrier for pedestrians.

Figure 19: Barrier Model Map



Detractor issues discourage people from walking, usually due to perceived or actual safety concerns related to vehicular intensity.

Pedestrian Detractor Issues

Detractor Issues coincide with the Barriers in that they discourage or detract people from walking. Detractor issues are more related to the vehicular intensity and perceived safety of the walking environment. Streets with high volumes of traffic and high speeds tend to detract people from walking due to the amount of traffic adjacent to their route. Known areas of high pedestrian collisions are also a deterrence as people may reroute their trip to avoid certain streets and intersections where safety is a concern. This subset of the Pedestrian Priority Model identifies the following features:

- Collisions per year
- Average Daily Trips (volume of vehicles on a particular street segment)
- Speed

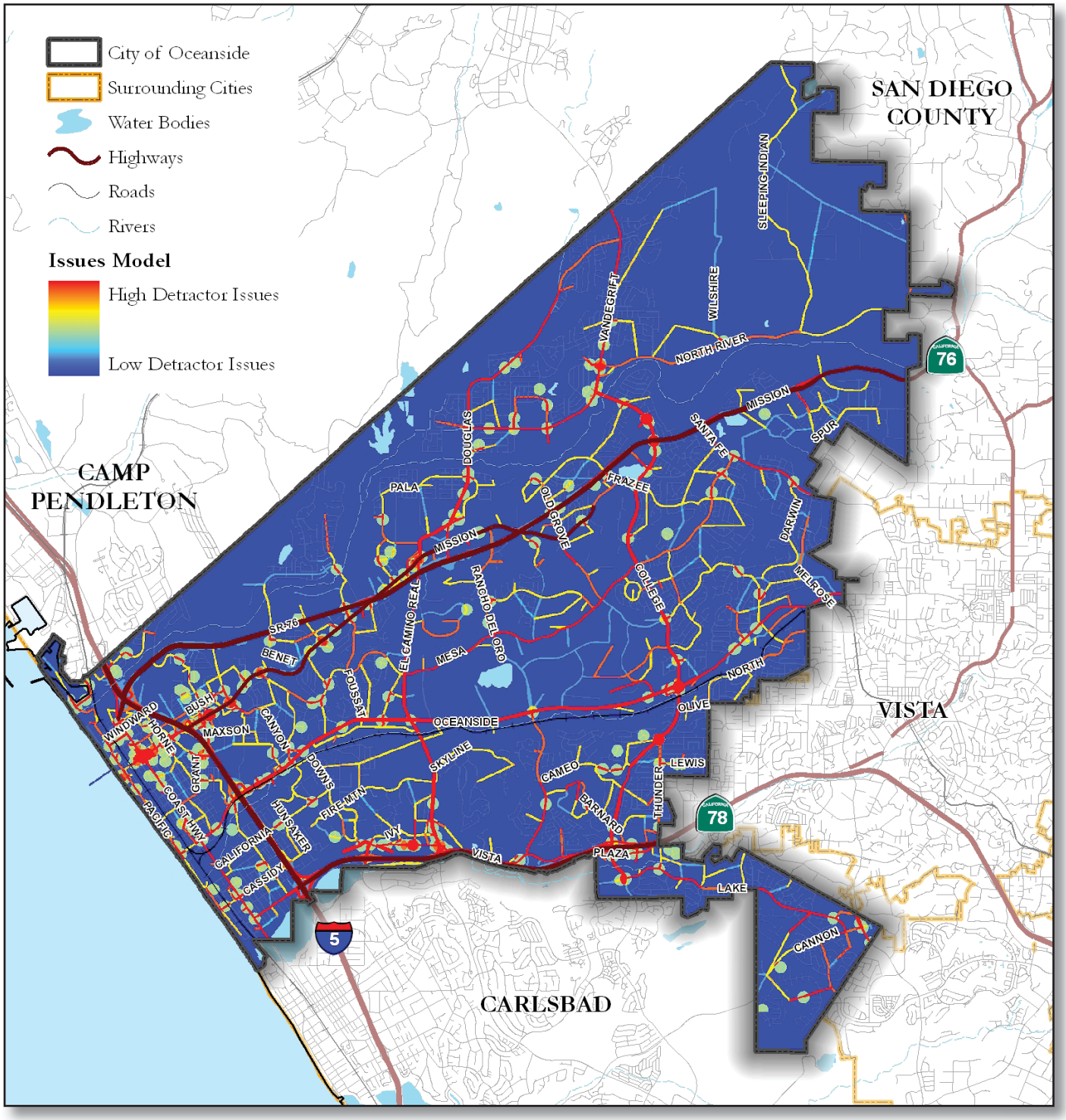
These factors combined with the Detractor Barriers Model create the subset of the model that looks at areas that discourage higher potentials of walking activity. Table 16 shows the features used in the Issues Mode,l and Figure 20 shows the map of the Issues Model.

Table 16: Detractor Factors and Scoring

Pedestrian Detractors	Points	Weighted Multiplier	Final Score
Pedestrian Issues			
Collisions Per Year *			
>4	3	4	**12**
3-4	2		**8**
1-2	1		**4**
No collisions	0		**0**
Average Daily Trips as it Affects Crossing Wait Time, Safety & Visibility			
> 25,000	3	2	**6**
20,000 - 25,000	2.5		**5**
10,000 - 20,000	2		**4**
5,000 - 10,000	1.5		**3**
1,000 - 5,000	1		**2**
< 1,000	0		**0**
Speed as it Affects the Ability to Cross Safely			
25+	2	1	**2**
< 25 mph	1		**1**

* A 1/16 mile buffer was applied to each collision location.

Figure 20: Detractor Model Map



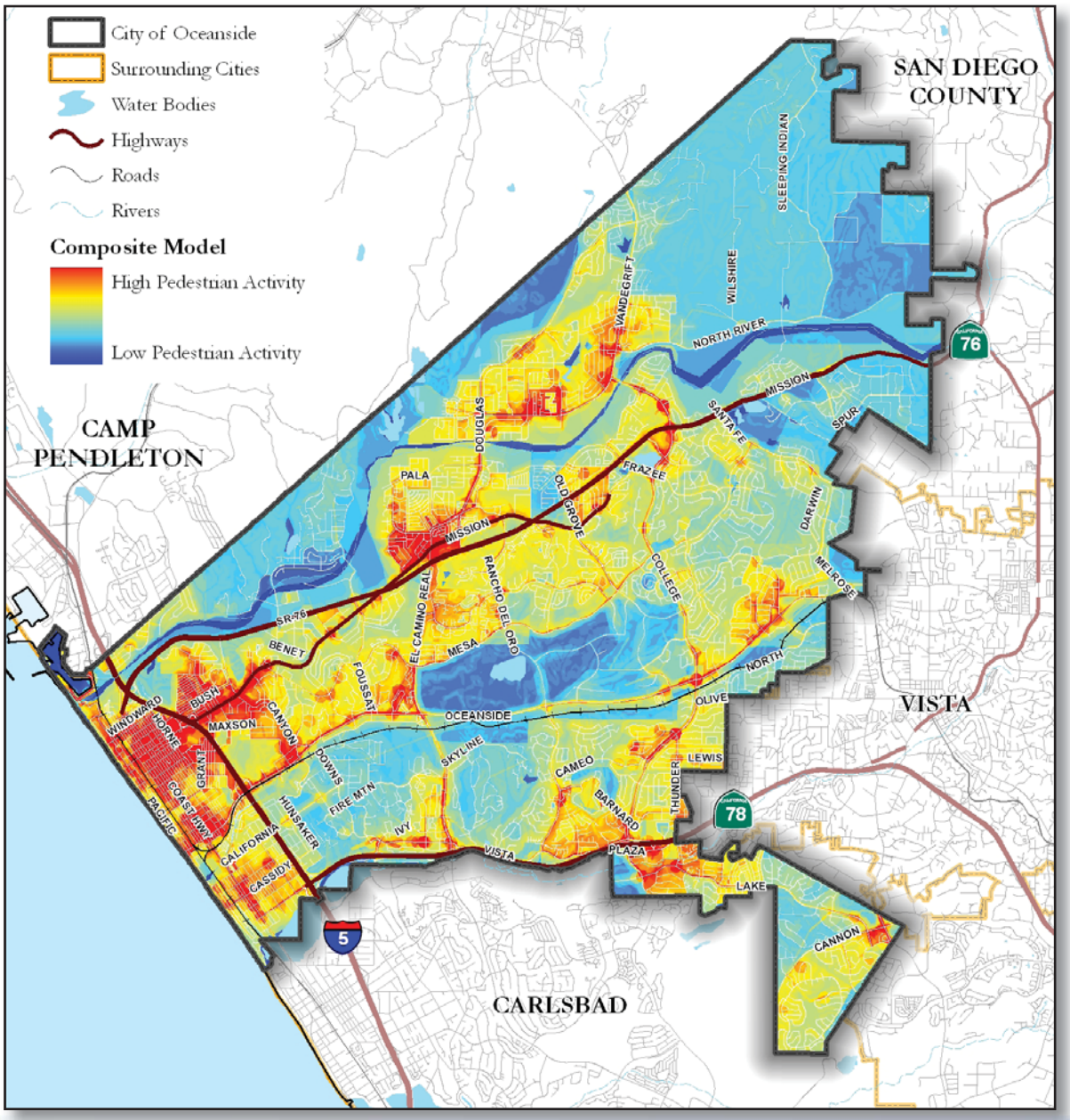
The Pedestrian Priority Model combines the Generators, Attractors and Detractors to identify areas that have high generators, attractors and barrier points.

5.3 Composite Model

The Pedestrian Priority Model combines the Generators, Attractors, Barriers and Detractor Issues to identify areas that have high generators, attractors and detractors. Figure 21 depicts the results of compositing the four previous mapping efforts. The following are the steps in developing the Composite Model to identify areas of high pedestrian activity.

a. The Attractor, Generator, Barrier and Detractor Issues grid cell models were overlaid on top of each other to produce the Pedestrian Priority Model.
b. The combined grid cells that contain generators, attractors and detractors were added to provide a total composite value for each combined cell.
c. The composite value identifies areas with a higher pedestrian activity point total.
d. In some cases, areas that have a high pedestrian activity score are areas that may already have pedestrian facilities but further improvements can be made.

Figure 21: Composite Model Map



CHAPTER 6
PEDESTRIAN PROJECTS

6.0 Pedestrian Facility Priority Process

A substantial amount of funding is needed to bring all of the city's pedestrian facilities up to a standard that makes them safe, walkable, accessible, connected and assets to our neighborhoods. The amount far exceeds what is likely to be obtained. To be cost effective, a system of ranking projects for priority funding needs to be fully developed. Matrices were developed by the working group to assist in prioritize the individual pedestrian projects.

The following list of priority projects were collected from existing city plans, public input, working group input, collision data and the Pedestrian Priority Model. Formulating the list consisted of group discussions, knowledge of the project, guidelines and designs of existing plans and extensive field work. The projects were then analyzed and scored based on the following criteria. For new projects, the scoring sheets can be used to gauge the priority of the project relative to those in this chapter.

Pedestrian Activity Levels- The Pedestrian Activity Levels acquires the projects' total model score and is then divided by the acreage of that project. This technique normalizes the scores throughout all the projects. This allows projects with larger footprints to have the same scoring parameters as smaller projects.

Safety Criteria- Safety was calculated by analyzing the pedestrian related collisions within 100 feet from the project segment. For instance, if the project was at an intersection, then a 100 foot buffer is created and all the pedestrian related collisions that fall within the buffer are collected and analyzed as part of the project. If a fatal collision occurred, it would get a higher score than those with major or minor injuries. The total number of specific injury types is multiplied by the appropriate point resulting in a sub score for that injury criterion. All the sub scores are then added as the final score for the Safety Criteria.

Accessibility Criteria- The Accessibility Criteria looks at issues that can be improved for each project. If issues will be addressed based on the criteria of this section, then a score is given. Extensive accessibility measures such as pop-outs and adding paths of travel are given higher scores for their overall improvement to accessibility within the project. Smaller improvements such as removing obstacles and trip hazards are given lower scores for their smaller role in accessibility.

Connectivity Criteria- The Connectivity Criteria looks at missing connections relevant to the pedestrian use of the activity center and the connections between different land uses. The higher level of use such as schools and transit centers are given the higher scores. There is more pedestrian activity to these activity centers than any other. Connections between different land uses such as between commercial, residential and recreational areas have lower scores because they have lower pedestrian activity levels.

Walkability Criteria- Improvement in walkability, such as shaded areas and amenities like benches and bike racks are scored in this section. Major improvements such as creating a buffer from fast moving vehicles, public spaces, plazas and providing shade trees within the project receive higher scores for their overall sense of comfort to walk within the area. Smaller improvements such as benches, increased lighting and improving dilapidated properties receive lower scores but are still important in the overall walking environment.

Innovation Criteria- The Innovation Criteria scores improvements based on the how innovative the techniques and treatments are. If the treatment or technique, such as a pier elevator, is not found in the region, then it gets the highest score since it will be rare to find. Unique techniques and treatments that are common but not found in Oceanside have the second highest score while common treatments found within the city receive the lowest.

Figure 22: Oceanside Accessibility Issues Map

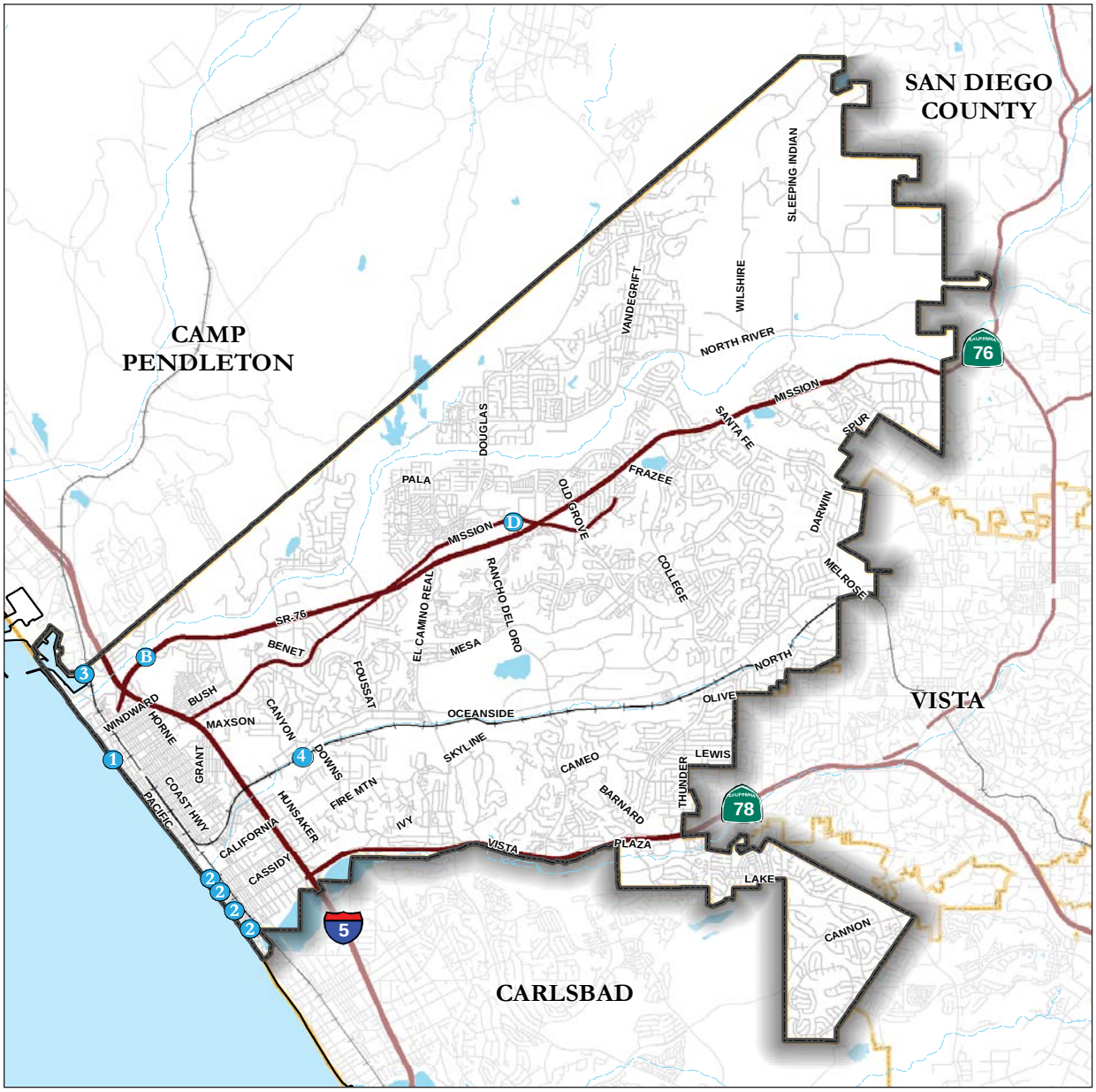
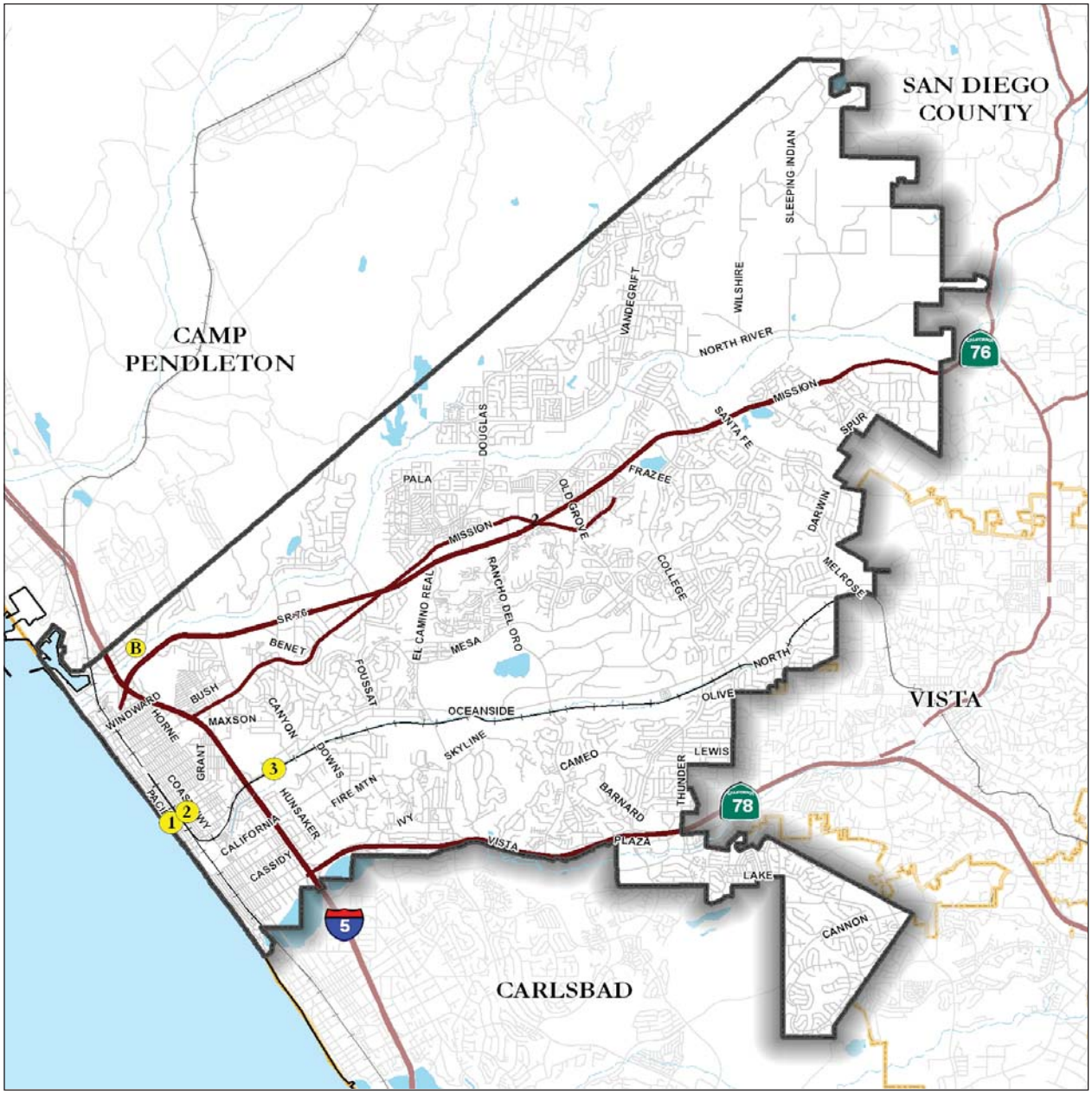


Table 17: Oceanside Accessibility Issues

Issue Number*	Comment
1	Access from the Oceanside Pier at the end of Pierview Way to The Strand is limited.
2	The walkway along Pacific Street between Morse Street and Eaton Street is not an accessible route.
3	Trash receptacles and light standards along Harbor Drive limit accessibility.
4	Street signs, pay phones, bollards, and light posts clutter the sidewalk at the intersection of Oceanside Boulevard and Crouch Street.
B	Need pedestrian crosswalk/access from Loretta St. to Bike Trail.
D	Ivy Ranch. (Note stated Ivy Ranch only)

*Numeric issues from fieldwork and alphanumeric issues from community workshop

Figure 23: Oceanside Connectivity Issues Map



Issue Number*	Comment
1	There are several obstacles along the west side of Pacific Street including driveways, uneven sidewalks, and landscape planter areas that break up the sidewalks forcing pedestrians to walk in the street.
2	Several sidewalks are missing along Tremont Street creating a disconnected corridor for pedestrians.
3**	The bus stop at the intersection of Oceanside Boulevard and State Stree is missing a sidewalk connection to the Sprinter station along the south side of Oceanside Boulevard.
B	Need pedestrian crosswalk/access from Loretta St. to Bike Trail.

Table 18: Oceanside Connectivity Issues

*Numeric issues from fieldwork and alphanumeric issues from community workshop

** A city project to install sidewalks on the south side of Oceanside Blvd between I-5 and Crouch St has been approved.

Figure 24: Oceanside Safety Issues Map

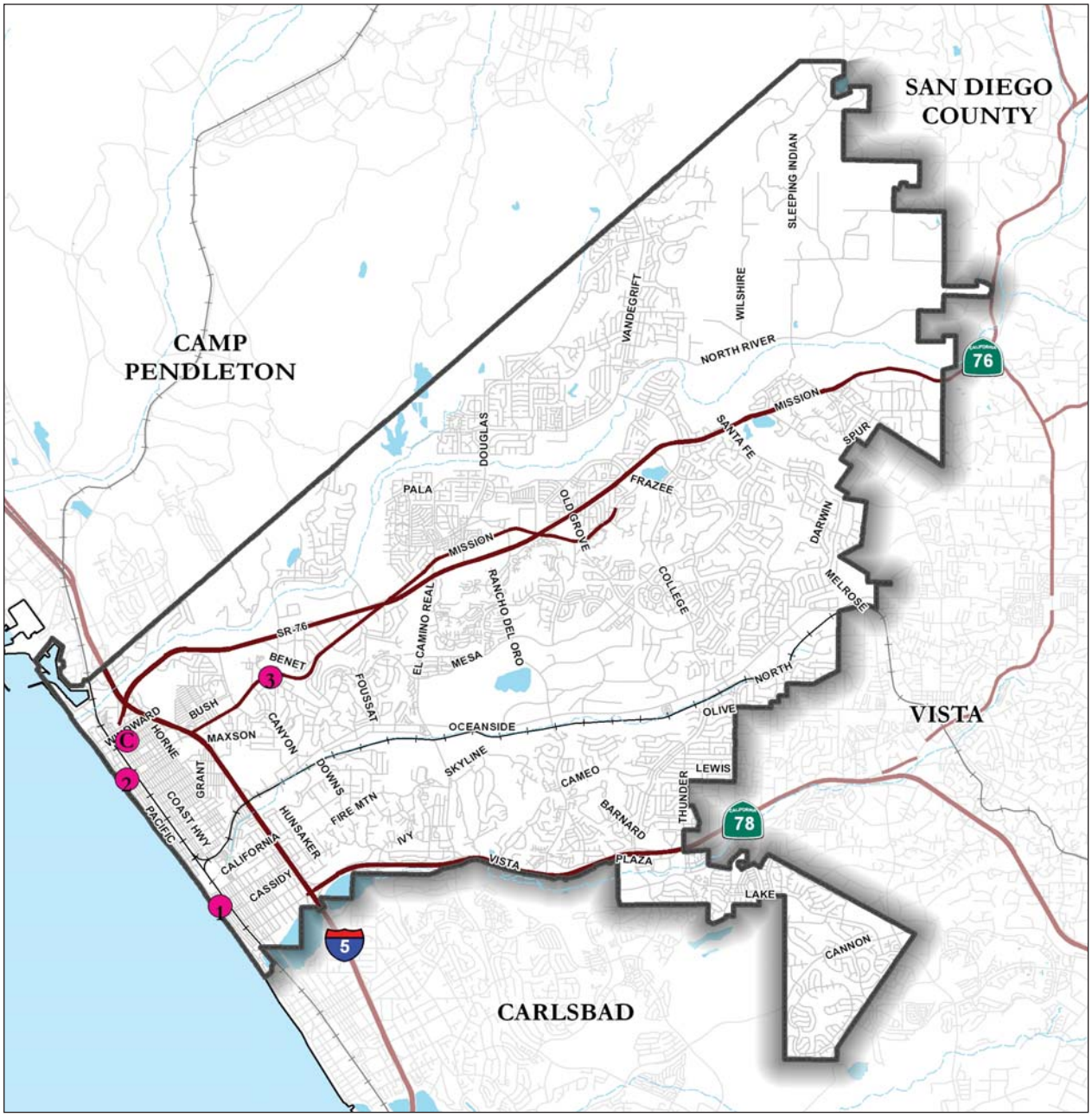
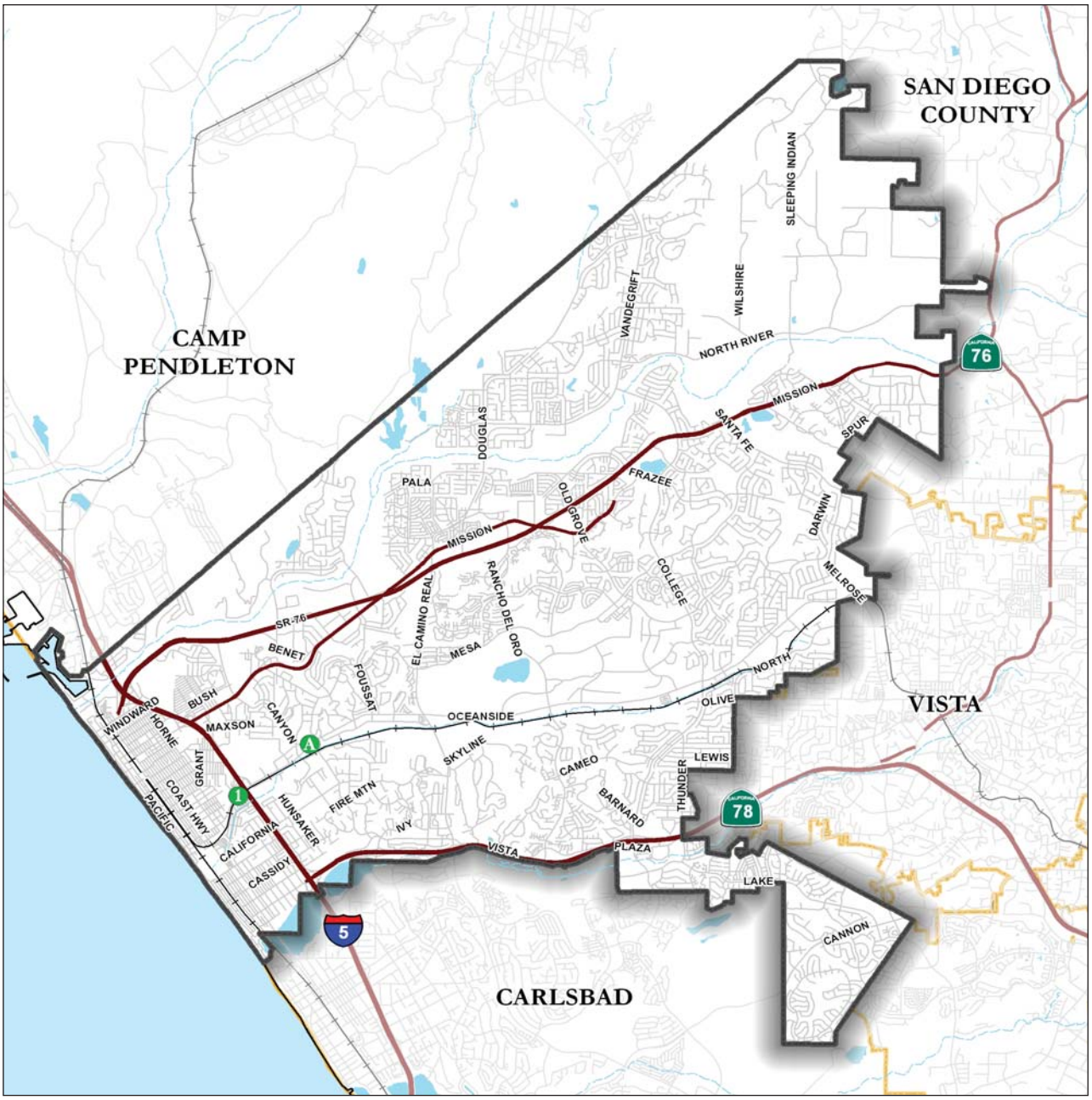


Table 19: Oceanside Safety Issues

Issue Number*	Comment
1	The absence of a sidewalk adjacent to the east side of Pacific Street forces pedestrians to walk in the street.
2	The sidewalks along Pacific Street are narrow. The walk does not safely accommodate the number of pedestrians that typically utilize this corridor.
3	There is not a sidewalk along the south side of Mission to connect to the bus stop at the intersection of Mesa. Pedestrians walking on Mission Avenue are required to walk in the bike lane. Because of the topography and speed of traffic, visibility of pedestrians is limited to drivers.
C	Traffic speeds high. (On Surfrider Way)

*Numeric issues from fieldwork and alphanumeric issues from community workshop

Figure 25: Oceanside Walkability Issues Map



Issue Number*	Comment
1	Some areas along Oceanside Boulevard lack street trees, sidewalks, and lighting. These things along with trash debris, the rail system, and high volumes of traffic traveling at high speeds make this an uncomfortable pedestrian atmosphere.
A	Slow down traffic from Oceanside Boulevard between I-5 and Canyon Drive. Also provide a better way to cross Oceanside Boulevard.

*Numeric issues from fieldwork and alphanumeric issues from community workshop

Table 20: Oceanside Walkability Issues

Figure 26: Oceanside Missing Sidewalks Map

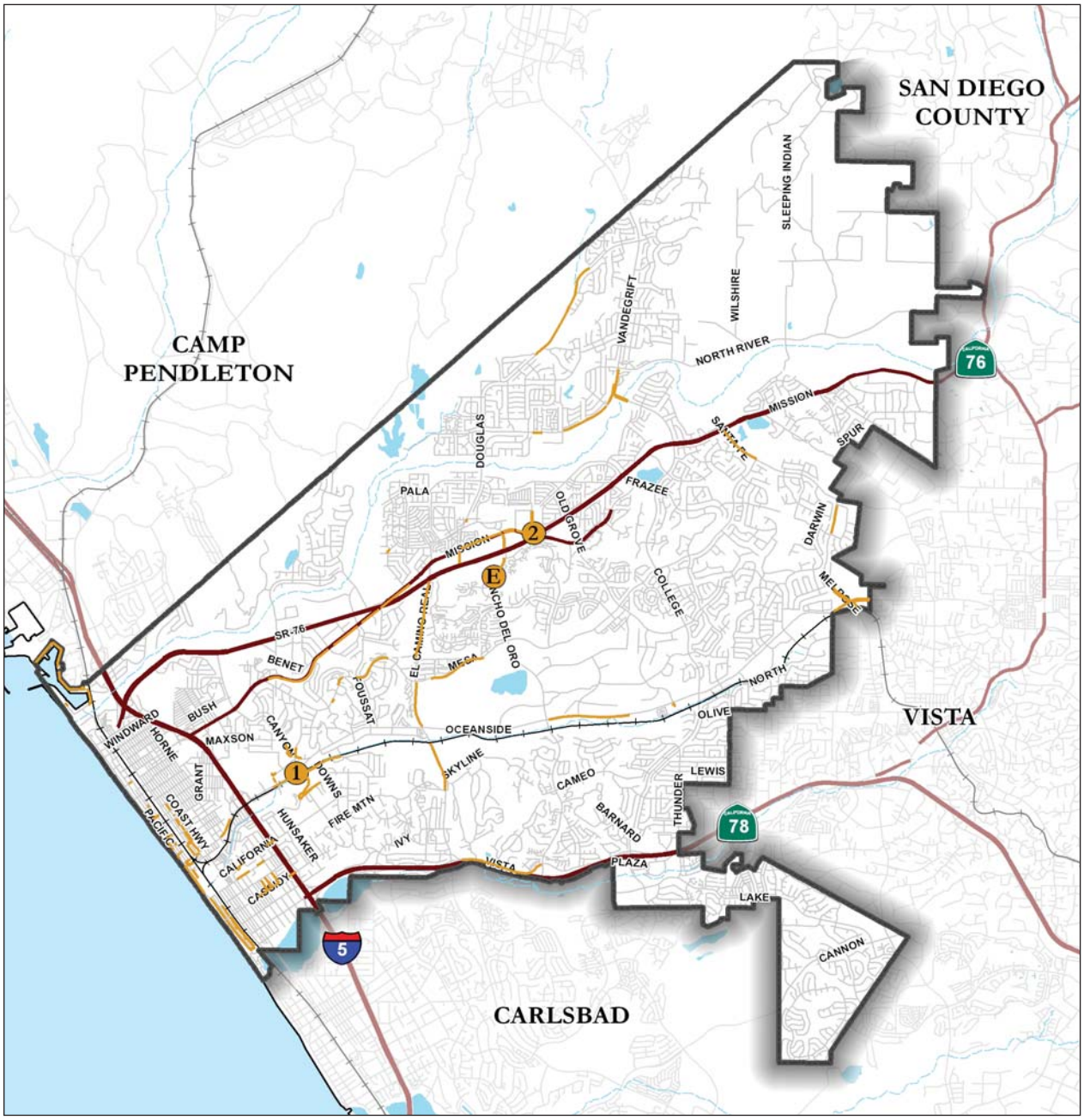


Table 21: Oceanside Missing Sidewalk Issues

Issue Number*	Comment
1	Because of missing sidewalks near the Crouch Street Station, access to the Sprinter is limited. **
2	Missing sidewalks at Academy and Mission make it difficult for pedestrians in an adjacent neighborhood to get to a nearby shopping center.
E	Several students from high school walk and there are missing sidewalks. *(El Camino High School on Rancho Del Oro Drive)*

*Numeric issues from fieldwork and alphanumeric issues from community workshop

** A city project to install sidewalks on the south side of Oceanside Blvd between I-5 and Crouch St has been approved.

Many of the projects are primarily located on the western side of the city due to the higher density mix of commercial, transit, employment, residential and recreational land uses. This mixture of land uses tends to produce higher rates of pedestrian activity. Many downtown and Coast Highway pedestrian improvement projects have already been developed and are included as part of the project list.

All the projects that were part of an existing plan such as the Coast Highway Vision Plan were included in the priority list but costs were not estimated. These projects do not have detailed costs estimates for their proposed improvements so this plan will not address them. For cost estimates on the projects from other plans, please refer to the plan documents themselves.

6.1 Citywide Pedestrian Projects

Several pedestrian issues concerning missing sidewalks, safety, accessibility, walkability, and connectivity were discovered during field work, a community workshop, working group meetings, and online surveys. All these issues were mapped and later prioritized to come up with the top 25 projects. Tables 17-21 and Figures 22-26 list all of these issues.

6.2 Top 25 Priority Pedestrian Projects

Following Table 22 are the top 25 projects after they were ranked utilizing the pedestrian project prioritization checklist. See Table 22 for an overall ranking of all proposed projects.

Table 22: Summary of Scores

Prioritized Project Number	Location	Improvements	Pedestrian Activity Levels	Safety	Accessibility	Connectivity	Walkability	Innovation	Total Score	Total Cost
1	South Coast Highway, South Tremont and Cleveland Streets (Between Mission Ave and Leonard Ave)	Enhance street conditions, add green space, new streets, roundabouts and increased mixed use, add lighting.	10	44	14	11	9	2	**90**	**N/A**
2	Mission Avenue (Between Pacific St and Horne St)	Install more lighting, pedestrian warning signs, and enhanced crosswalks when the opportunity presents itself. Install traffic signal at Clementine St when the signal warrants are met.	10	41	14	11	9	2	**87**	**N/A**
3	Mission Avenue (Between Horne St and Archer St)	Install enhanced crosswalks when signal warrants are met and add more pedestrian warning signs.	10	22	14	10	6	2	**64**	**$6,120**
4	Coast Highway (Between Morse St and Oceanside Blvd)	Redefine and extend walkway system to south of tracks to increase accessibility and walkability, add green space, and increase mixed use.	10	15	14	11	9	2	**61**	**N/A**
5	Crouch Street at Oceanside Boulevard (Oceanside Blvd at Crouch St and Greenbrier Dr)	Add sidewalks and pedestrian facilities at Crouch Street and Oceanside Blvd. Relocate amenities that block sidewalks.	6	16	14	11	6	2	**55**	**$369,225**
6	Mission Avenue (Between Mesa Dr and Fireside St)	Install missing sidewalks, install and enhance crosswalks when signal warrants are met. Move obstacles from the sidewalks.	2	27	12	7	5	1	**54**	**$261,799**
7	I-5/Oceanside Boulevard (Oceanside Blvd between Saratoga St and Nevada St)	Add missing sidewalks, enhance and install crosswalks when signal warrants are met. Add lighting underneath I-5.	4	15	14	13	4	2	**52**	**$470,408**
8	The Strand (Between Pier View Way and Wisconsin Ave)	Add crosswalks and stop sign at Seagaze Dr when signal warrants are met. Add pedestrian warning signs.	10	5	15	10	9	2	**51**	**$641,047**
9	Pacific Street (Between Pier View Way and Wisconsin Ave)	Increase width of sidewalks based on level of use. Move bollards and install sidewalk into the adjacent planting to provide a wider walking path.	10	8	10	11	7	2	**48**	**$82,863**
10	South Cleveland Street (Between Oceanside Blvd and Wisconsin Ave)	Improve street conditions (street trees, repair sidewalks, add curb ramps..etc)	10	4	13	10	6	2	**45**	**N/A**
11	Pier View Way Promenade (Streets including and bordered by Mission Ave, Tremont St, Civic Center and Myers St)	Provide bulbout at corners and move parking signs off of the sidewalks. Move restaurant furniture away from pedestrians path of travel.	10	18	10	3	2	2	**45**	**$405,675**
12	Tremont Street and Cleveland Street (Between Washington Ave and Oceanside Blvd)	Connect and install sidewalks and curb ramps.	6	4	14	13	6	2	**45**	**$408,071**
13	South Coast Highway (Between Eaton St and Cassidy St)	Improve and widen sidewalks. Add roundabouts and shade trees.	4	10	14	5	7	2	**42**	**N/A**

Table 22: Summary of Scores (cont.)

Prioritized Project Number	Location	Improvements	Pedestrian Activity Levels	Safety	Accessibility	Connectivity	Walkability	Innovation	Total Score	Total Cost
14	Oceanside Pier (Pier View Way and Pacific St)	Provide elevator from the Pier to the Strand. Provide a ADA accessible ramp between Pacific Stret and the amphitheater. Clear obstacles from the sidewalks.	10	2	14	6	5	3	**40**	**$1,372,950**
15	San Luis Rey River Mouth (West of I-5, between Windward Wy and Harbor Dr)	Provide"Arts Bridge" with a wide sidewalk promenade. Increase traffic calming with roundabouts, crosswalks, and street trees. Extend walkway grid system.	4	3	14	5	9	2	**37**	**N/A**
16	El Camino Real at Oceanside Boulevard (El Camino Real and Industry St)	Add crosswalks on Oceanside Blvd at El Camino Real and add missing sidewalks.	4	14	10	4	2	2	**36**	**$28,283**
17	Freeman, Ditmar, Nevada, Clementine and Horne Streets (Between Oceanside Blvd and Seagaze Dr)	Make pedestrian connections across railroad tracks and traffic calming on connector streets. Wider sidewalks. Add missing sidewalks.	4	11	8	3	6	2	**34**	**N/A**
18	Pacific Street (Between Wisconsin Ave and Morse St)	Add sidewalks when opportunities arise, remove landscaping within pedestrian path of travel, and revise driveways.	6	8	9	6	2	2	**33**	**$96,593**
19	Academy Road/Mission Avenue (Mission Ave at Academy Rd)	Provide sidewalks and curb ramps on north side of Mission Ave from Academy Rd eastbound under SR76 to entrance of shopping center.	2	1	14	5	6	2	**30**	**$104,463**
20	Canyon Drive/Mission Avenue (Mission Ave at Canyon Dr)	Clear sidewalks of utility boxes. Move "Canyon Dr" sign that hangs over the sidewalk.	10	6	3	4	2	2	**27**	**$21,600**
21	Melrose Drive at Oceanside Boulevard (Melrose Dr and Oceanside Blvd)	Add crosswalks and sidewalks on Oceanside Blvd at Melrose Drive when signal warrants are met.	2	1	9	6	2	2	**22**	**$236,925**
22	San Luis Rey Drive/I-5 Crossing (San Luis Rey Drive at Interstate 5)	Add lighting in the underpass and install paving between staircase and San Luis Rey Drive.	4	2	9	4	2	1	**22**	**$58,050**
23	Pacific Street (Between Morse St and Eaton St)	Address ADA issues on east side of road with ADA accessible ramps. Install sidewalks on west side of Pacific St.	4	1	11	1	2	2	**21**	**$280,800**
24	El Corazon Trail Access (El Corazon Trails at El Camino Real, Oceanside Blvd, and Mesa Dr)	Add missing sidewalks along El Camino Real and Mesa Drive to provide connection. Add trail entry points for future trail access.	2	3	5	4	3	1	**18**	**$222,102**
25	North Side of the San Luis Rey River Trail (North side of San Luis Rey River between College Blvd and Douglas Dr)	Improve walkability with amenities and regrade surface.	2	1	3	1	5	1	**13**	**$494,532**
									Grand Total	**$5,515,336**

Prioritized Project Number : 1

Project Name:	**South Coast Highway, South Tremont and Cleveland Streets (Mission to Leonard)**	Source: Coast Highway Vision Plan
Primary Location:	Between Mission Ave and Leonard Ave	
Improvements Proposed:	Enhance street conditions, add green space, new streets, roundabouts and increased mixed use, add lighting.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**10**
	Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:		(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**109.2**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**46,729**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**428**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**44**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		2	**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		19	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

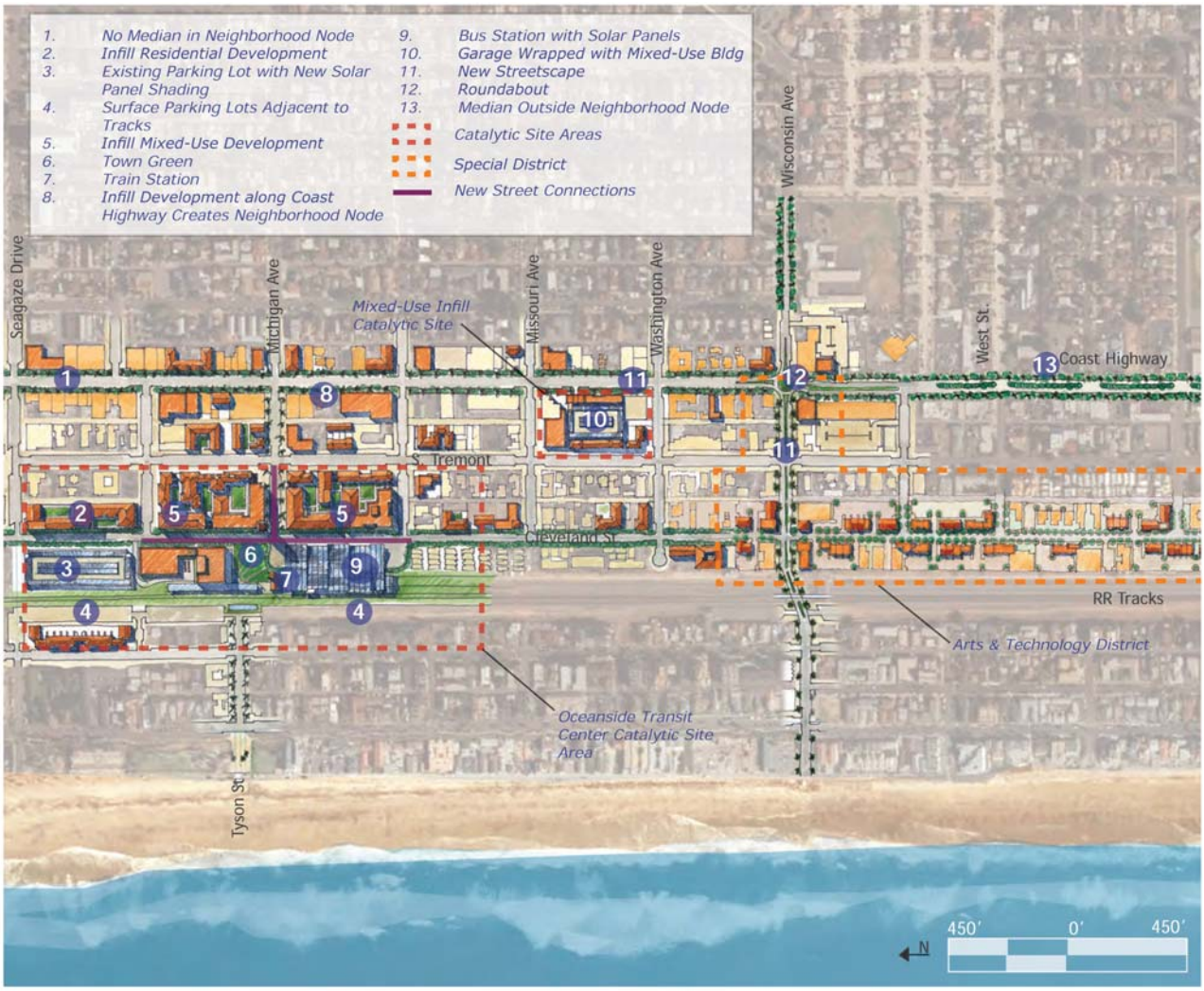
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**90**

Project: **South Coast Highway, South Tremont and Cleveland Streets (Mission to Leonard)** **Prioritized Project Number : 1**



"The existing train station is re-configured to improve circulation by removing one-way streets, turning existing parking lot circulation areas into public right-of-ways, introducing new streets, and opening bus access roads to all traffic. A new public green space at the station is surrounded by mixed-use buildings and housing over retail as well as with some parking garages hidden behind "liner" retail.

An important component of the Vision Plan is to repair the street grid and reconnect Cleveland Street at the transit center. Currently the street stops at the transit center. The street grid links the Downtown Redevelopment Area to the Arts, Technology & Environment District, while providing an alternative to the Coast Highway for local traffic. The creation of this alternative route is an important part in establishing a pedestrian-oriented plan for Coast Highway and the surrounding areas.

A roundabout at Wisconsin Avenue slows traffic and marks the southern entrance to the node. The Plan includes incremental infill development along Coast Highway to create a more pedestrian-oriented development pattern, with small setbacks, storefronts, and wide, greened sidewalks with new street trees. New infill development along Coast Highway would link to development along Michigan Avenue and Cleveland Street - and connect to the main downtown areas. The node is connected to the nearby Sprinter Station area via the Arts, Technology & Environment District on Cleveland Avenue." ***- Oceanside Coast Highway Vision and Strategic Plan***

Prioritized Project Number : 2

Project Name:	**Mission Avenue (Pacific to Horne)**	Source: Field work / Public input
Primary Location:	Mission Avenue between Pacific Street to Horne Street	
Improvements Proposed:	Install more lighting, pedestrian warning signs, and enhanced crosswalks when the opportunity presents itself. Install traffic signal at Clementine St when the signal warrants are met.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	12.7	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	15,531	Medium (101-200)	4
Normalized Score (model raw score / acres)	1,220	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**41**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		1	3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		19	2
No collisions noted but the public has expressed safety concerns in the area:			1

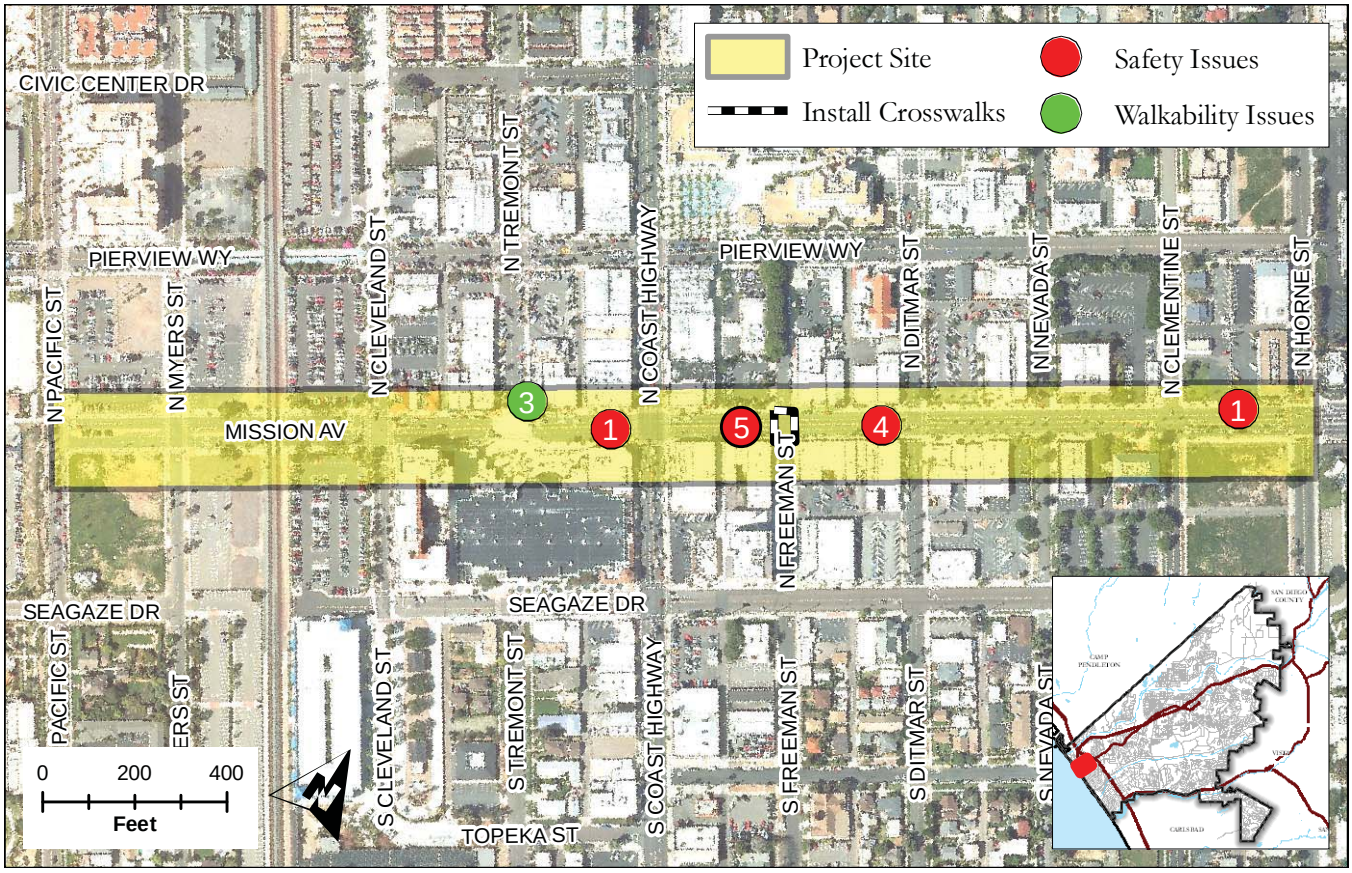
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		**87**

Project: **Mission Avenue (Pacific to Horne)** **Prioritized Project Number :** **2**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Lack of pedestrian crossing signs
3. Sidewalk is too narrow (see issue W6)
4. Missing street lights (see issue S12 and S13)
5. Missing crosswalks

Cost: *$-

Contingency (35%): *$-

Total Cost: *$-

***This project has just entered the design process and improvements may vary dramatically. Therefore, no costs have been included.**

Prioritized Project Number : 3

Project Name:	**Mission Avenue (Horne to Archer)**	Source: Field work/Public input
Primary Location:	Mission Avenue between Horne Street and Archer Street	
Improvements Proposed:	Install enhanced crosswalks when signal warrants are met and add more pedestrian warning signs.	

PEDESTRIAN ACTIVITY LEVELS	Ranked Score for this Criteria (high scores are better)=		10
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	262.2	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	81,946	Medium (101-200)	4
Normalized Score (model raw score / acres)	313	Low (<100)	2

SAFETY CRITERIA	Ranked Score for this Criteria (high scores are better)=		22
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		2	5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		6	2
No collisions noted but the public has expressed safety concerns in the area:			1

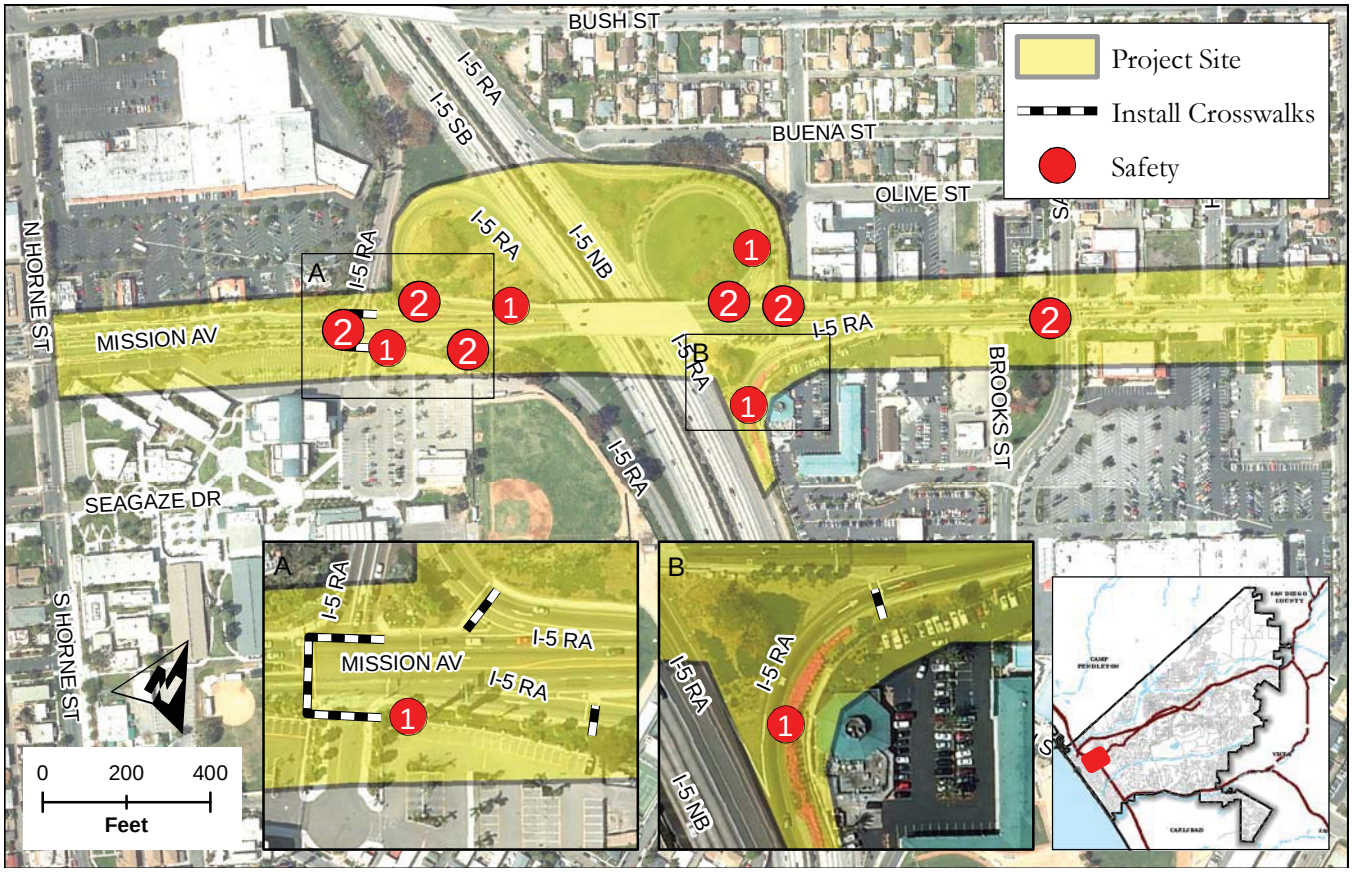
ACCESSIBILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	14
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	10
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	6
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	Ranked Score for this Criteria (high scores are better)=	2
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		64

Project: **Mission Avenue (Horne to Archer)** **Prioritized Project Number :** **3**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Lack of pedestrian crossing signs
2. Missing crosswalks

Cost: **$4,533**

Contingency (35%): **$1,587**

Total Cost: **$6,120**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Install pedestrian crossing or warning signs	4	EA	$750	$3,000
Install and re-stripe crosswalks (see solution 4S)	511	LF	$3	$1,533

*The geometrics of this interchange will be changed with the I-5 widening project. The result will be an interchange similar to that of Oceanside Blvd and I-5. This will be maintained by Caltrans.

Prioritized Project Number : 4

Project Name:	**Coast Highway (Morse to Oceanside)**	Source: Coast Highway Vision Plan
Primary Location:	Between Morse Street and Oceanside Blvd	
Improvements Proposed:	Redefine and extend walkway system to south of tracks to increase accessibility and walkability, add green space, and increase mixed use.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	64.4	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	23,126	Medium (101-200)	4
Normalized Score (model raw score / acres)	359	Low (<100)	2

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**15**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		1	3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		6	2
No collisions noted but the public has expressed safety concerns in the area:			1

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
	TOTAL SCORE:	61

Project: Coast Highway (Morse to Oceanside) **Prioritized Project Number : 4**

"The Sprinter Station area is currently surrounded by low density development that is not conducive to a transit-oriented center concept (e.g. mobile home and RV parks, and commercial areas with large parking lots). The Plan calls for transit-oriented mixed uses that accommodates the arts, technology, and environmental sciences (north of the Sprinter tracks) and contributes to the synergy of the Arts, Technology & Environment District along Cleveland Street. An eco-friendly resort and retail development (south of the Sprinter tracks) is located along Loma Alta Creek. A transit plaza at the station is surrounded by a mixed-use retail and residential courtyard building and a podium-type parking garage. The plaza encourages visibility of the station from the Highway. Unbundled, transit-appropriate, and shared parking requirements encourage development at the station area.

The street grid network is extended south of the tracks to increase accessibility, walkability, and development potential in this area. The new grid makes a gesture toward the station plaza by connecting the plaza to a new green space with residential frontages around it.

The Loma Alta Creek is re-configured west of Coast Highway consistent with the city's plan for an expanded lagoon at that location and made user-friendly with landscaped banks, a viewing platform, and pedestrian and bike trails that link across the railroad tracks towards the beach. A new street runs along the creek, thereby making this unique open space amenity more accessible to the community.

A roundabout at Coast Highway and Oceanside Boulevard slows traffic and marks Oceanside Boulevard as a main east-west corridor. New shade trees are added to the palm trees that currently exist along the Highway and palm trees are added to Oceanside Boulevard. A landscaped median is added outside the TOD node, to signify the Avenue segment of the Coast Highway. The more pedestrian-oriented segment of the node does not include a median, in order to accommodate a narrower right-of-way that is more pedestrian-friendly". ***- Oceanside Coast Highway Vision and Strategic Plan***

Prioritized Project Number : 5

Project Name:	**Crouch Street at Oceanside Boulevard**	Source:	Transit field work
Primary Location:	Oceanside Boulevard at Crouch Street and Greenbrier Drive		
Improvements Proposed:	Add sidewalks and pedestrian facilities at Crouch Street and Oceanside Blvd. Relocate amenities that block sidewalks.		

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**6**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**70.7**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**20,534**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**290**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**16**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?		(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=	2	**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=	5	**2**
No collisions noted but the public has expressed safety concerns in the area:		**1**

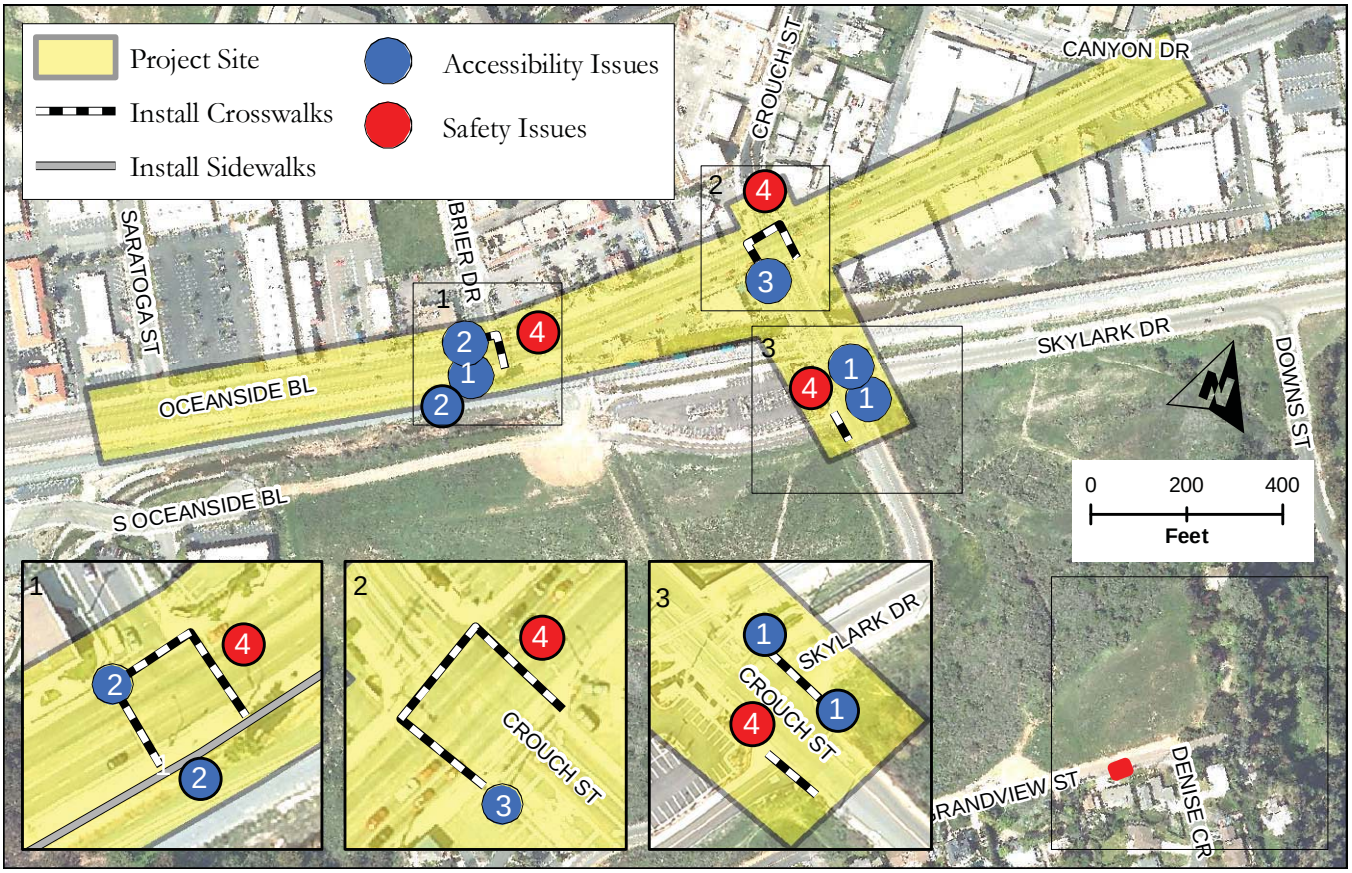
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**55**

Project: **Crouch Street at Oceanside Boulevard** **Prioritized Project Number :** **5**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Missing curb ramps (see issue A1)
2. Lack of pedestrian activated signal (see issue A3)
3. Signs obstruct the sidewalk (see issue A4)
4. Missing crosswalks

Cost: **$273,500**

Contingency (35%): **$95,725**

Total Cost: **$369,225**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install curb ramp (see solution 1A)	3	EA	$2,750	$8,250
Add pedestrian activated signal (see solution 2A)	2	EA	$125,000	$250,000
Move signs away from walk (see solution 4A)	3	EA	$250	$750
Install crosswalks (see solution 3S)	580	LF	$25	$14,500

Prioritized Project Number : 6

Project Name:	**Mission Avenue (Mesa to Fireside)**	Source: Field work / Public input
Primary Location:	Mission Avenue between Mesa Drive and Fireside Street	
Improvements Proposed:	Install missing sidewalks, install and enhance crosswalks when signal warrants are met. Move obstacles from the sidewalks.	

PEDESTRIAN ACTIVITY LEVELS	Ranked Score for this Criteria (high scores are better)=		2
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	679.8	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	60,209	Medium (101-200)	4
Normalized Score (model raw score / acres)	89	Low (<100)	2

SAFETY CRITERIA	Ranked Score for this Criteria (high scores are better)=		27
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		1	5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		11	2
No collisions noted but the public has expressed safety concerns in the area:			1

ACCESSIBILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	12
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	7
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	5
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	Ranked Score for this Criteria (high scores are better)=	1
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		54

Project: **Mission Avenue (Mesa to Fireside)** **Prioritized Project Number :** **6**

Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Utility boxes limit access (see issue A4)
2. Missing crosswalks
3. Missing sidewalks (see issue A5)

Cost: **$193,925**

Contingency (35%): **$67,874**

Total Cost: **$261,799**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Relocate utility boxes away from sidewalk (see solution 4A)	1	EA	$5,000	$5,000
Install and stripe crosswalks	837	LF	$25	$20,925
Install sidewalks (5'wide) (see issue 4A and 20S)	28,000	SF	$6	$168,000

Prioritized Project Number : 7

Project Name:	**I-5/Oceanside Boulevard**	Source: Field work / Public input
Primary Location:	Oceanside Boulevard between Saratoga Street and Nevada Street	
Improvements Proposed:	Add missing sidewalks, enhance and install crosswalks when signal warrants are met. Add lighting underneath I-5.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**385**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**61,587**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**174**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**15**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=	1		**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=	6		**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

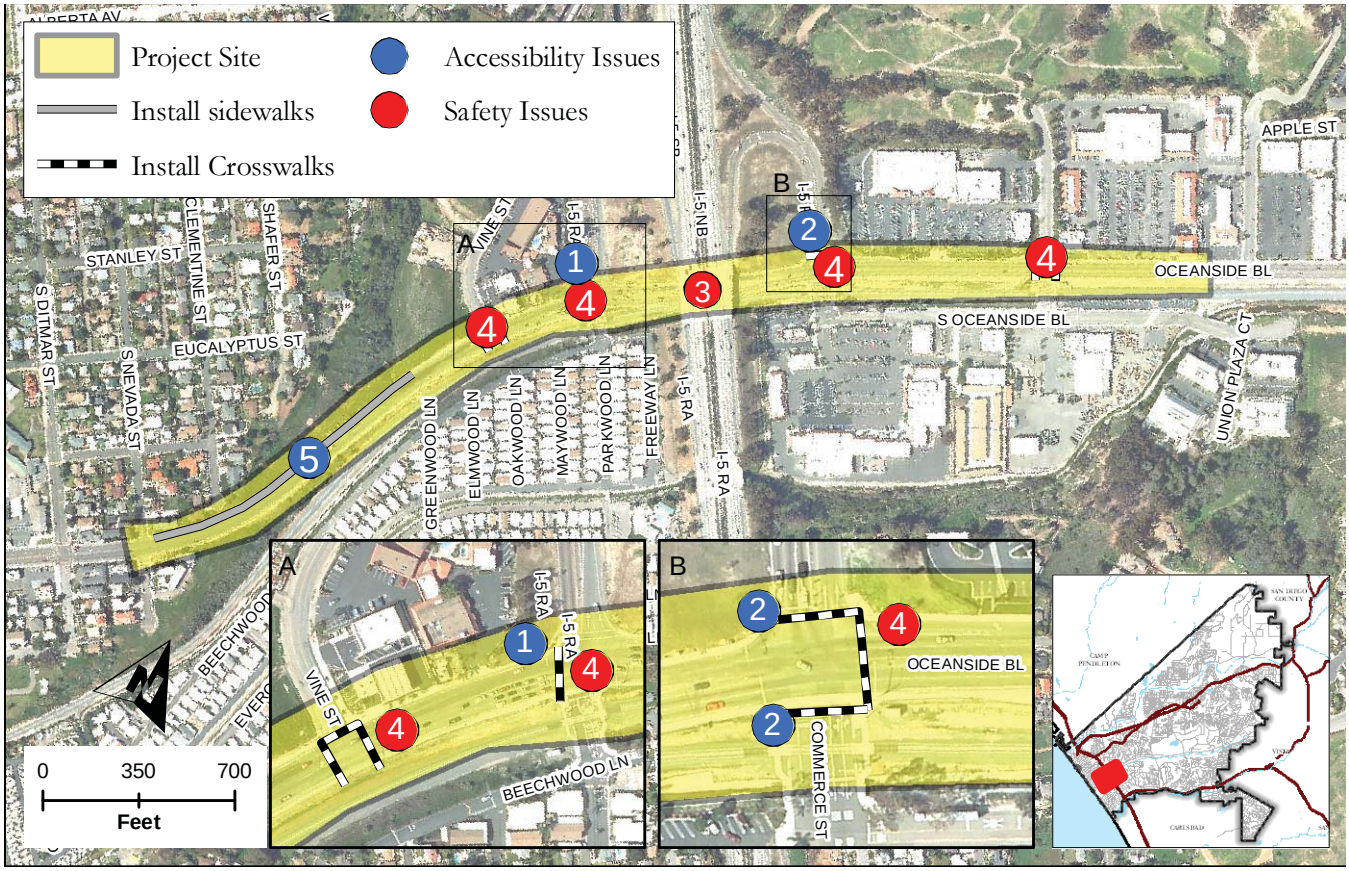
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**13**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**4**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**52**

Project: **I-5 / Oceanside Boulevard** **Prioritized Project Number :** **7**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Missing pedestrian curb ramp (see issue A2)
2. Missing pedestrian actuated signals (see issue A3)
3. Missing pedestrian lighting at I-5 crossing (see issue S12 and S13)
4. Missing crosswalk
5. Missing sidewalk (see issue A5)

Cost: **$348,450**

Contingency (35%): **$121,958**

Total Cost: **$470,408**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Install curb ramp (see solution 1A)	1	EA	$2,750	$2,750
Install pedestrian actuated signals (see solution 2A)	2	EA	$125,000	$250,000
Add pedestrian lighting under I-5 (see solution 17S)	1	LS	$40,000	$40,000
Install crosswalks (see solution 3S)	860	LF	$25	$21,500
Install sidewalks (5' wide) (see solution 4A and 20s)	5,700	SF	$6	$34,200

Prioritized Project Number : 8

Project Name:	**The Strand**	Source: Field work/public input
Primary Location:	Between Wisconsin Avenue to Pier View Way	
Improvements Proposed:	Add crosswalks and stop sign at Seagaze Dr when signal warrants are met. Add pedestrian warning signs.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**211.8**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**64,302**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**304**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**5**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=	1		**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=	1		**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

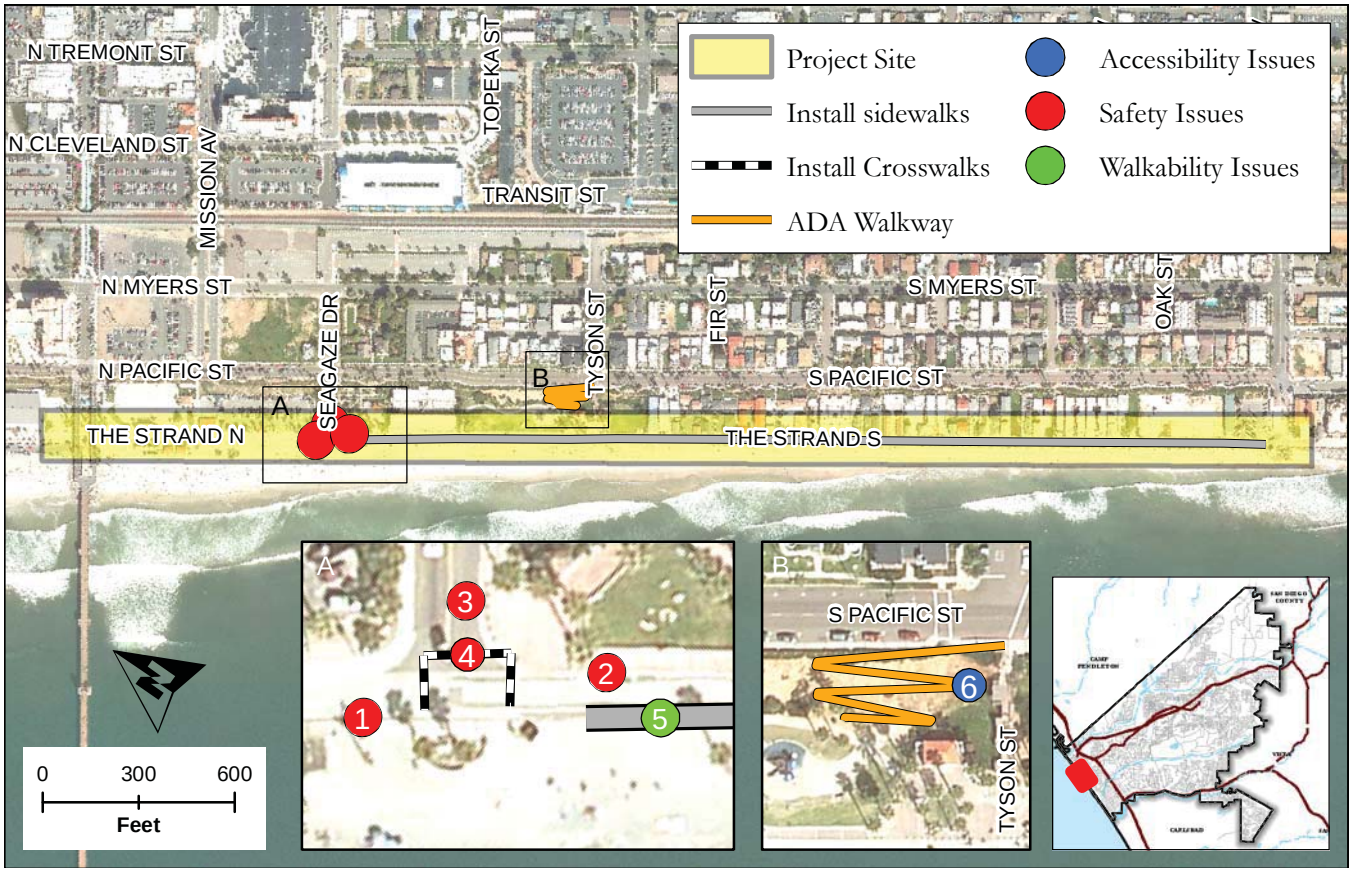
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**15**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**10**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**51**

Project: **The Strand** **Prioritized Project Number :** **8**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Lack of directional signage
2. Conflicts between pedestrians and cars at intersection (see issue S8)
3. Stop signs needed (see issue S8)
4. Missing crosswalk
5. Missing adequate separation between vehicles and pedestrians, vehicles park along the strand forcing walkers into the street (see issue W6)
6. Missing ADA connection from Pacific Street to The Strand (see issue A2)

Cost: **$474,850**

Contingency (35%): **$166,197**

Total Cost: **$641,047**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Add directional signage for drivers travelling south on The Strand	1	EA	$750	$750
Add yield to pedestrian signage	4	EA	$750	$3,000
Add stop signs (ground mounted)	1	EA	$500	$500
Install crosswalks (see solution 3S)	84	LF	$25	$2,100
Install sidewalk (6'-8' wide) with curb and gutter (see solution 1W and 20S)	2,875	LF	$76	$218,500
Install ADA ramp from Pacific Street to The Strand at Tyson (see solution 6A)	1	LS	$250,000	$250,000

Prioritized Project Number : 9

Project Name:	**Pacific Street (Wisconsin to Pier View)**	Source: Field work/public input
Primary Location:	Pacific Street from Wisconsin Avenue to Pier View Way	
Improvements Proposed:	Increase width of sidewalks based on level of use. Move bollards and install sidewalk into the adjacent planting to provide a wider walking path.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	225.4	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	78,566	Medium (101-200)	4
Normalized Score (model raw score / acres)	349	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**8**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		4	2
No collisions noted but the public has expressed safety concerns in the area:			1

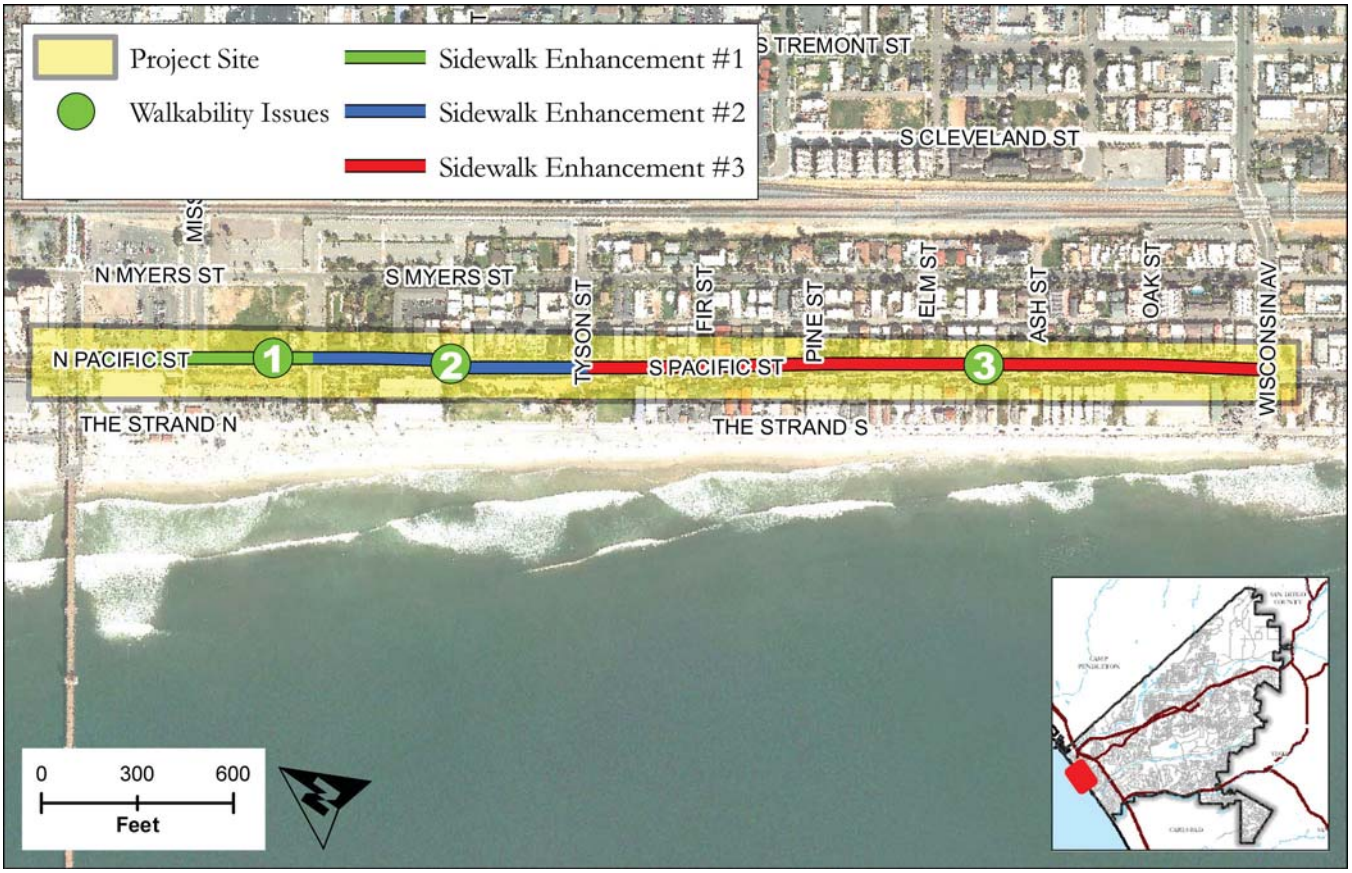
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**10**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**7**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease derelict properties/ street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		48

Project: Pacific Street (Wisconsin to Pier View) **Prioritized Project Number :** 9



Existing Issues: (Issue Reference No. can be found in Chapter 3)

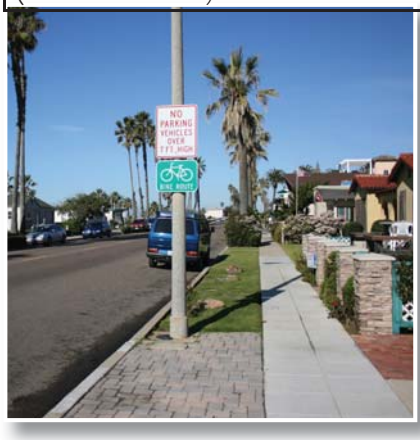
1. Treatment #1, Sidewalk isn't a sufficient width to accommodate the number of pedestrians that utilize the corridor along South Pacific Street, should be 10' (see issue W6)
2. Treatment #2, Sidewalk isn't a sufficient width to accommodate the number of pedestrians that utilize the corridor along South Pacific Street, should be 8' (see issue W6)
3. Treatment #3, Sidewalk isn't a sufficient width to accommodate the number of pedestrians that utilize the corridor along South Pacific Street, should be 7' (see issue W6)

Cost: **$61,380**

Contingency (35%): **$21,483**

Total Cost: **$82,863**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Increase sidewalk width from 5' to 10' (see solution 1W)	3,450	SF	$6	$20,700
Increase sidewalk width from 5' to 8' (see solution 1W)	2,580	SF	$6	$15,480
Increase sidewalk width from 5' to 7' when opportunities present themselves (see solution 1W)	4,200	SF	$6	$25,200



Prioritized Project Number : 10

Project Name:	**South Cleveland Street (Oceanside to Wisconsin)**	Source: Coast Highway Vision Plan
Primary Location:	South Cleveland Street between Oceanside Blvd and Wisconsin Ave)	
Improvements Proposed:	Improve street conditions (street trees, repair sidewalks, add curb ramps..etc)	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**11.3**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**5,820**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**517**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**4**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=	2		**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

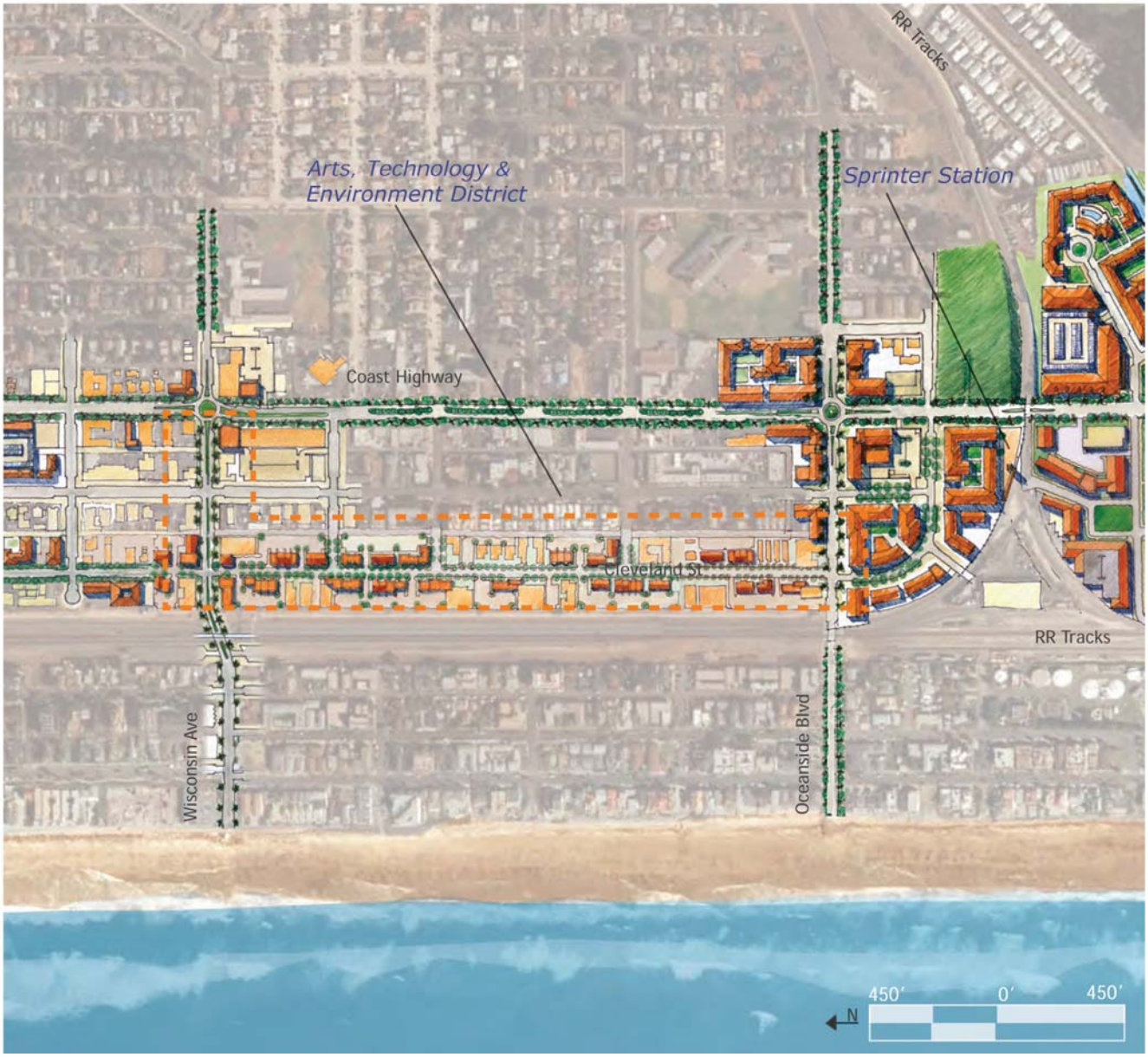
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**13**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**10**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**45**

Project: South Cleveland Street (Oceanside to Wisconsin) **Prioritized Project Number : 10**



"The proposed location of the Arts, Technology & Environment District on Cleveland Street capitalizes upon available building stock and Oceanside's unique manufacturing heritage (e.g. in surfboard shaping). The presence of under-utilized manufacturing facilities in this area makes it an ideal location for new creative industries seeking business space. The Plan calls for new infill on vacant lots along with the renovation of warehouses. The new and renovated structures house art- and technology- related uses, from software design and surfboard shaping, to "green" oriented professional offices, artists housing, galleries, and studios. Art supply stores and cafes would complete the ensemble.

Reducing parking requirements and creating a shared-parking district to take advantage of the District's proximity to the train station and pedestrian-friendly district environment." ***- Oceanside Coast Highway Vision and Strategic Plan***

Prioritized Project Number : 11

Project Name:	**Pier View Way Promenade**	Source: Downtown Walkability Plan
Primary Location:	Streets including and bordered by Mission Avenue, Tremont Street, Civic Center and Myers Street	
Improvements Proposed:	Provide bulbout at corners and move parking signs off of the sidewalks. Move restaurant furniture away from pedestrians path of travel.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**28**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**12,514**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**447**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**18**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		9	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

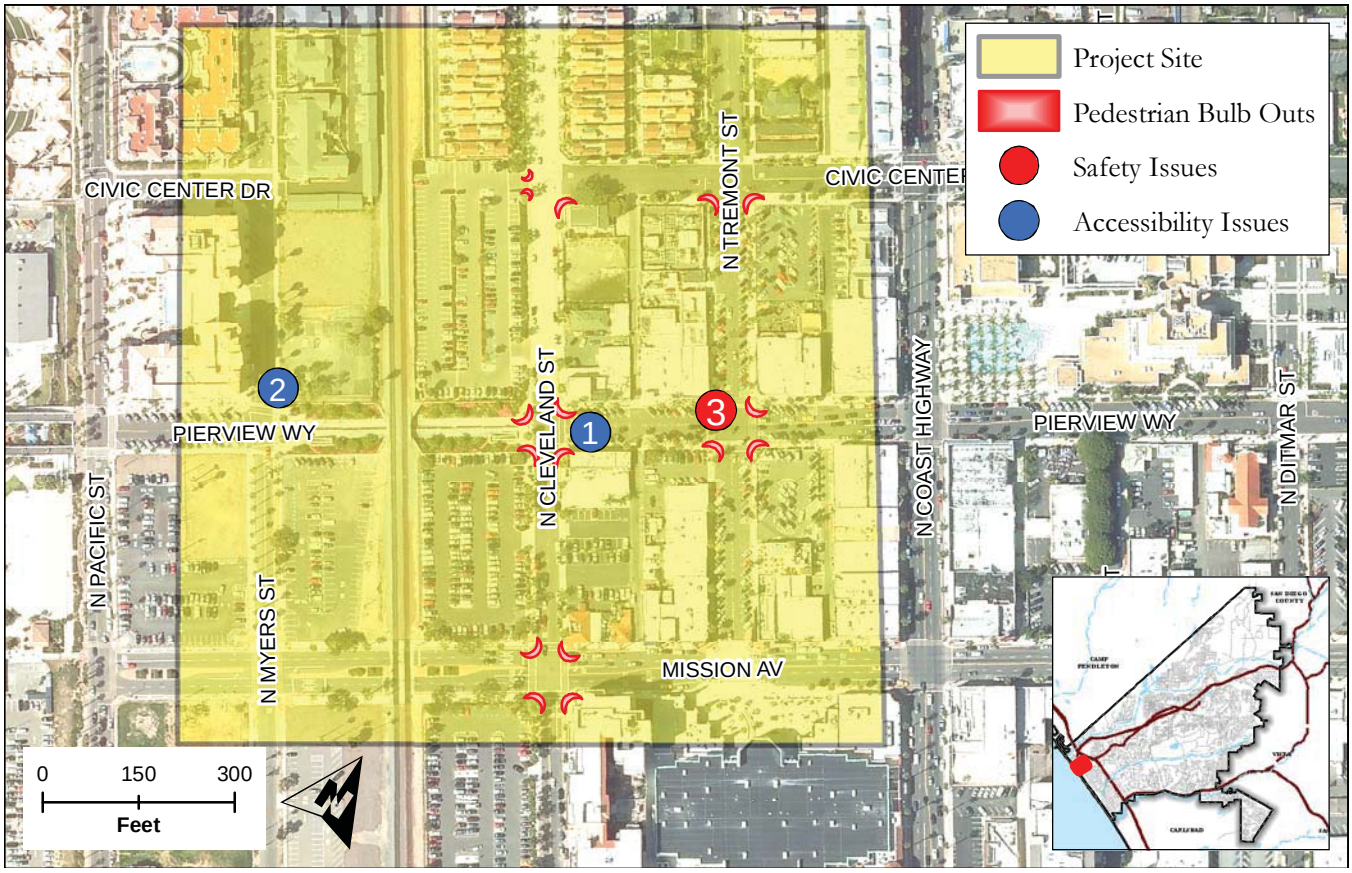
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**10**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**3**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**45**

Project: **Pier View Way Promenade** **Prioritized Project Number :** **11**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Restaurant seating obstructing the sidewalk (see issue A4)
2. Limited walkable surfaces (see issue A4)
3. Pedestrian visibility of vehicles is limited (see issue S1 and S4)

Cost: **$300,500**

Contingency (35%):$105,175

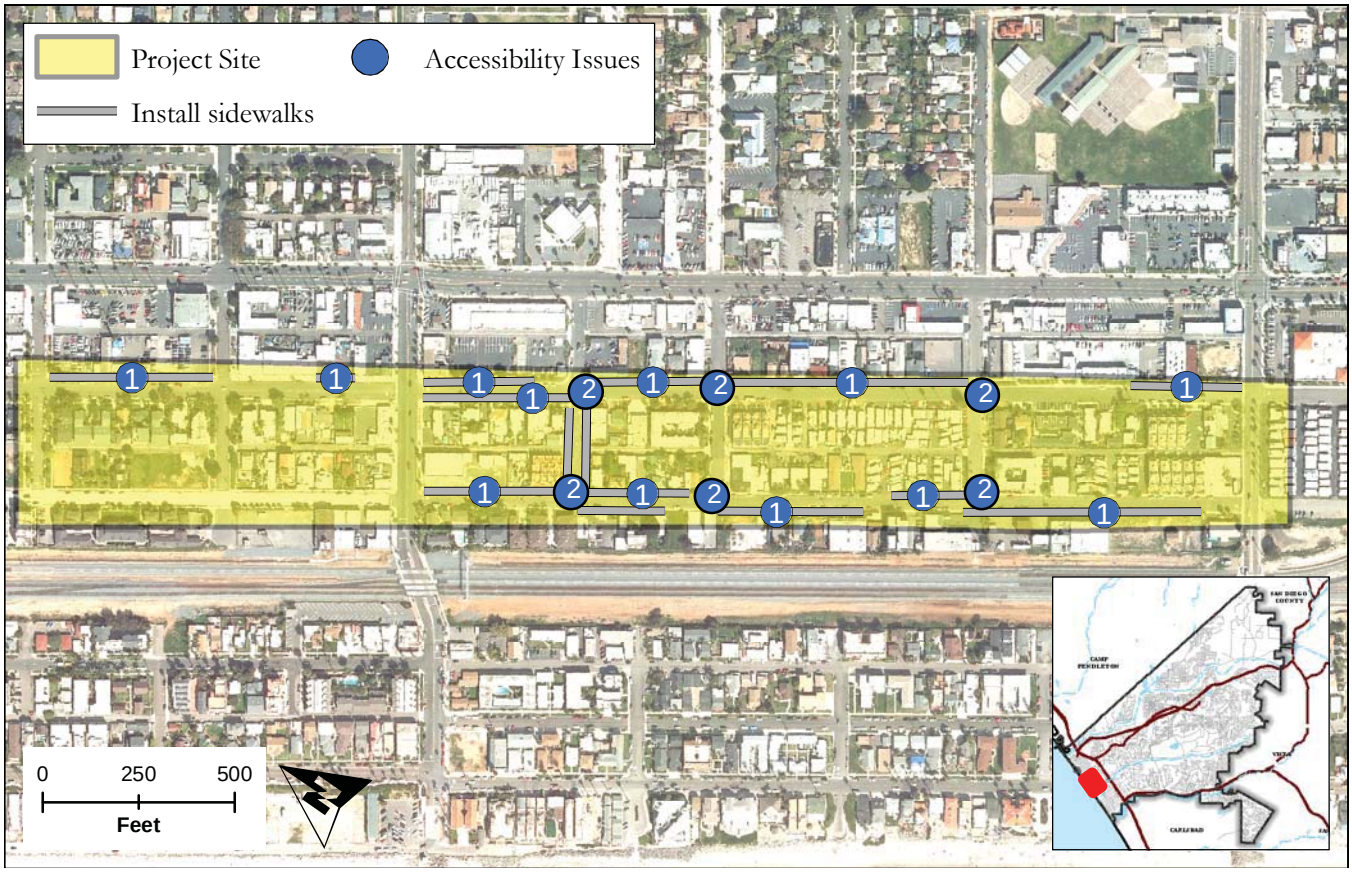
Total Cost: **$405,675**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Move restaurant seating and signs off of sidewalk (see solution 4A)	-	-	-	-
Infill planters with walkable surfaces (see issue A4)	1	LS	$500	$500
Install bulb-outs (see solution 2S)	12	EA	$25,000	$300,000

Prioritized Project Number : 12

Project Name:	**Tremont and Cleveland Streets**		Source: Field work/public input	
Primary Location:	South Tremont Street and Cleveland Street between Washington Avenue and Oceanside Boulevard			
Improvements Proposed:	Connect and install sidewalks and curb ramps.			
PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**		**6**
	Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
	Lineal Feet of improvement:		Very High (>301)	**10**
	Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**280**	High (>201-300)	**6**
	Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**82,416**	Medium (101-200)	**4**
	Normalized Score (model raw score / acres)	**294**	Low (<100)	**2**
SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**		**4**
	History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
	Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
	Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
	Collisions between vehicles (or bikes) and pedestrians with minor injuries=		2	**2**
	No collisions noted but the public has expressed safety concerns in the area:			**1**
ACCESSIBILITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**		**14**
	What issues of accessibility will be improved by this project?			(circle all that apply, enter above)
	Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:			**5**
	Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):			**4**
	Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):			**3**
	Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:			**3**
	Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:			**2**
	Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:			**2**
	Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:			**1**
CONNECTIVITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**		**13**
	How will connections be added / improved or barriers removed between major destinations & origins?			(circle all that apply, enter above)
	Missing routes to transit centers will be added or substantially improved from current conditions:			**3**
	Missing routes to schools will be added or substantially improved from current conditions:			**3**
	The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:			**3**
	Connections will be added or substantially improved between major housing origins and major public facilities:			**2**
	Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:			**1**
	Connections will be added or substantially improved between major housing origins and employment areas:			**1**
	Connections will be added or substantially improved between major housing origins, public parking and recreational areas:			**1**
WALKABILITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**		**6**
	How will this project improve walkability and decrease the harshness of the walking environment?			(circle all that apply, enter above)
	Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:			**2**
	Bright, hot or highly reflective walking areas will receive shade from trees:			**2**
	The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:			**2**
	The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:			**1**
	The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:			**1**
	Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:			**1**
INNOVATION CRITERIA		**Ranked Score for this Criteria (high scores are better)=**		**2**
	Will this project allow the city to implement new techniques and treatments?			(circle one & enter score above)
	Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:			**3**
	Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:			**2**
	Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:			**1**
			TOTAL SCORE:	**45**

Project: **Tremont and Cleveland Streets** **Prioritized Project Number :** **12**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1 Missing sidewalk (see issue A5)

2 Missing pedestrian ramps (see issue A2)

Cost: **$302,275**

Contingency (35%):$105,796

Total Cost: **$408,071**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install sidewalks (5' wide) (see solution 4A)	24,705	SF	$6	$148,500
Install curb and gutter (see solution 4A)	4,941	LF	$25	$123,525
Install pedestrian ramp (see solution 1A)	11	EA	$2,750	$30,250

Prioritized Project Number : 13

Project Name:	**South Coast Highway (Eaton to Cassidy)**	Source: Coast Highway Vision Plan
Primary Location:	Coast Highway Between Cassidy St and Eaton St	
Improvements Proposed:	Improve and widen sidewalks. Add roundabouts and shade trees.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**100**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**14,680**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**147**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**10**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=	5		**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**5**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**7**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**42**

Project: **Coast Highway (Eaton to Cassidy)** **Prioritized Project Number :** **13**

"The South 'O' Village is designed as two blocks of pedestrian-oriented retail and commercial mixed-use buildings compatible in mass and character with existing structures along Coast Highway and with adjacent residential development. Buildings in the Village incorporate large front display windows and frame the street on the ground floor. Sidewalks and building frontages are activated with pedestrian-oriented uses, such as cafes with outdoor dining.

Upper floors accommodate commercial uses and are differentiated from the ground floor through texture, color, material, and architectural elements. Denser development in the Village takes place at the corners of Cassidy Street and Vista Way and roundabouts as well as artful signage at these streets intersections mark the north and south entrances to the Village. Taller buildings at corners give pedestrians a sense of street enclosure and a feeling of arrival upon entering the Village. Public views to the water are framed by the new corner buildings and east-west arcades along the first floor. New shade trees in the Village and new landscaping on Cassidy and Vista frame the area and identify it as a district. Freeman Street is also integrated into the Village with new landscaping and accommodates a bike path, which links to the bicycle lanes and paths recently established by the city's new Master Bicycle Plan, as well as to bicycle lanes on Coast Highway, Cassidy, and Vista.

South 'O' Village addresses its parking needs through a shared parking concept. Visitors can park once in the parking lots and street spaces and then walk to multiple destinations. Parking is tucked behind retail fronts so as to minimally impact the public realm. Two mid-block pedestrian paseos between Freeman Street and Coast Highway increase circulation and provide pedestrian access to the shopping areas in adaptively-reused buildings. New shops face the paseo's courtyard, and pedestrian-oriented lighting and landscaping give the area character." ***- Oceanside Coast Highway Vision and Strategic Plan***

Prioritized Project Number : 14

Project Name:	**Oceanside Pier**	Source: Field work
Primary Location:	Pier View Way and Pacific Street	
Improvements Proposed:	Provide elevator from the Pier to the Strand. Provide a ADA accessible ramp between Pacific Stret and the amphitheater. Clear obstacles from the	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**39.4**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**13,636**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**346**	Low (<100)	**2**

SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**2**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		1	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

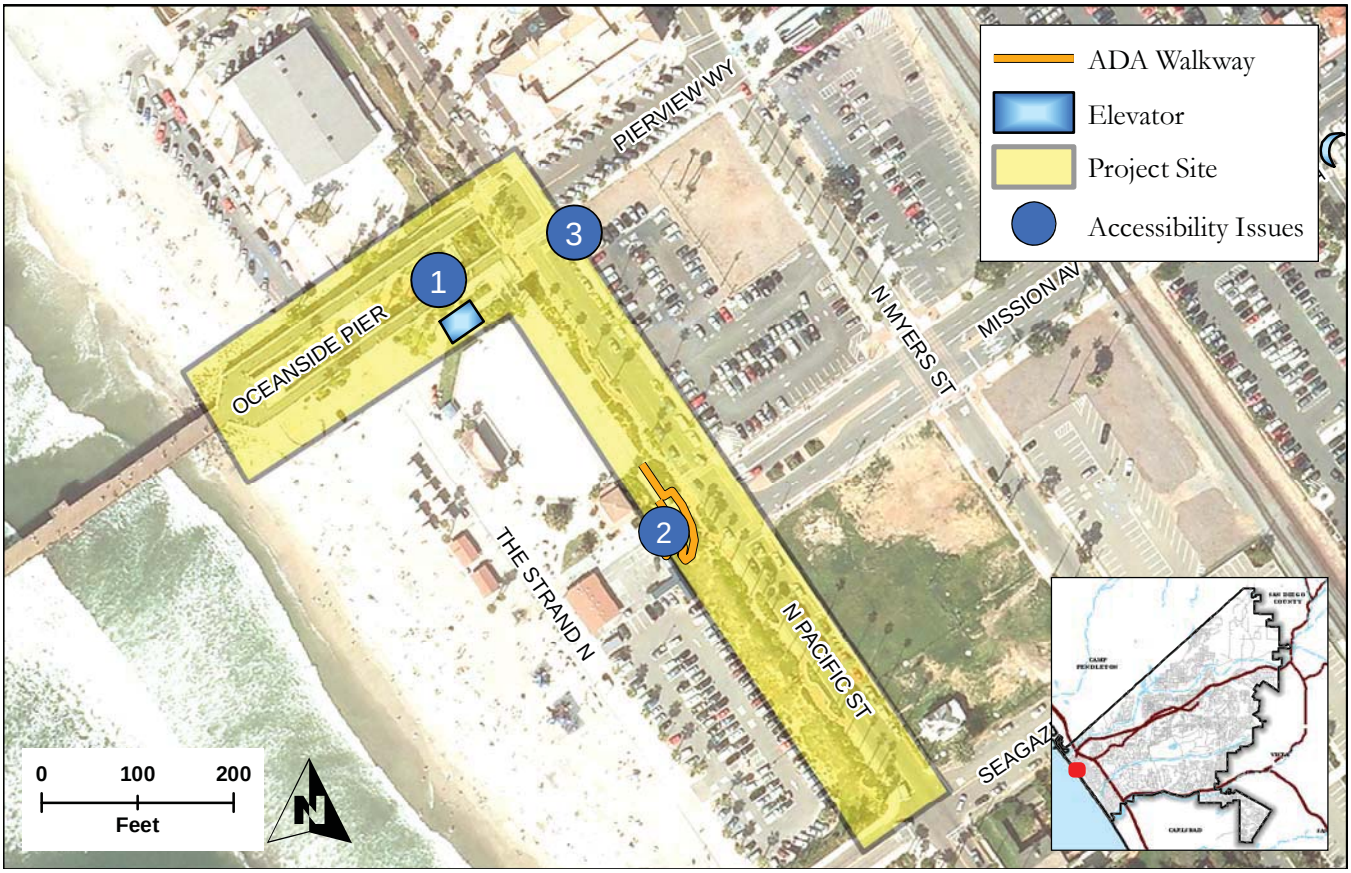
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**5**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**3**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**40**

Project: **Oceanside Pier** **Prioritized Project Number :** **14**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

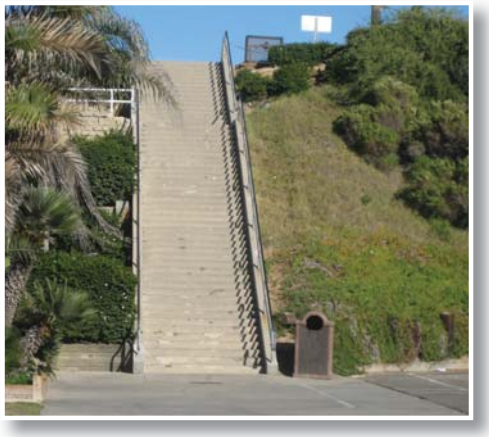
1. Lack of ADA access onto The Pier (see issue A2)
2. Lack of ADA access between The Pier, amphitheater, and The Strand (see issue A2)
3. Signs and newspaper racks obstruct the sidewalk (See Issue A4)

Cost: **$1,017,000**

Contingency (35%):$355,950

Total Cost: **$1,372,950**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Install elevator	1	EA	$1,000,000	$1,000,000
Install ADA ramp from Pacific Street, to amphitheater, and The Strand at Mission Ave. (See Solution 6A)	1	LS	$15,000	$15,000
Remove or place obstacles away from the sidewalk (See Solution 4A)	8	EA	$250	$2,000



Prioritized Project Number : 15

Project Name:	**San Luis Rey River Mouth (West of I-5, Windward to Harbor)**	Source: Coast Highway Vision Plan
Primary Location:	West of I-5, east of railroad tracks adjacent to San Luis Rey River mouth.	
Improvements Proposed:	Provide"Arts Bridge" with a wide sidewalk promenade. Increase traffic calming with roundabouts, crosswalks, and street trees. Extend walkway grid system.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	99	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	14,525	Medium (101-200)	4
Normalized Score (model raw score / acres)	146	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**3**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		1	3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=			2
No collisions noted but the public has expressed safety concerns in the area:			1

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**14**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**5**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		**37**

Project: San Luis Rey River Mouth (West of I-5, Windward to Harbor) Prioritized Project Number : 15

"As the gateway to Oceanside, Las Ramblas North 'O' incorporates artful entry signage where Coast Highway meets the Interstate. Coast Highway, is transformed into an "Arts Bridge" as it passes over the river with vertical artistic elements that catch the eye, but do not obstruct the view of the ocean from I-5.

The Plan calms entering traffic and congestion with a new roundabout in the existing right-of-way, where Interstate 5 interfaces with the Coast Highway. Crosswalks at the roundabout are set back from the intersection so that pedestrians can safely cross the street and two travel lanes in each direction assure that traffic flows smoothly.

Development in the node takes place on existing surface parking lots and empty parcels both north and south of the river, and includes a mix of visitor-serving uses, entertainment, retail, restaurants, and hotels. Development is low-impact; it incorporates sustainable building practices and uses green roofs and permeable paved surfaces. New street trees and landscape strips south of the river pull the vegetation and natural amenity of the river into the urban realm.

North of the river, Coast Highway is realigned so that it is pulled back from the Interstate. This allows for pedestrian-oriented development along both sides of the street to accommodate an entertainment/restaurant row district, based on a "Main Street" or "Las Ramblas" design concept. Parking is placed behind buildings so that there is minimal impact to the public realm."

- Oceanside Coast Highway Vision and Strategic Plan

Prioritized Project Number : 16

Project Name:	**El Camino Real at Oceanside Boulevard**	Source: Field work
Primary Location:	El Camino Real, Oceanside Boulevard and Industry	
Improvements Proposed:	Add crosswalks on Oceanside Blvd at El Camino Real and add missing sidewalks.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**54.1**	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**8,696**	Medium (101-200)	4
Normalized Score (model raw score / acres)	**161**	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**14**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		7	2
No collisions noted but the public has expressed safety concerns in the area:			1

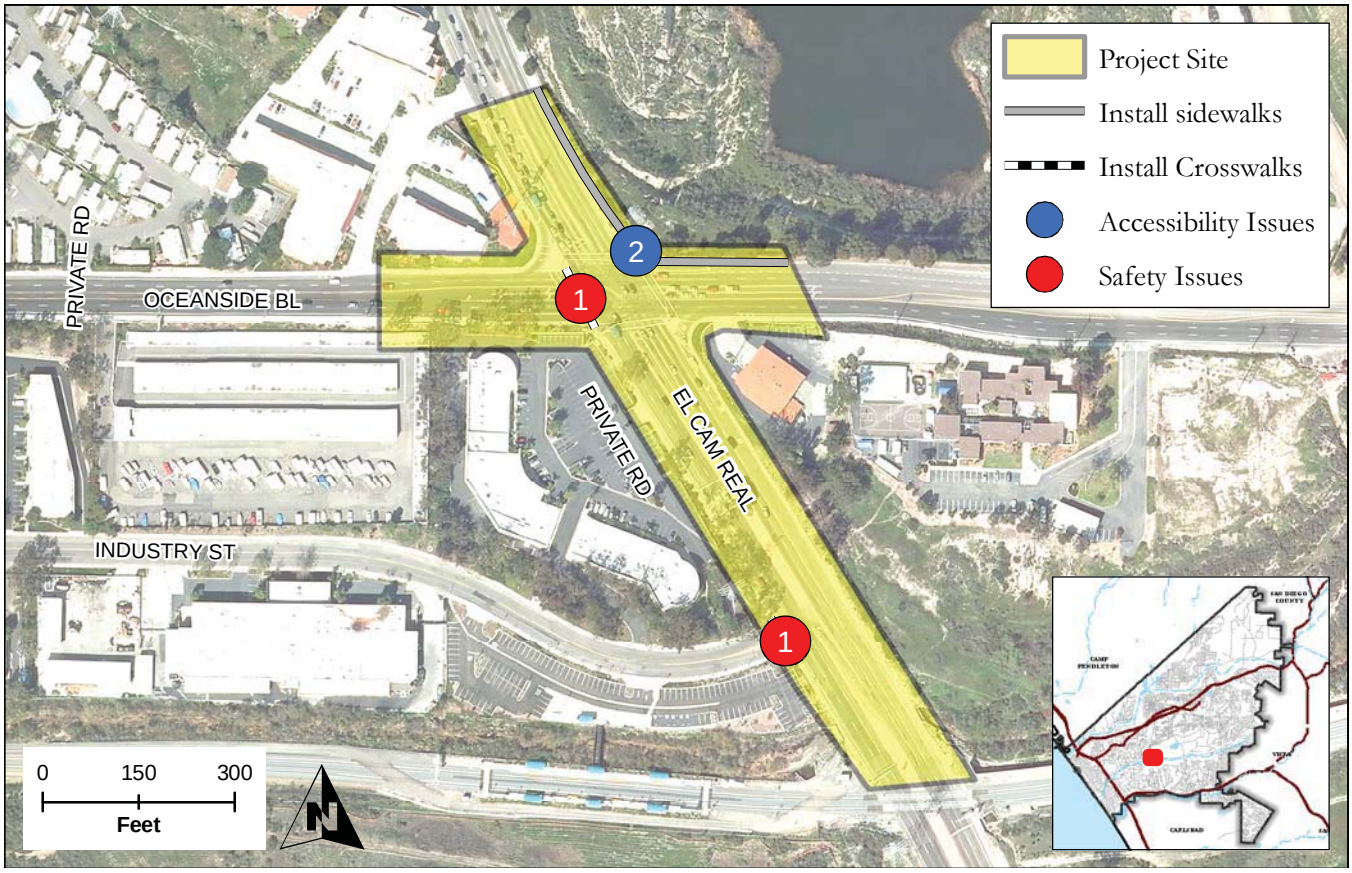
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**10**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**4**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
	TOTAL SCORE:	**36**

Project: **El Camino Real at Oceanside Boulevard** **Prioritized Project Number :** **16**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1 Lack of crosswalk

2 Missing sidewalk (see issue A5)

Cost: **$20,950**

Contingency (35%): **$7,333**

Total Cost: **$28,283**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Install crosswalk (see solution 3S)	190	LF	$25	$4,750
Install sidewalks (5' wide) (see solution 4A)	2,700	SF	$6	$16,200

Prioritized Project Number : 17

Project Name:	**Freeman, Ditmar, Nevada, Clementine and Horne Streets (Oceanside to Seagaze)**	Source: Coast Highway Vision Plan
Primary Location:	Freeman, Ditmar, Nevada, Clementine and Horne Streets between Seagaze Dr and Oceanside Blvd	
Improvements Proposed:	Make pedestrian connections across railroad tracks and traffic calming on connector streets. Wider sidewalks. Add missing sidewalks.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**180.9**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**35,997**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**199**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**11**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		1	**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		4	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**8**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**3**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**34**

Project: **Freeman, Ditmar, Nevada, Clementine, and Horne Streets (Oceanside to Seagaze)** **Prioritized Project Number : 17**

"The Seaside neighborhood is predominately composed of single family homes, but also includes some multi-family developments. The Plan maintains existing zoning designations and land uses and facilitates smooth transitions between higher-intensity development and smaller single family homes.

The plan anticipates the introduction of various traffic calming measures on north/south residential streets to include traffic circles, pinch points, woonerfs, etc. to discourage cut-through traffic, reduce vehicle travel speeds, and improve the safety of the streets." ***- Oceanside Coast Highway Vision and Strategic Plan***

It includes pedestrian-friendly landscaping and landscaping and setbacks that soften the street wall.

Prioritized Project Number : 18

Project Name:	**Pacific Street (Wisconsin to Morse)**	Source: Field work/public input
Primary Location:	Pacific Street from Wisconsin Avenue to Morse Street	
Improvements Proposed:	Add sidewalks when opportunities arise, remove landscaping within pedestrian path of travel, and revise driveways.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**6**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**193.6**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**52,198**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**270**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**8**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		4	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

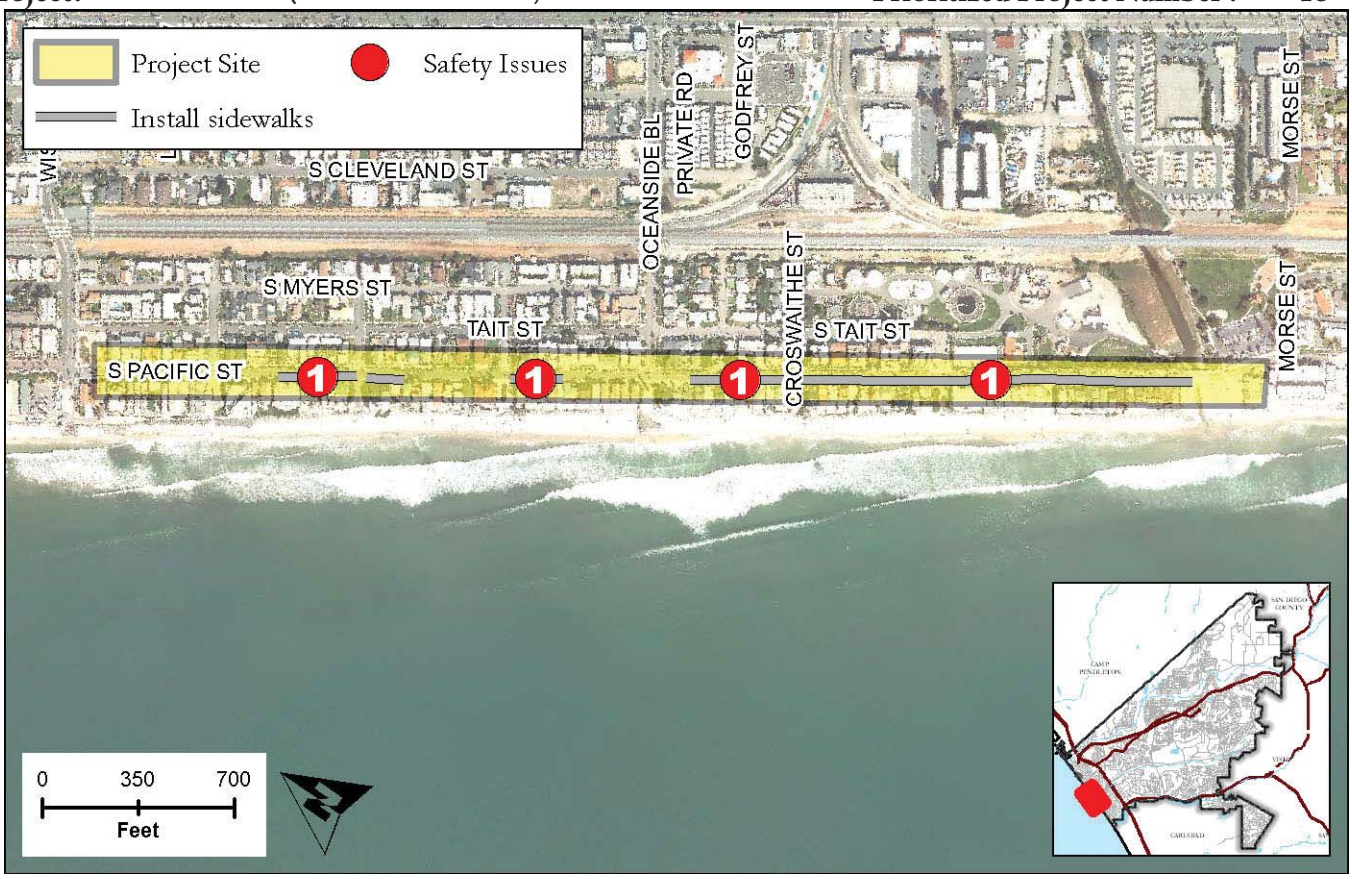
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
	TOTAL SCORE:	**33**

Project: **Pacific Street (Wisconsin to Morse)** **Prioritized Project Number :** **18**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1 Missing sidewalks (see issues A4, A5, and 7A)

Cost: **$71,550**

Contingency (35%): **$25,043**

Total Cost: **$96,593**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
Install sidewalks when major renovations occur (5' wide) (see solution 4A and 5A)	11,925	SF	$6	$71,550

Prioritized Project Number : 19

Project Name:	**Academy Road / Mission Avenue**	Source: Field work and public input
Primary Location:	Mission Avenue and Academy Road	
Improvements Proposed:	Provide sidewalks and curb ramps on north side of Mission Ave from Academy Rd eastbound under SR76 to entrance of shopping center.	

PEDESTRIAN ACTIVITY LEVELS	Ranked Score for this Criteria (high scores are better)=		2
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	79.4	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	6,495	Medium (101-200)	4
Normalized Score (model raw score / acres)	82	Low (<100)	2

SAFETY CRITERIA	Ranked Score for this Criteria (high scores are better)=	1
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?		(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		2
No collisions noted but the public has expressed safety concerns in the area:		1

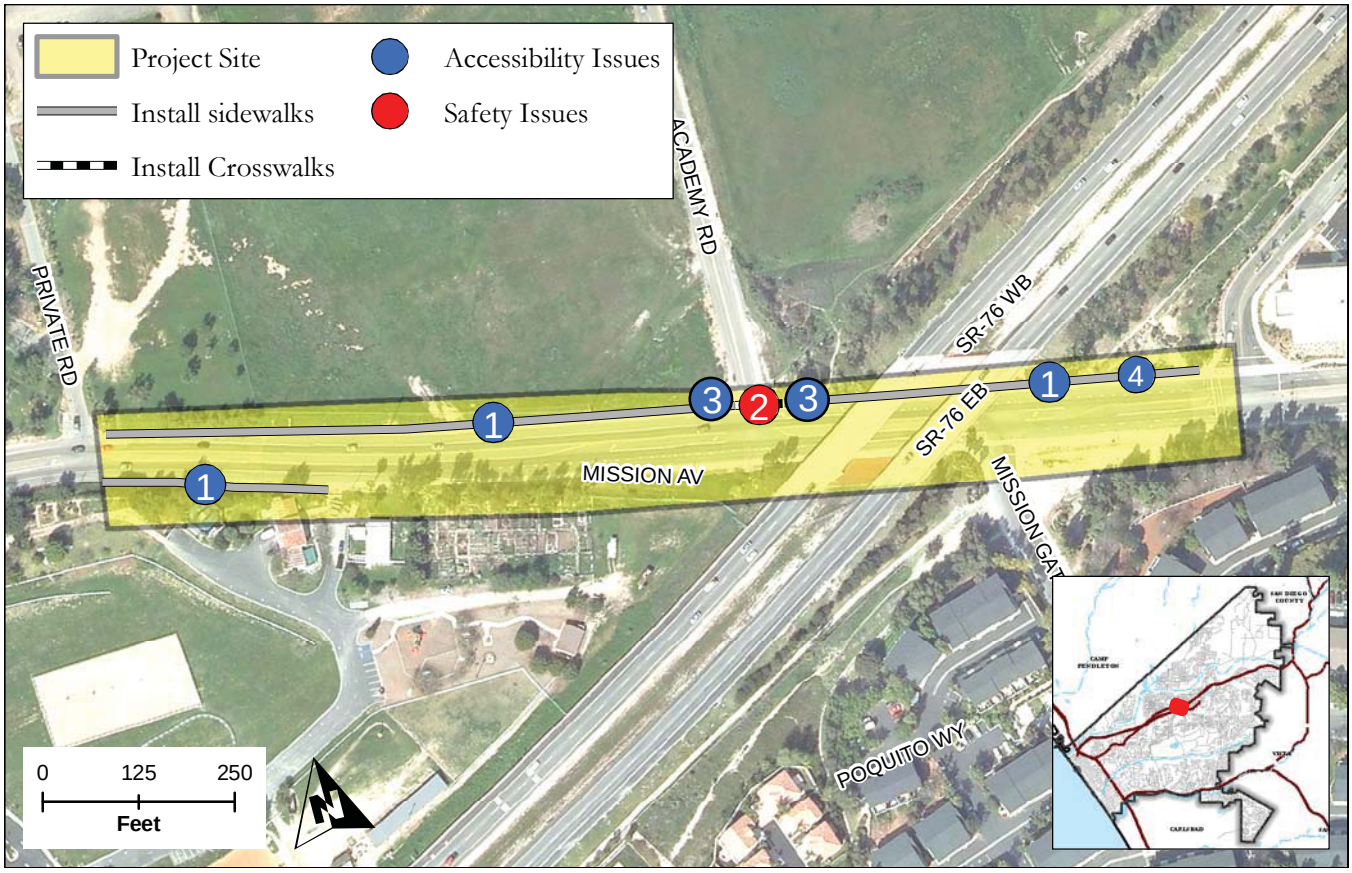
ACCESSIBILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	14
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	5
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	Ranked Score for this Criteria (high scores are better)=	6
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	Ranked Score for this Criteria (high scores are better)=	2
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		30

Project: **Academy Road / Mission Avenue** **Prioritized Project Number :** **19**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Missing sidewalk (see issue A5)
2. Missing crosswalk
3. Missing pedestrian curb ramps (see issue A1)
4. Fencing, signs, and utilities are blocking future sidewalk (see issue A4)

Cost: **$77,380**

Contingency (35%): **$27,083**

Total Cost: **$104,463**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install sidewalk (5' wide) (see solutions 4A and 20S)	11,500	SF	$6	$69,000
Install ladder style crosswalk (see solution 3S)	62	LF	$25	$1,550
Install pedestrian curb ramps (see solution 1A)	2	EA	$2,750	$5,500
Relocate all obstacles within sidewalk (see solution 4A)	1	LS	$1,330	$1,330

Prioritized Project Number : 20

Project Name:	**Canyon Drive/Mission Avenue**	Source: Collision data
Primary Location:	Mission Avenue/Canyon	
Issues Addressed:	High collision rates, high traffic speeds	
Improvements Proposed:	Clear sidewalks of utility boxes. Move "Canyon Dr" sign that hangs over the sidewalk.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**10**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**72.8**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**28,778**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**395**	Low (<100)	**2**

SAFETY CRITERIA	Ranked Score for this Criteria (high scores are better)=		6
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		3	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**3**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**4**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**27**

Project: **Canyon Drive / Mission Avenue** **Prioritized Project Number :** **20**

Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Utility boxes/traffic signal boxes in sidewalk (see issue A4)
2. Canyon Drive street sign sits over the sidewalk
3. Lack of pedestrian crossing signage (see issue S7)

Cost: **$16,000**

Contingency (35%): **$5,600**

Total Cost: **$21,600**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Relocate utility boxes/traffic signal boxes in the sidewalk (see solution 4A)	3	EA	$5,000	$15,000
Move "Canyon Drive" sign away from sidewalk	1	EA	$250	$250
Add additional pedestrian crossing signage for right-turn-only vehicles on west bound Mission Avenue onto northbound Canyon Drive	1	EA	$750	$750

Prioritized Project Number : 21

Project Name:	**Melrose Drive at Oceanside Boulevard**	Source: Transit field work
Primary Location:	Melrose Drive and Oceanside Boulevard	
Improvements Proposed:	Add crosswalks and sidewalks on Oceanside Blvd at Melrose Drive when signal warrants are met.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**2**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**53.6**	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**3,747**	Medium (101-200)	4
Normalized Score (model raw score / acres)	**70**	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**1**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?		(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		2
No collisions noted but the public has expressed safety concerns in the area:		1

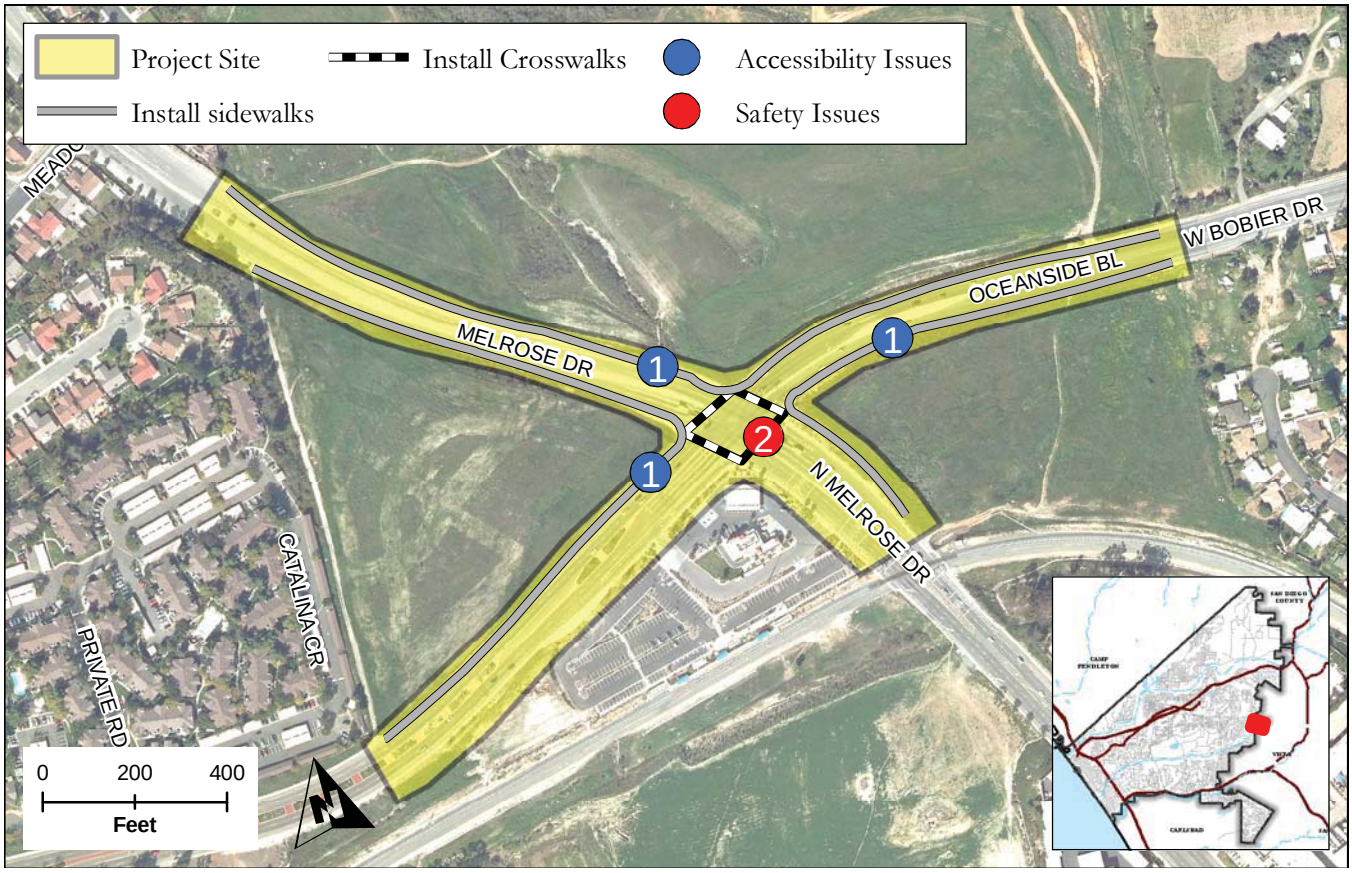
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**6**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
	TOTAL SCORE:	22

Project: **Melrose Drive at Oceanside Boulevard** **Prioritized Project Number :** **21**



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1 Missing sidewalks (see issue A5)

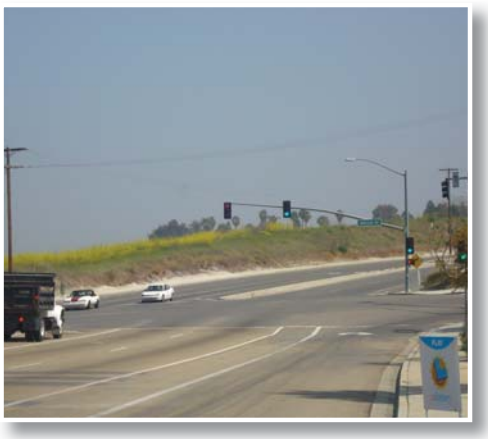
2 Missing crosswalks (see issue S7)

Cost: **$175,500**

Contingency (35%): **$61,425**

Total Cost: **$236,925**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install sidewalks (5' wide) (see solution 4A)	27,000	SF	$6	$162,000
Install crosswalks (see solution 3S)	540	LF	$25	$13,500



Prioritized Project Number : 22

Project Name:	**San Luis Rey Drive/I-5 Crossing**	Source: Public input
Primary Location:	San Luis Rey Drive at Interstate 5	
Improvements Proposed:	Add lighting in the underpass and install paving between staircase and San Luis Rey Drive.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**32.8**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**3,573**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**109**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**2**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		1	**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

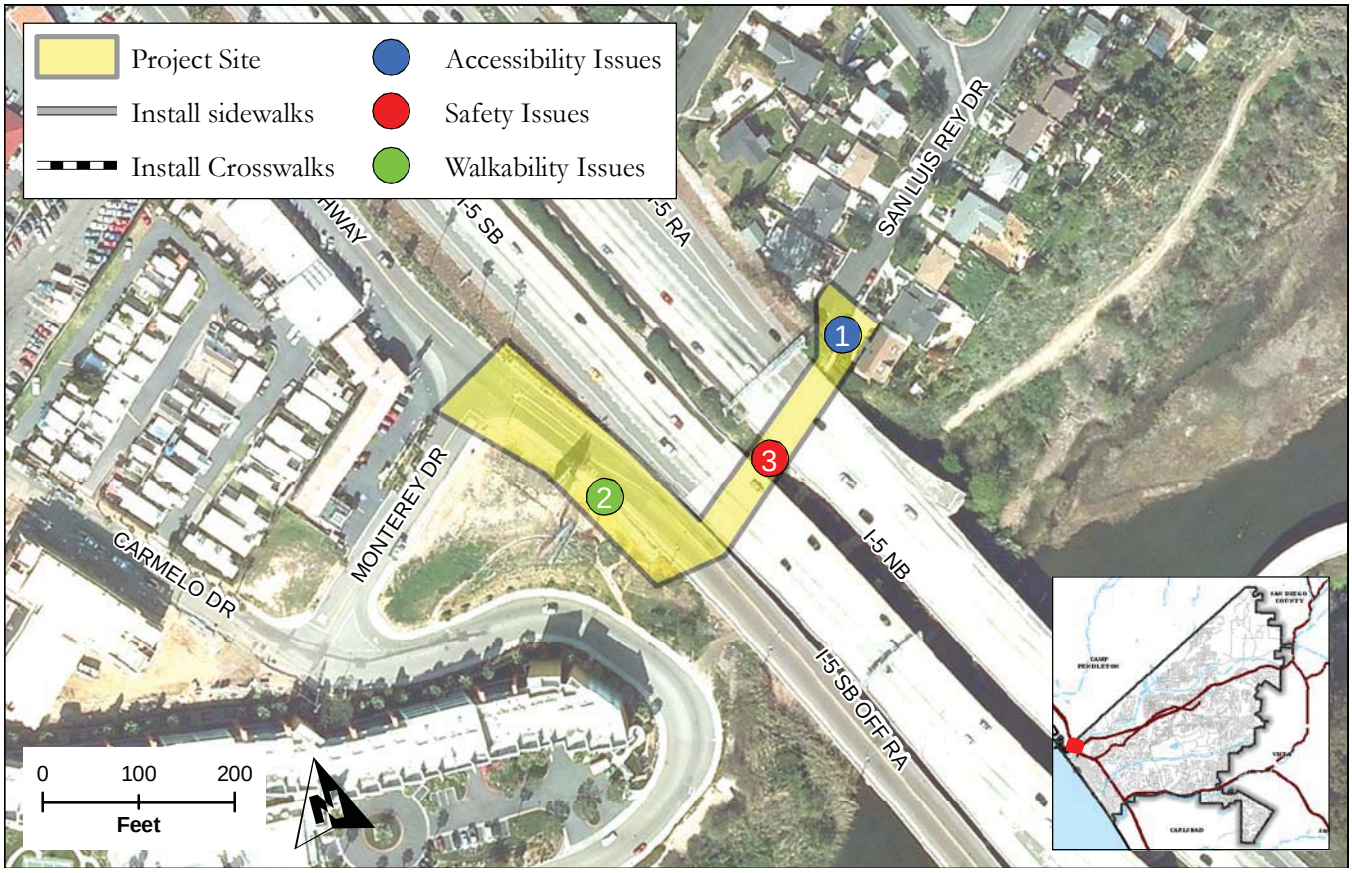
ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**9**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**4**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**1**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**22**

Project: San Luis Rey Drive/ I-5 Crossing **Prioritized Project Number :** 22



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Missing walk to access staircase (see issue A5 and A9)
2. Lack of signage for pedestrian under crossing (see issue W5)
3. Lack of lighting (see issues W3)

Cost: **$43,000**

Contingency (35%): **$15,050**

Total Cost: **$58,050**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install concrete access to the staircase (5' wide) (see solution 4A)	250	SF	$6	$1,500
Add directional signage to the underpass	2	LS	$750	$1,500
Add pedestrian lighting under I-5 (see solution 17S and 19S)	1	LS	$40,000	$40,000

Prioritized Project Number : 23

Project Name:	**Pacific Street (Morse to Eaton)**	Source: Field work/public input
Primary Location:	Pacific Street from Morse Street to Eaton Street	
Improvements Proposed:	Address ADA issues on east side of road with ADA accessible ramps. Install sidewalks on west side of Pacific St.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**4**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	212.4	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	35,788	Medium (101-200)	4
Normalized Score (model raw score / acres)	169	Low (<100)	2

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**1**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?		(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=		5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=		2
No collisions noted but the public has expressed safety concerns in the area:		1

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**11**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		1

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**1**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		3
Missing routes to schools will be added or substantially improved from current conditions:		3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		3
Connections will be added or substantially improved between major housing origins and major public facilities:		2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		1
Connections will be added or substantially improved between major housing origins and employment areas:		1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		1

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**2**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		2
Bright, hot or highly reflective walking areas will receive shade from trees:		2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		1

INNOVATION CRITERIA	Ranked Score for this Criteria (high scores are better)=	2
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		1
TOTAL SCORE:		**21**

Project: **Pacific Street (Morse to Eaton)** **Prioritized Project Number :** **23**

Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Lack of ADA access to sidewalk above hill (see issue 8A)
2. Missing sidewalk for ADA access

Cost: **$208,000**

Contingency (35%): **$72,800**

Total Cost: **$280,800**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	**Quantity**	**Unit**	**Unit Cost**	**Cost**
*Install missing ADA ramp at Morse and Eaton (see solution 6A)	2	EA	$50,000	$100,000
*Install sidewalk (5' wide) when new development occurs (see solution 4A)	18,000	SF	$6	$108,000

*Note: Only one solution is required to address the ADA access issue along South Pacific Street.

Prioritized Project Number : 24

Project Name:	**El Corazon Trail Access**	Source: Public input
Primary Location:	El Corazon Trails at El Camino Real, Oceanside Boulevard, and Mesa Drive	
Improvements Proposed:	Add missing sidewalks along El Camino Real and Mesa Drive to provide connection. Add trail entry points for future trail access.	

PEDESTRIAN ACTIVITY LEVELS	**Ranked Score for this Criteria (high scores are better)=**		**2**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	**10**
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**501.9**	High (>201-300)	**6**
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**38,106**	Medium (101-200)	**4**
Normalized Score (model raw score / acres)	**76**	Low (<100)	**2**

SAFETY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**		**3**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			**5**
Collisions between vehicles (or bikes) and pedestrians with serious injuries=		1	**3**
Collisions between vehicles (or bikes) and pedestrians with minor injuries=			**2**
No collisions noted but the public has expressed safety concerns in the area:			**1**

ACCESSIBILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**5**
What issues of accessibility will be improved by this project?		(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:		**5**
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):		**4**
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):		**3**
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:		**3**
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:		**2**
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:		**2**
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:		**1**

CONNECTIVITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**4**
How will connections be added / improved or barriers removed between major destinations & origins?		(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:		**3**
Missing routes to schools will be added or substantially improved from current conditions:		**3**
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:		**3**
Connections will be added or substantially improved between major housing origins and major public facilities:		**2**
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:		**1**
Connections will be added or substantially improved between major housing origins and employment areas:		**1**
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:		**1**

WALKABILITY CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**3**
How will this project improve walkability and decrease the harshness of the walking environment?		(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:		**2**
Bright, hot or highly reflective walking areas will receive shade from trees:		**2**
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:		**2**
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:		**1**
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:		**1**
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:		**1**

INNOVATION CRITERIA	**Ranked Score for this Criteria (high scores are better)=**	**1**
Will this project allow the city to implement new techniques and treatments?		(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:		**3**
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:		**2**
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:		**1**
TOTAL SCORE:		**18**

Project: **El Corazon Trail Access** **Prioritized Project Number :** **24**

Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Missing sidewalk on south side of Mesa Drive (see issue A5)
2. Missing sidewalk on east side of El Camino Real (see issue A5)
3. Missing trail access

Cost: **$164,520**

Contingency (35%): **$57,582**

Total Cost: **$222,102**

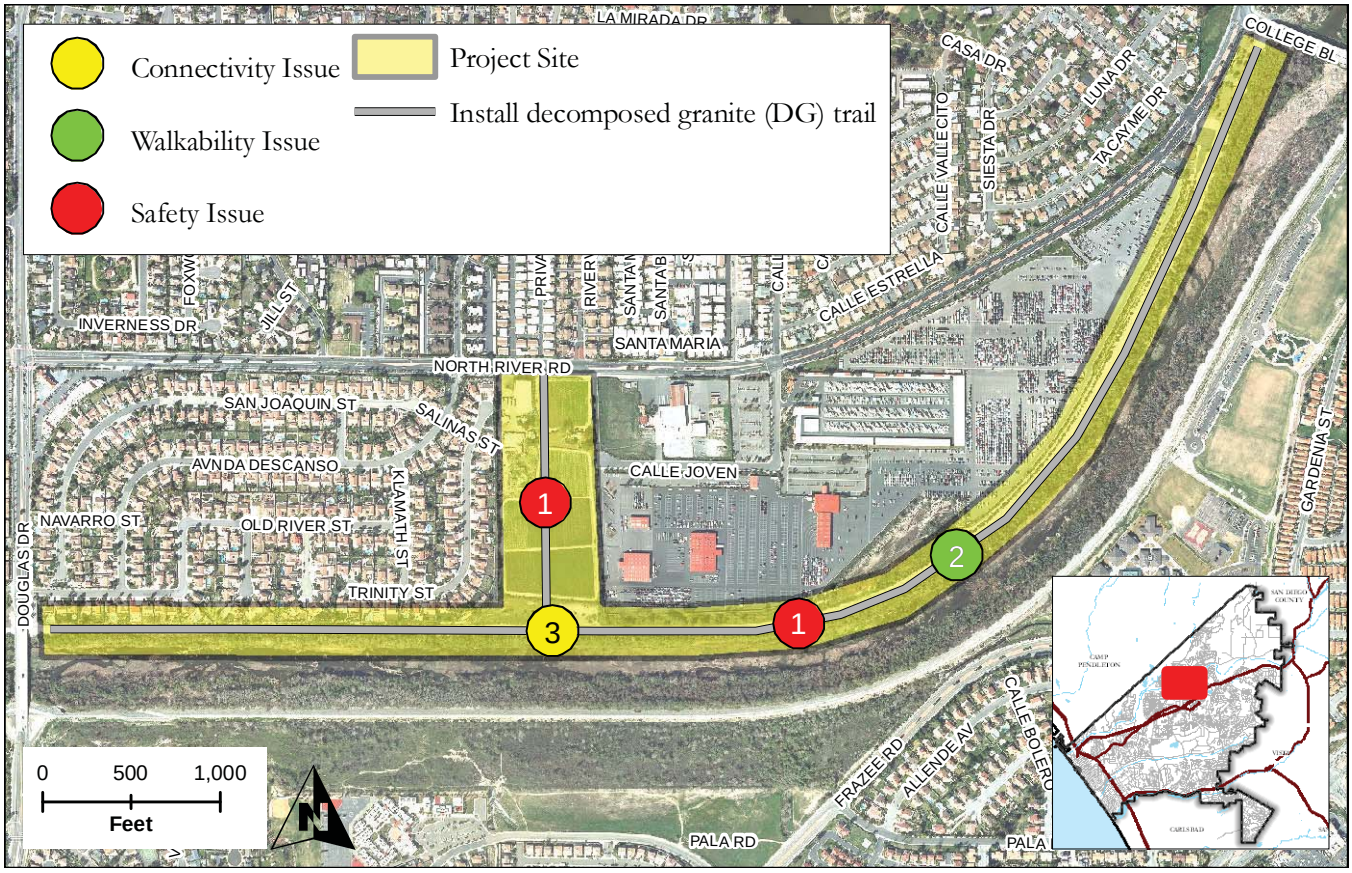
Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install sidewalk on south side of Mesa Drive (5' wide) (see solution 4A)	15,240	SF	$6	$91,440
Install sidewalk on east side of El Camino Real (5' wide) (see solution 4A)	10,680	SF	$6	$64,080
Install kiosks	3	EA	$3,000	$9,000

Prioritized Project Number : 25

Project Name:	**North Side of the San Luis Rey River Trail**	Source: Field work / Public input
Primary Location:	North side of San Luis Rey River between College Avenue and Douglas Drive	
Improvements Proposed:	Improve walkability with amenities and regrade surface.	

PEDESTRIAN ACTIVITY LEVELS		**Ranked Score for this Criteria (high scores are better)=**	**2**
Based on the Pedestrian Priority Model, the area has a pedestrian activity & issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>301)	10
Acres around the project site evaluated in the model (using 1/4 mile offset buffer):	**655.8**	High (>201-300)	6
Model priority raw score (pedestrian priority score of all pixels in the buffer added together):	**25,049**	Medium (101-200)	4
Normalized Score (model raw score / acres)	**38**	Low (<100)	2
SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**1**
History of collisions btwn. peds & vehicles (@ nearest intersection + 150' in each direction) for the period 2000-2008?			(multiply collisions by points, enter above)
Fatalities that relate to area conditions (excludes DUIs for either the driver or pedestrian)=			5
Collisions between vehicles (or bikes) and pedestrians with serious injuries=			3
Collisions between vehicles (or bikes) and pedestrians with minor injuries=			2
No collisions noted but the public has expressed safety concerns in the area:			1
ACCESSIBILITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**3**
What issues of accessibility will be improved by this project?			(circle all that apply, enter above)
Intersection elements (markings, medians, signals, phasing, pop-outs) will be made that allow those with impairments to cross safely:			5
Paths of travel will be added along roadways where they are partially missing (those with disabilities are inequitably affected):			4
Paths of travel will be added along roadways where they are completely missing (all users are currently affected equally):			3
Pedestrian facilities that are clearly not in conformance with ADA standards, will be brought up to the current standards:			3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standards:			2
Obstacles that may be considered trip conditions, will be removed & replaced with new or corrected pavements:			2
Obstacles that hinder the path of travel (but still meet minimum ADA criteria) will be removed and/or the width will be increased:			1
CONNECTIVITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**1**
How will connections be added / improved or barriers removed between major destinations & origins?			(circle all that apply, enter above)
Missing routes to transit centers will be added or substantially improved from current conditions:			3
Missing routes to schools will be added or substantially improved from current conditions:			3
The improvements will help to support smart growth, community infill, greenhouse gas reduction and/or affordable housing strategies:			3
Connections will be added or substantially improved between major housing origins and major public facilities:			2
Connections will be added or substantially improved between major housing origins and major retail or neighborhood service functions:			1
Connections will be added or substantially improved between major housing origins and employment areas:			1
Connections will be added or substantially improved between major housing origins, public parking and recreational areas:			1
WALKABILITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**5**
How will this project improve walkability and decrease the harshness of the walking environment?			(circle all that apply, enter above)
Improved edge treatments will separate or buffer fast moving vehicles from the pedestrian walking area:			2
Bright, hot or highly reflective walking areas will receive shade from trees:			2
The creation of public spaces, plazas and promenades will create safe, interactive areas that will increase walkability:			2
The addition of site amenities (benches, bike racks, newspaper racks, drinking fountains, etc) will improve the possible walkability:			1
The improvement of the immediate environment will decrease dilapidated properties/street environments, thereby improving walkability:			1
Increased use, lighting, & obstacle removal will increase visibility and reduce crime or the perception of safety from criminal activity:			1
INNOVATION CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**1**
Will this project allow the city to implement new techniques and treatments?			(circle one & enter score above)
Provides a unique technique or treatment not found in the region, that can be monitored & have application to other regional areas:			3
Allows for unique techniques and treatments that are common in other municipalities but not in Oceanside:			2
Allows for techniques & treatments that exist in Oceanside but need to be spread to other areas of Oceanside:			1
		TOTAL SCORE:	**13**

Project: North Side of San Luis Rey River Trail **Prioritized Project Number :** 25



Existing Issues: (Issue Reference No. can be found in Chapter 3)

1. Trail surface is uneven
2. Lack of amenities along trail
3. Add Mid-block connection to the North Side of the San Luis Rey River Trail (5' wide minimum)

Cost: **$366,320**

Contingency (35%): **$128,212**

Total Cost: **$494,532**

Proposed Solutions: (Solution Reference No. can be found in Chapter 3)	Quantity	Unit	Unit Cost	Cost
Install decomposed granite path (10' wide)	100,440	SF	$3.50	$351,540
Install information kiosks	2	EA	$3,000	$6,000
Install benches (4' long, every 1/4 mile)	7	EA	$1,040	$7,280
Pet waste disposal station	3	EA	$500	$1,500

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CHAPTER 7
FUNDING SOURCES

7.0 Funding Overview

This chapter describes various sources of funding available to plan and construct pedestrian facilities, or to provide awareness, encouragement, or education programs.

Funding for pedestrian projects can come from local, regional, state, federal, and private sources.

7.1 Funding Descriptions

Pedestrian projects and programs are funded through multiple sources, and not all sources apply to all projects. Many sources require a local funding match and most are competitive based on project merit and adherence to grant criteria. Table 23 provides an overview of the potential funding sources and requirements.

7.2 Historic Funding Sources

Historically, pedestrian facilities, including sidewalks, were built by development companies as subdivisions were created. Homeowners have long been required by state law to maintain the sidewalk in front of their property. With the passage of the Americans with Disabilities Act of 1990 and the Intermodal Surface Transportation Efficiency Act of 1991, new federal resources for pedestrian and accessibility improvements became available. As discussed below, there is a wide range of sources potentially available to improve the pedestrian environment. However, it is necessary to match each project with available sources.

Pedestrian facilities are typically underfunded and sources of funding are limited. However, a number of competitive grants and programs do exist from a number of agencies.

Table 23: Possible Funding Sources for Pedestrian Facilities

Source	Administrator	Description	Funding Cycle	Match Required
LOCAL SOURCES				
Business Improvement Districts	City of Oceanside Business Improvement Districts	A BID is established by a vote of affected businesses, who pay a yearly assessment for use in planning, marketing & physical improvements. Often used as a local match for streetscape improvement programs, which can include pedestrian facilities.	Annual Budget	N/A
Capital Improvement Program (CIP)	City of Oceanside	Includes sidewalk replacement, Sidewalk Replacement Cost Sharing Program, temporary repairs, lighting, landscaping, and maintenance of all devices and facilities.	Annual Budget	N/A
Developers - General Requirements	City of Oceanside Development Services Dept. & Planning Division	City transportation standards and building codes require new construction and alterations to include pedestrian facilities, lighting and landscaping. Standards may also require dedication of open space for a trail and trail construction.	N/A	N/A
Developers - Impact Fees (Infill Development)	Development Services Department & Facilities Financing Department	For development on previously developed parcels (infill development), Developer Impact Fees are assessed by the city to offset public costs required to provide infrastructure supporting the new development.	N/A	N/A
Developers - Facility Benefit Assessment Districts	Development Services Department & Planning Division	For newly developing areas ("greenfield development"), Facility Benefit Assessment Districts (FBA) are funded by developers in agreement with the city, providing infrastructure of various types as community growth thresholds are reached.	N/A	N/A
Maintenance Assessment Districts	Park & Rec. Dept. (some MADs are administered by local groups)	Requires a neighborhood ballot to initiate this tax, which usually is levied for landscaping and lighting.	Annual Budget	N/A
Parking Meter Districts	Finance Department, City of Oceanside	Parking Meter Districts can use parking meter revenues for streetscape improvements such as ped. facilities, landscaping & lighting.	Annual Budget	N/A
Redevelopment Tax Increment Financing (TIF)	City of Oceanside Redevelopment Agency	TIFs apply to redevelopment areas where bonds are issued based on expected increased tax revenues. Used for improved infrastructure, including pedestrian facilities.	N/A	N/A
Transportation Sales Tax (TRANSNET) Local Share	SANDAG / City of Oceanside	In 2004, voters approved Prop. A, a 40-year extension of TransNet. The proposition will generate $14 billion for transportation projects. Several new programs will fund pedestrian facilities, smart growth development & neighborhood traffic safety projects.	Annual or biennial started in '08	None
Transient Occupancy Tax (TOT)	City Treasurer	Created to cover expenses & improvements related to tourism & to encourage more tourists to visit Oceanside. This fund may be appropriate in areas where heavy tourism exists such as along the waterfront, major parks & historic neighborhoods.	Annual Budget	None
REGIONAL SOURCES				
Smart Growth Incentive Program	SANDAG	Regional funds dedicated to smart growth projects, which include pedestrian facilities.	6 year or longer	None
Transportation Development Act (TDA)	SANDAG	TDA funds originate from a statewide sales tax of one quarter cent for transportation projects, which includes two percent for pedestrian and bicycle facilities.	Annual (March)	None
Transportation Sales Tax (TRANSNET) Regional Share	SANDAG	In 2004, voters approved Prop. A, a 40-year extension of TransNet. The proposition will generate $14 billion for transportation projects. Several new programs will fund pedestrian facilities, smart growth development & neighborhood traffic safety projects.	Annual or biennial started in '08	None

Table 23: Possible Funding Sources for Pedestrian Facilities (cont.)

Source	Administrator	Description	Funding Cycle	Match Required
STATE SOURCES				
Bicycle Transportation Account (BTA)	SANDAG	Provides $5 million statewide for bicycle facilities, which includes trails that are used by pedestrians.	Annual (Fall)	None
California Conservation Corps (CCC)	California Conservation Corps	The CCC provides emergency assistance & public service conservation work. In San Diego County, the CCC has installed bike lockers for Caltrans.	N/A	N/A
Community-Based Transportation Planning (CBTP) Grants	CALTRANS	CBTP grants fund planning activities for livable community projects such as affordable housing, sustainable developments, land use & transportation integration, transit-oriented developments, jobs/housing balance & expanded transportation choices.	2-3 years	20%
Environmental Justice (EJ) Planning Grants	CALTRANS	EJ planning grants help engage low-income and minority communities in transportation projects early in the planning process to ensure equity and positive social, economic and environmental impacts occur.	Annual (Oct.)	10%
Safe Routes to School (SR2S) Program	Federal Highway Admin. via CALTRANS	SR2S is administered by Caltrans, and funds engineering and education projects that improve safety to/from schools.	Annual	10%
FEDERAL SOURCES				
Community Development Block Grants (CDBG)	Council Districts	Available for low-income neighborhoods to improve land use and transportation infrastructure. Can be used for accessibility improvements citywide.	Annual Budget	None
Congestion Mitigation and Air Quality (CMAQ)	SANDAG	Federal block grant program for projects in Clean Air Act non-attainment areas that will help attain the national ambient air quality standards stated in the 1990 Clean Air Act amendments.	6 year or longer	11.47%
FDA Nutrition Network Mini Grants	San Diego Nutrition Network	From time to time, Nutrition Network offers mini grants focused on neighborhood or street-level walkability assessments.	Varies	None
Land and Water Conservation Fund (LWCF)	California Department of Parks and Recreation	LWCF grants may be used for statewide outdoor recreational planning and for acquiring and developing recreational parks and facilities, especially in urban areas.	Annual (May)	50%
Recreational Trails Program (RTP)	California Department of Parks and Recreation	RTP annually provides monies for recreational trails and trail-related projects.	Annual (Oct.)	20%
Safe Routes to School (SRTS) Program	Federal Highway Administration via CALTRANS	The Safe Routes to School Program provides competitive grants to fund engineering and education projects that improve safety to/from schools for walking and biking. Requirements differ from the state SRTS program.	TBD	None
Surface Transportation Program (STP)	SANDAG	Federal block grant program for a variety of transportation projects including pedestrian walkways and preservation of abandoned railway corridors for pedestrian and bicycle trails.	6 year or longer	11.47%
Transportation Enhancement Activities (TEA)	SANDAG & CALTRANS	TEA funds projects that enhance travel. The 12 eligible TEA categories include 3 benefiting pedestrians: bike & pedestrian facilities, bike & pedestrian educational activities & preservation of abandoned railway corridors for bike & pedestrian use.	6 year or longer	11.47%
PRIVATE SOURCES				
Health Foundations	Various foundations	Focus pedestrian improvements for an obesity prevention strategy. Examples include California Wellness Foundation, Kaiser & California Endowment.	N/A	N/A
Rails to Trails Conservancy	Rails to Trails Conservancy	Provides technical assistance for converting abandoned rail corridors to use as multi-use trails.	N/A	N/A
Donations	Depends on nature of project	Corporate or individual donations, sponsorships, merchandising or special events.	N/A	N/A
In-kind Services	Depends on nature of project	Donated labor & materials for facility construction or maintenance such as tree planting programs or trail construction.	N/A	N/A
PROPERTY OWNERS				
Voluntary Easements	City of Oceanside Streets Division	Voluntary easements from adjacent property owners help make new pedestrian facilities affordable for local governments.	N/A	N/A

7.3 Local Funding Sources

Business Improvement Districts (BID)

Administrator: Individual BID's

A BID is established by a vote of affected businesses, who pay a yearly benefit assessment for use in planning, marketing, and physical improvements. BID funds are often used as a local match for streetscape improvement programs, which can include pedestrian facilities.

Capital Improvement Program (CIP)

Administrator: City of Oceanside

Each year, the city allocates a portion of the general fund budget to transportation capital projects, including pedestrian-related facilities, street lighting, and traffic calming. This is typically the largest source of local funds for existing communities. While sidewalk repair and replacement may be the responsibility of the adjacent land owner, the city is responsible for the repair of sidewalk damage caused by city-owned trees, vehicle crashes, water main breaks, and natural subsidence. The city also makes temporary repairs such as asphalt patches or grinding of uplifted sidewalk edges that could be a trip hazard.

Developer – General Requirements

Administrator: City of Oceanside Development Services Department

City transportation standards and building codes require new construction and alterations to include pedestrian facilities, lighting and landscaping. Standards may also require dedication of open space for a trail and trail construction. Off-site pedestrian improvements might also be required if there is a defensible legal nexus between the project and the off-site location, such as crossing improvements near a transit stop.

Developers – Impact Fees

Administrator: City of Oceanside Development Services Department

For development or redevelopment in certain communities (infill development), Developer Impact Fees are assessed by the city to offset public costs required to provide infrastructure supporting the new development. Pedestrian facilities or traffic calming devices in the adjacent right-of-way may be funded through this mechanism.

Developers – Facility Benefit Assessment Districts

Administrator: City of Oceanside Development Services Department/Planning Division

For newly developing areas ("greenfield development"), Facility Benefit Assessment Districts (FBA) are funded by developers in agreement with the city, providing infrastructure of various types as community growth thresholds are reached.

Maintenance Assessment District

Administrator: City of Oceanside and Parks and Recreation Department

A Maintenance Assessment District (MAD) is a self-imposed assessment on each parcel in a defined area. The MAD is established by a vote of land owners, and requires an initial engineering evaluation to estimate the costs of desired improvements, an appropriate method of taxation (e.g., by linear street frontage or parcel acreage), and the expected revenues following MAD adoption. Typical uses are lighting, landscaping, and maintenance.

Parking Meter Districts

Administrator: Individual Parking Meter Districts

Parking Meter Districts retain a portion of parking meter revenues for use within a defined area. Possible improvements include streetscape improvements such as pedestrian facilities, landscaping, lighting, and public art.

Tax Increment Financing (Redevelopment)

Administrator: City of Oceanside Redevelopment Agency

By state law, the city may designate Redevelopment Areas in neighborhoods deemed to meet the statutory definition of "blight." As property tax rates in a redevelopment area increase, the incremental tax receipts may be used to fund pedestrian improvements anywhere in the redevelopment area. Such improvements need not be associated with a development project. To provide more funding upfront, bonds may be sold based on expected incremental tax revenues in future years. An example is the streetscape improvements along University Avenue in North Park, which were funded in part by tax increment bonds.

TransNet Sales Tax Local Share

Administrator: City of Oceanside

Each city in the region receives a portion of the regional half-cent sales tax program known as TransNet. These funds can be used for any transportation expense, including pedestrian facilities. In 2004, voters approved a 40-year extension of TransNet.

Transient Occupancy Tax Funding

Administrator: City of Oceanside, City Treasurer

The TOT is a 10 percent tax on hotel room occupancy. Basically, these types of taxes were envisioned to cover expenses and improvements related to tourism and to encourage more tourists to visit Oceanside. This fund may be appropriate in areas where heavy tourism exists such as along the waterfront, beaches, major parks, and historic neighborhoods.

7.4 Regional Funding Sources

Smart Growth Incentive Program

Administrator: San Diego Association of Governments

This program uses federal TEA funds (see above) which provide awards to smart growth projects, which include pedestrian facilities. An initial round of projects was awarded funding on a competitive basis in 2005. The next round of funding is not expected until 2012. Stand-alone pedestrian projects are not expected to be eligible.

Transportation Development Act (TDA)

Administrator: San Diego Association of Governments

TDA funds originate from a statewide sales tax of one quarter cent allocated to transportation projects. Two percent of these funds are dedicated to pedestrian and bicycle facilities.

TransNet Sales Tax Regional Shares

Administrator: San Diego Association of Governments

In 2004, voters approved Proposition A, the 40-year extension of TransNet half-cent sales tax for transportation projects. Annually, $1 million is earmarked for bicycle paths and multi-use pedestrian facilities. Beginning in 2008, TransNet also provides $4.5 million annually for pedestrian, bicycle, and neighborhood safety projects, including traffic calming.

7.5 State Funding Sources

Bicycle Transportation Account (BTA)

Administrator: Caltrans, San Diego Association of Governments

The BTA annually provides $5 million statewide for bicycle facilities, which includes trails that are used by pedestrians.

California Conservation Corps (CCC)

Administrator: California Conservation Corps

The CCC provides emergency assistance and public service conservation work potentially available to pedestrian-related projects. In San Diego County, the CCC has installed bike lockers for Caltrans.

Community-Based Transportation Planning (CBTP) Grants

Administrator: Caltrans

CBTP monies are used to fund planning activities for livable community projects such as affordable housing, sustainable developments, land use and transportation integration, transit-oriented developments, jobs/housing balance and expanded transportation choices.

Environmental Justice (EJ) Planning Grants

Administrator: Caltrans

EJ planning grant monies are used to help engage low-income and minority communities in transportation projects early in the planning process to ensure equity and positive social, economic and environmental impacts occur. Projects are aimed at increasing travel opportunities for low income residents.

Safe Routes to School (SR2S) Program

Administrator: Caltrans

The Safe Routes to School Program provides competitive grants to fund engineering and education projects that improve safety to/from schools.

7.6 Federal Funding Sources

Community Development Block Grants (CDBG)

Administrator: City of Oceanside Council Districts

CDBG funding is allocated by congressional districts, and is available to low-income neighborhoods to improve land use and transportation infrastructure.

Congestion Mitigation and Air Quality (CMAQ)

Administrator: San Diego Association of Governments

CMAQ funds are available under a federal block grant program for projects in Clean Air Act non-attainment areas. CMAQ projects must be demonstrated to help attain the national ambient air quality standards stated in the 1990 Clean Air Act amendments.

Federal Department of Agriculture Education Grants

Administrator: San Diego Nutrition Network

From time to time, the Nutrition Network offers USDA mini-grants or project grants focussed on neighborhood or street-level walkability assessments, with emphasis on community education and involvement.

Land and Water Conservation Fund (LWCF)

Administrator: **California Department of Parks and Recreation**

LWCF grants may be used for statewide outdoor recreational planning and for acquiring and developing recreational parks and facilities, especially in urban areas.

Recreational Trails Program (RTP)

Administrator: **California Department of Parks and Recreation**

The RTP annually provides monies for recreational trails and trail-related projects, some of which may be connected to urban streets or pedestrian paths.

Safe Routes to School Program (SRTS)

Administrator: **Federal Highway Administration via Caltrans**

The Safe Routes to School Program provides competitive grants to fund engineering and education projects that improve safety to/from schools for walking and biking.

Surface Transportation Program (STP)

Administrator: **San Diego Association of Governments**

STP is a major federal block grant program for a variety of transportation projects, including pedestrian walkways , usually as part of a road construction project.

Transportation Enhancement Activities (TEA)

Administrator: **San Diego Association of Governments**

The 12 eligible enhancement categories include three that are pedestrian oriented: bicycle and pedestrian facilities, bicycle and pedestrian educational activities and preservation of abandoned railway corridors for bicycle and pedestrian use. This is the funding source for SANDAG's Smart Growth Incentive Program (see above). Stand-alone pedestrian projects are unlikely to be funded through this source.

7.7 Private Funding Sources

Health Foundations

Health-related grant programs support community-based obesity prevention efforts, including planning for better walking conditions. Example sources include the California Wellness Foundation, Kaiser Permanente, and the California Endowment. The city, community groups or non-profits such as WalkSanDiego or local health clinics may apply.

Rails to Trails Conservancy

Provides technical assistance for Rails-to-Trails projects.

Donations

Corporate or individual donations, sponsorships, merchandising or special events.

In-kind Services

Donated labor and materials for facility construction or maintenance such as tree planting programs or trail construction.

7.8 Property Owner Funding

Voluntary Easements

Administrator: City of Oceanside

Voluntary easements from adjacent property owners help make new pedestrian facilities affordable for local governments.

7.9 Funding Strategies

A substantial amount of funding is needed to bring all of Oceanside's pedestrian facilities up to a standard that makes them safe, walkable, accessible, connected and assets to neighborhoods. This section discusses how priorities and decisions should be made with available sources of funding. Table 24 describes the priorities that should be assigned different funding sources. The reader should note that both the different project types as well as the type of pedestrian facility that is needed, are factors in determining how these funds should be used. Not all potential funding sources are listed on this table, just those that are considered to be the most likely sources for the types of improvements discussed in the table.

Table 24 describes how the four proposed treatment levels are best matched with funding sources. This table also includes major types of projects that may be needed for near-site improvements or community wide mitigations or contributions for improvements.

Table 24: Potential Funding Sources for Treatment Levels or Project Types

TREATMENT LEVEL:	Treatment Level 1 "Premium" Improvements				Treatment Level 2 "Enhanced" Improvements				Treatment Level 3 "Basic" Improvements				Treatment Level 4 "Special Use" Improvements			
PRIMARY PUBLIC RIGHT OF WAY PEDESTRIAN IMPROVEMENTS:	Active Control Mid-block Xings	Pedestrian Scramble or Early Phase Walks	Median Refuge with Actuator/ Sensor / Two Phase Option	Premium Walk Amenities	Passive Control Mid-block Xing or Median Refuge	Pedestrian Pop-outs	Enhanced Crosswalks / Countdown Lights	Enhanced Walk Amenities	Adequate Width, Barrier Free Maintained Sidewalks	Pedestrian Curb Ramps	Buffers from Street	Accessible Driveways / Remove or Reconfigure Driveway	Pedestrian Bridges	Multi-use Walkways	Connector Walkways Away from Streets	Plazas & Special Ped. Zones
NEW URBANIZING AREA WITH MAJOR NEW DEVELOPMENT																
Developer Built & Dedicated or Fair Share In Lieu Fee	+	+	+	+	+	+	+	+	+	+	+	+	+	!	!	?
Developer Initiated Facilities Benefit Assessments	!	!	!	!	!	!	!	!	-	-	-	-	-	-	-	-
Federal STP Grant or State RIP Grant	?	?	?	?	-	-	-	-	-	-	-	-	?	?	-	-
SANDAG Transportation Development Act Grants	?	?	?	?	-	-	-	-	-	-	-	-	?	?	-	-
MAJOR INFILL PROJECT OR REDEVELOPMENT																
Developer Built & Dedicated or Fair Share In Lieu Fee	?	?	?	?	?	?	?	?	+	+	+	+	?	+	+	+
Developer Impact Fees	?	?	?	?	+	+	+	+	-	-	-	-	+	!	!	+
Developer Volunteers as Requested by Comm. Group	+	+	+	+	+	+	+	+	-	-	-	-	!	!	!	!
Federal Congestion Mitigation & Air Quality	-	-	-	-	?	?	?	?	-	-	-	-	?	+	?	-
Federal STP Grant or State RIP Grant	?	?	?	?	?	?	?	?	-	-	-	-	?	-	?	-
SANDAG Transportation Development Act Grants	?	?	?	?	?	?	?	?	-	-	-	-	?	-	?	-
SANDAG Smart Growth Incentive Program	!	!	!	!	!	!	!	!	-	-	-	-	+	-	?	+
TRANSNET Walkability Grant	!	!	!	!	!	!	!	!	-	-	-	-	+	-	?	?
Redevelopment Tax Increment Financing	+	+	+	+	+	+	+	+	-	-	-	-	?	-	?	+
Transient Occupancy Tax Funding	?	?	?	?	?	?	?	?	-	-	-	-	?	-	?	-
CITY STREET, CIP PROJECT OR OTHER COMMUNITY																
Federal CDBG Funding	-	-	-	-	?	?	?	?	!	+	!	+	-	-	-	-
Fed /CALTRANs Transportation Enhancement Grant	!	!	!	!	!	!	!	!	!	!	!	!	+	!	!	!
Federal Congestion Mitigation & Air Quality	-	-	-	-	!	!	!	!	!	!	!	!	!	+	!	?
Federal STP Grant or State RIP Grant	?	?	?	?	?	?	?	?	!	!	!	!	?	!	!	?
State Safe Routes to School Grants	!	!	!	?	!	!	!	?	!	!	!	!	!	!	+	?
SANDAG Transportation Development Act Grants	!	!	!	?	!	!	!	?	+	!	!	!	?	!	!	?
SANDAG Smart Growth Incentive Program	?	?	?	?	?	?	?	?	?	?	?	?	?	?	?	+
TRANSNET Walkability Grant	+	!	!	!	+	!	!	!	+	!	!	!	!	!	!	!
Oceanside Capital Improvement Project / General Fund	?	+	+	?	+	?	?	?	!	+	+	!	-	-	-	-
City of Oceanside Accessibility ADA Transition Plan	-	-	!	-	-	-	-	-	+	+	!	+	!	-	!	?
Business Improvement District Funding	?	+	+	+	+	?	?	!	-	-	-	-	-	-	-	?
Landscape Maintenance Assessment Districts	-	-	?	+	?	-	-	!	-	-	-	-	-	?	?	?
Parking District Funding (Meter Funds)	?	+	+	?	+	?	?	?	-	-	-	-	?	?	?	?
MINOR MINISTERIAL PROJECT, CONDO CONVERSION OR NO TRIGGERING PROJECT																
Adj. Property Owner Required by Permit	-	-	-	-	-	?	-	?	!	!	!	!	-	-	+	-
Adj. Property Owner/ City Match Sidewalk Program	-	-	-	-	-	-	-	-	!	?	-	!	-	-	-	-
City Street Division Sidewalk Replacement	-	-	-	-	-	-	-	-	!	!	-	?	-	-	-	-
City Street Division Sidewalk Temporary Repair	-	-	-	-	-	-	-	-	!	!	-	-	-	-	-	-
Business Improvement District Sidewalk Repair	-	-	-	-	-	-	-	-	!	!	-	?	-	-	-	-
Code Compliance Action/ Adj. Property Owner to Fix	-	-	-	-	-	-	-	-	+	+	+	+	-	-	-	-

Best Method for Implementing + | ood Method for Implementing ! | be Appropriate Depending on Situation ? | Not Recommended or Other Methods are Better -

APPENDICES

Appendix A - Public Workshop

Appendix B - Questionnaire Results

Appendix A: Public Workshop

Appendix A has been included to document the results of the public input process. It includes all of the results of the community wide public open house including results of the original issues and solutions matrices that have been adjusted for Chapter 3 based on this input.

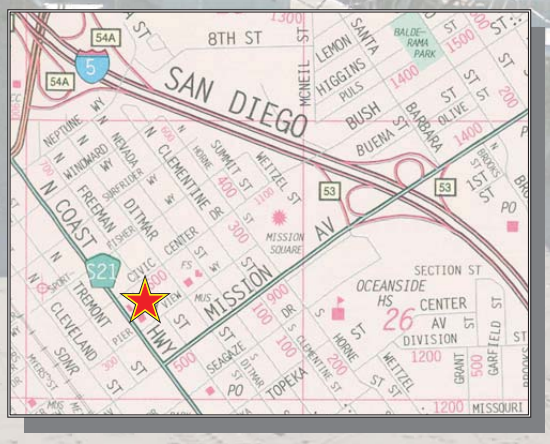
CITY OF OCEANSIDE PEDESTRIAN MASTER PLAN PUBLIC WORKSHOP

WHAT:
Do you want Oceanside to be a safer and easier place to walk for you or your children?

Help decide on the most important streets and intersections to fix the walking environment.

Attend the community workshop to learn about ways to improve the walkability, identify walkway deficiencies you are familiar with, and help prioritize Oceanside's issues and solutions. This is an open workshop format that allows you to come and go anytime within the stated hours. No presentations are made. You will be asked to review exhibits & maps and provide comments.

Visit our project website at www.oceansidepmp.org

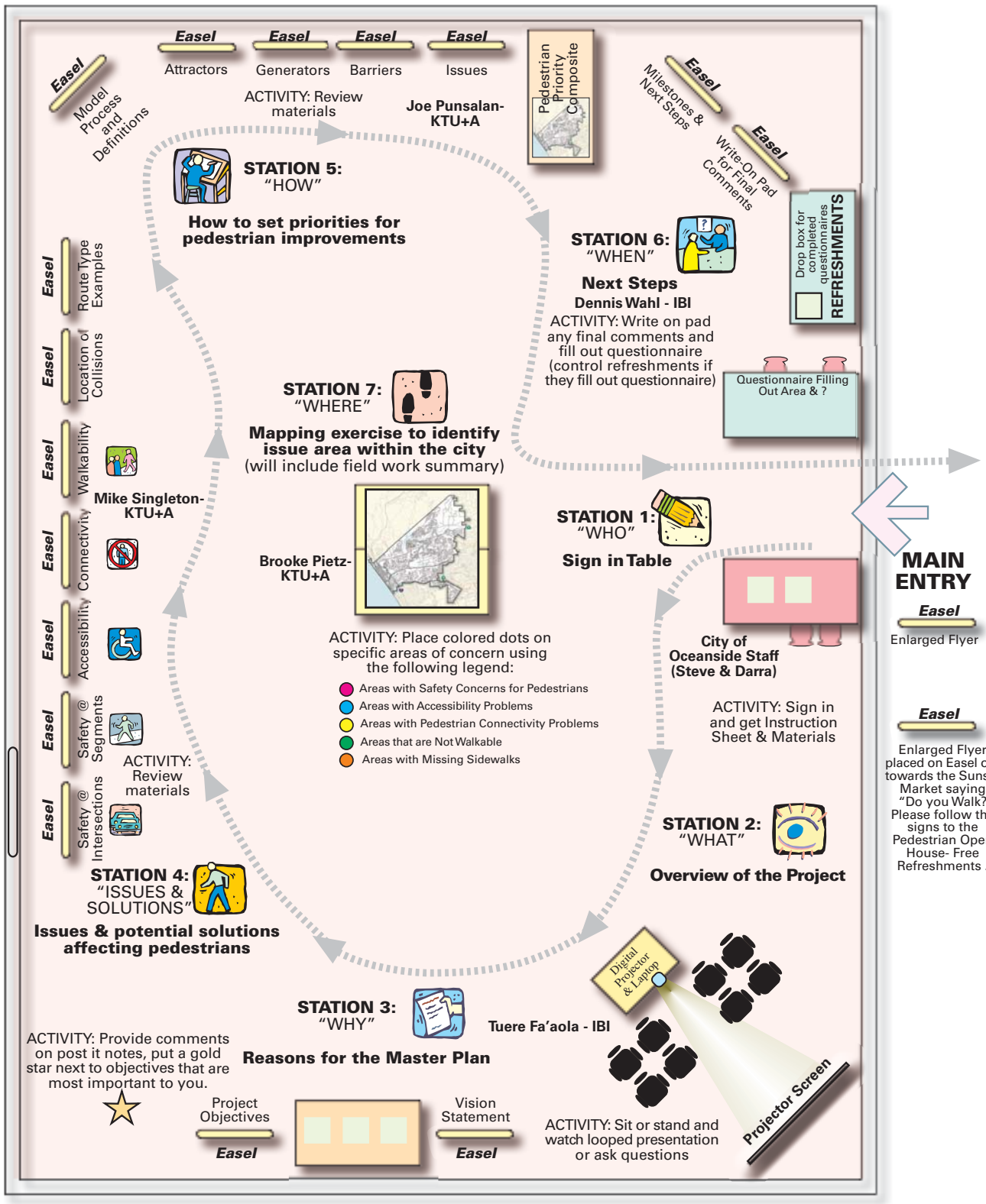


WHEN:
Thursday, February 26th
4:30 pm - 7:30 pm
(Refreshments provided)

WHERE:
Oceanside Civic Center
300 North Coast Highway
Library Community Room

This information is available in alternative format upon request. Assistive listening devices, sign language interpretation, description, and alternative formats are available at City of Oceanside functions with a 48-hour notice. Contact Steve Tisdale at stisdale@ci.oceanside.ca.us or call (760) 435-5088 with these or other ADA-accommodation requests as early as possible.

CITY OF OCEANSIDE - **PEDESTRIAN MASTER PLAN**
PUBLIC WORKSHOP LAYOUT- FEBRUARY 26, 2009



Written Comments Received at the Oceanside Pedestrian Master Plan Workshop February 26, 2009.

Large Map

A – Intersection of Oceanside Blvd and Canyon Drive is dangerous. Slow down traffic from Oceanside Blvd to Canyon Drive. Also provide a better way to cross Oceanside Blvd.

B – Need pedestrian crosswalk/access from Loretta St. to Bike Trail.

C – Traffic speeds high. (On Surfrider Way)

D – Ivy Ranch. (Note stated Ivy Ranch only)

E – Several students from high school walk and there are missing sidewalks. (El Camino High School on Rancho Del Oro Drive)

No Corresponding Point on Map: Sidewalks too narrow; The Strand

Issues/Solutions Graphics

-Walkability Issues: Potential Solutions

1W – 2 Stars (Provide greater than minimum sidewalk widths)

2W – 1 Star (Provide trees, awnings or building overhangs to shade walkways)

-Safety Issues: Potential Solutions

4S – 1 Star (Elevated and/or specially paved crosswalks)

12S – 1 Star (Mid-block crosswalks with signs, medians or curb extensions and flashing lights in roadway)

-Connectivity Issues: Potential Solutions

4C – 1 Star (Street widths reduced or features added to narrow crossing distance)

Appendix B: Questionnaire Results

Appendix B is a summary of the electronic and paper form questionnaire used throughout this study.

Oceanside Pedestrian Master Plan Survey Results

1) How many hours a week do you commute by walking to work, school, or walking to transit to get to work or school?

None	65%
Less than 15 minutes	6%
15-30 minutes	7%
30 minutes - 1 hour	7%
2 - 3 hours	9%
Over 4 hours	6%

2) How many hours a week do you walk to stores, entertainment, library, dining, or errands from home or office?

None	18%
Less than 15 minutes	7%
15-30 minutes	9%
30 minutes - 1 hour	29%
2 - 3 hours	29%
Over 4 hours	8%

3) How many hours a week do you spend walking, jogging, walking the dog, social walking or walking the kids?

None	9%
Less than 15 minutes	0%
15-30 minutes	11%
30 minutes - 1 hour	15%
2 - 3 hours	29%
Over 4 hours	36%

Questions 4-7. What is most important to you when deciding to walk? (Rank 1-4 with 1 most important)

4) Safety (I need to feel safe walking along sidewalks or when crossing streets)

1	71%
2	11%
3	5%
4	13%

5) Accessibilty (I need to have fully accessible, maintained and continuous walkways)

1	24%
2	33%
3	25%
4	18%

6) Connectivity (I need to have connected and adequate walkways going to where I want)

1	25%
2	29%
3	31%
4	15%

7) Walkability (I need protection from harsh weather, places to sit, things to see and do)

1	15%
2	13%
3	26%
4	47%

Survey Results

Questions 8-32 Please rate the following improvements: (To help develop priorities, please avoid marking everything as HIGH priority.)

		Low	Moderate	High
8	Add devices to control or warn of drivers speed	38%	44%	18%
9	Improve pedestrian safety through driver education/law enforcement	35%	36%	29%
10	Install more marked crosswalks at intersections	18%	38%	44%
11	Install more audible traffic signals at intersections	46%	38%	16%
12	Install midblock crosswalks in areas with long commercial blocks	24%	51%	25%
13	Make crosswalk markings more visible	22%	38%	40%
14	Install more pedestrian crossing warning signs	31%	42%	27%
15	Install more traffic signals to assist in safe pedestrian crossings	32%	44%	24%
16	Install countdown walk signals that show the time remaining to cross	19%	42%	39%
17	Install flashing lights in the crosswalk pavement to warn drivers of pedestrians	18%	38%	44%
18	Give pedestrians a head start at crossings before vehicles are allowed to go	22%	25%	53%
19	Increase pedestrian crossing time at signals	31%	36%	33%
20	Put in sidewalks where they are missing from entire neighborhoods	22%	36%	42%
21	Make sidewalks continuous by filling in missing gaps	14%	36%	50%
22	Repair damaged sidewalks and maintain them to be free of trip hazards	7%	35%	58%
23	Remove obstacles blocking or crowding sidewalks	13%	36%	51%
24	Improve sidewalk/pedestrian facility cleanliness	20%	45%	35%
25	Increase pedestrian street lighting levels	22%	53%	25%
26	Install more benches, trashcans, drinking fountains, etc.	36%	40%	24%
27	Plant more street trees to shade sidewalks	38%	20%	42%
28	Install parkways with trees or other barriers to buffer pedestrians from vehicles	26%	28%	47%
29	Construct more walkways away from streets	25%	46%	29%

Which one category describes you best?		**Number of respondents**
Resident	45%	25
Community Advocate	9%	5
Community Group Member	11%	6
Business Owner	5%	3
Pedestrian Advocate	11%	6
Agency or Department Representative	2%	1
Other	16%	9
Totals	100%	55

Survey Comments

Are there problems affecting walking in your neighborhood? Please state problem with street/cross street location. (255 words or less please)

25. I-5/San Luis Rey: Underpass inaccessible by bike or stroller, etc. Needs ramp, lighting, cleaning, graffiti removal.

24. missing sidewalks

23. No problems in my neighborhood.

22. Perceived safety, uneven sidewalks, cars blocking sidewalks (sometimes), inconsiderate drivers

21. Downs Street has poor sidewalks yet connects two major pedestrian traffic/shopping/public transportation routes.

20. Around downtown Oceanside there is litter and unkempt areas and also sometimes "scary" looking people "hang out".

19. Division and Grant: Vendors parked in alleyway blocking view of cars and kids. Vendors parking overnight in more than one space and not cleaning up mess. Residents taking up more than one space to retaliate against vendors.

18. traffic traveling too fast

17. Skyhaven & Sunset: No sidewalk from Skyhaven to Hacienda and trees need cutting on skyhaven.

16. Coast Highway is ugly and no greenery. Slow the traffic w/ traffic circles, stop signs are just noisy w/ engines revving.

15. South Pacific between Oceanside Blvd and Wisconsin Streets: Front set backs/ no sidewalks/ driveways.

14. Oceanside Blvd, 101 to Pacific St: Power wash sidewalks & keep clean!

13. Tremont & Washington: Cars driving TOO fast through intersection.

12. Driver speed and winding road on Avenida de la Plata and College Bl east.

11. Joe Balderama Park: Sidewalks are too narrow. I'm really dreaming about an access to the bike path - It would REALLY raise my beach walking potential.

10. El Camino & Arbolitos: Drivers turning right on red don't stop for me when I cross with a green light.

9. Vine St, north of Oceanside Blvd: Speeding cars on Vine Street, also parkway needs shade trees & bicycle lanes.

8. I'm afraid to walk through the underpass that goes from San Luis Rey Dr. to Coast Hwy. The one other pedestrian option is to cross a freeway offramp!! (Camp Pendleton)!! Are you kidding me? So I feel unsafe with my only two options out of my neighborhood.

7. Grant and Division: Discontinuation of 311/312 bus routes.

6. NS Morse btwn Coast Hwy & Alverado: Eroding cement in gutter/ramp @ California & La Salina

5. There are power cable/telephone poles that are in the middle of the sidewalk. They take up a lot of space. Oceanside Blvd and Crouch St. Crouch St and Canyon Dr.

4. Foxwood/Sunningdale - DOGS RUNNING LOOSE....afraid to walk my own dog due to dogs running loose - fear of attacks!

3. ditmar/wisconsin Tree root damage to sidewalks and over grown trees that don't belong on the coast

2. Motorist speeding and frequent illegal use of hand held cell phones on Sleeping Indian Road between North River Road and the city Limit. Please address these problems while also respecting the South Morro Hills Neighborhood Association's goal of retaining the rural agricultural atmosphere. The city has been requested to specifically exclude traffic signals, streetlights, traditional city sidewalks, curbs, and gutters from the neighborhood.

1. Blank

Please state additional problem with street/cross street location #1.

17. No access from Academy Rd + Lowes Shopping Center. 300 Academy Road + Mission Ave. No side of Mission.

16. Oceanside / Greenbrier. Needs a crosswalk. Major entry point for sprinter

15. Front Capistrano neighborhood: Incomplete sidewalk system. requires pedestrians to walk in street. No ramps from sidewalks to street. Recommend 1-way streets w/complete sidewalk.

14. Parking close to intersections in Crown Heights where there are no stop signs. Hinders walking/biking as easily as in places where there are 4 way stops at each corner.

13. N. Cleveland Street/Sportfisher Drive - NE corner has no curb cut.

12. Cross walk next to blind corner

11. All of 101: Same as above.

10. Driver Speed on College Blvd south from Avenida de la Plata to shopping.

9. Loretta and Hwy76: There is no access to the bike path/harbor from these neighborhoods. People have to dash into traffic breaks or cross freeway exits. Sidewalks from Lorretta to the 101 would be cool also.

8. Mission & El Camino: Intersection is so large, doesn't allow enough time to cross.

7. Vine Street, north of Oceanside Blvd: Cars speed down hill to Oceanside Blvd. while children playing. Suggest similar calming treatments to Fire Mtn. area.

6. Grant and Division: Street too narrow, should have a side of street parking.

5. SS Oceanside Blvd east of I-5 to Crouch: No sidewalk, only gravel at best.

4. The crosswalks are not consistently marked. Oceanside Blvd and Crouch St. Crouch St. and Canyon Dr.

3. kids racing...cars and "pocket bikes"

2. cars speeding on coast highway & residential area

1. There is no sidewalk on the north side of Mission Road from Academy Road under 76 to the Lowe's Shopping Center entrance. References: Transportation Commission November 15, 2005 Meeting Minutes, General Item #3. Letter to Peter Weiss and petition signed by more than 100 residents of Oceanside and the managers of both the Lowe's and Ralph's stores.

Answers to Question 34: Please state additional problem with street/cross street location #2.

10. Downs. Remove stop signs at round about. Beyond ineffective and defeats the purpose of a roundabout!

9. Capistrano Park/River: Incomplete sidewalk on river side. Could be beautiful walk w/view not requiring me to cross street @ blind crossing @ top of hill on west side. Maybe sitting area @ river.

8. Avocado Road goes down from Fire Mountain to the shopping center yet has no sidewalk

7. Idiot drivers, near schools

6. Los Arbolitos & El Camino Real: As stated- Heavy volume, lack of driver awareness.

5. Grant and Division: Parked cars combined w/ busses navigating across street. Visibility, one side street parking or red (no parking from corners to bus stop)

4. ES Coast Hwy @ Topeka, across from Dolphin hotel: Poor drainage, puddling in sidewalk.

3. Traffic too fast and in too close proximity to sidewalk. Oceanside Blvd. and Greenbrier. Oceanside Blvd and Crouch St.

2. sidewalks in public walking areas s/b WIDER

1. PCH from city limit to Harbor Drive. Please include the pedestrian friendly aspects of the recent charrettes in the PMP

Please state additional problem with street/cross street location #3.

5. Harbor Free Parking Lot Tunnel: Narrow tunnel w/ crossflow of vehicle and ped. traffic. *ALSO* @ Harbor Frontage Rd/Free Parking Tunnel: Unsafe crossing and congested intersection. Recommend ped. bridge.

4. Gangs

3. Rancho del Oro and Oceanside Blvd: Sidewalks. New senior center and future VA clinic.

2. SS Mission btwn Tremont & Cleveland: Poor clearance between street tree wells and building.

1. Would like to feel SAFE walking in the evening...lighting, cameras or whatever would deter crime

Comments: Please write in anything else we should consider for this project.

23. I actually feel the city of Oceanside and the Parks Dept does a very good job taking care of this city considering the size! KUDOS! That's why I keep coming back.

22. Enforcement of regulation concerning dog on streets and the beach. Also, 'gang-bangers' hanging out making hard to walk and safety issues

21. Need published phone number & e-mail to request sidewalk grinding and smoothing

20. Harbor Dr., I-5/Camp Pendleton Exit Offramp: Dangerous crossing @ Camp Pendleton off ramp. Recommend Ped. Bridge or improve problem area @ I-5 & San Luis Rey Dr. mentioned above.

19. Thanks good stuff!

18. Our service is a very cost effective way to bring walkways to ADA standards. www.safeside-walks.com

17. city has fair walkability in the beach area. Only time there have been real safety concerns for me are Fri and Sat nights at Mission and Coast Hwy when many aggressive young drivers are in town after dark. Trash and graffiti are bigger deterrents to walking as are homeless in some areas.

16. Any substantial changes or redesign of walkways should be included in the overall city planning, rather than simply taking one project or area at a time.

15. As a wheelchair user I advocate for accessible sidewalks

14. Police presence is essential so we feel safe as a pedestrian.

13. Please paint parking spaces and limit commercial parking to red zone.

12. Need more walkways amenable to exercie (walking/jogging). Also more trashcans would make it easier to clean up after pets. Finally, shade on San Luis Rey trail PLEASE!

11. Trees require water and only recycled water should be used! All plants should be "NATIVE" to use less water.

10. Less is more, more or less.

9. I love this town!!

8. Thank you for your excellent service to our community!

7. North side of the San Luis Rey river from Capistrano Park to the harbor would be a perfect place for a pedestrian trail to the beach from this isolated neighborhood.

6. I appreciate this survey and the chance for the powers to be to hear the local voices.

5. Restore left turn from Coast Hwy to Mission Ave. Don't pinch 4 lane streets to 2 lanes. Don't convert parallel to slant parking. Don't convert 2 way streets to 1 way.

4. To have a truly walkable area, new buildings should be built next to the sidewalk with parking in the back, rather than parking lots separating the side walk and businesses.

3. Consider asking RESIDENT HELP in maintaining neighborhood sidewalks...planting trees, etc. - possible incentives which would cost less than the city paying for plantings...Eagle Scout projects, perhaps? Church group projects? LOOK FOR CITIZENS WHO WILL HELP...If they help build/plant it, they will take better care of it!

2. Better lighting in public areas Coast Highway, Mission, etc. Crime still a concern

1. The city should be more proactive in engaging the schools through the Safe Routes program and education/encouragement programs to increase the number of school children who walk (or ride bikes) to school. Grant money is available and should be pursued for every school in the city, including those in other districts. For example, Lake Elementary and Madison Middle School are Vista schools within Oceanside. The city should be especially proactive in providing the new Vista Magnet High Schools on Hwy 76 with safe pedestrian and bicycle access. Traffic calming measures, including but not limited to raised crosswalks (with LED lighting), roundabouts, bulb outs, speed cushions, and radar speed indicators, should be utilized when requested by neighborhoods to improve pedestrian safety and slow motorist speeds. The Complete Streets (Assembly Bill 1358) is now law in California. Please include reference to this law and include a discussion of its provisions in the PMP. Review all pedestrian-motorist collisions to identify engineering and education/enforcement actions to reduce the frequency and severity. Pay special attention to preventable fatal collisions and provide specific recommendations to prevent recurrence.

Appendix C

Complete Streets Checklist for Oceanside

Update to the General Plan Guidelines: Complete Streets and the Circulation Element

The following are possible policy areas recommended within the Complete Streets and the Circulation Element update document. The City of Oceanside has several policies throughout the Circulation Element that are similar to the policy area recommendations shown within this document. The areas where the City of Oceanside is in compliance with the Complete Streets guidelines are marked by an "X" in the sections below. It should be noted that not all possible policy areas are applicable to the City of Oceanside.

Possible Policy Areas and Data Collection Technique Considerations

The following suggestions are examples of possible policy areas and data collection technique considerations that could be used to prepare or amend a circulation element. Suggestions are generally categorized based on the statutorily required portions of the circulation element as described in G.C. 65302(b). Not all of these suggestions will be relevant in every jurisdiction. Suggestions pertaining to multimodal transportation networks (i.e. complete streets) are marked with a ‡.

Major Thoroughfares

Streets, Roads, and Highways

Policies and data collection for streets, roads, highways should include the consideration of transit services within a roadway right-of-way, in either mixed flow lanes, high occupancy vehicle (HOV) lanes, and/or street-running light rail tracks.

Compatible with City of Oceanside Policies	Possible Policy Areas:
X	• The availability of a mix of transportation modes and the infrastructure to support those modes to meet community needs. ‡
	• The development and improvement of major thoroughfares, including future acquisitions and dedications, based on proposed land use patterns and projected demand. This may include a street, road, and highway classification system.
	• The consideration of street patterns; curvilinear, grid, modified grid, etc. ‡
X	• The design of streets (including, but not limited to, width, block size, etc.) o The consideration of sidewalks and curbs as a standard street design principle. ‡ o The consideration of bicycle lanes and/or shared lanes as a standard street design principle. ‡ o The consideration of transit accessibility and transit priority measures as a standard street design principle. ‡ o The consideration of shade trees and planting strips as a standards street design principle. ‡
X	• The consideration of traffic calming measures (narrower travel lanes, roundabouts, raised medians, speed tables, planting strips, etc.). ‡
X	• The safety of the traveling public, including pedestrians and bicyclists. ‡
X	• The accessibility and accommodation of bicycle and pedestrian traffic, where appropriate, on and across major thoroughfares. ‡

X	• The design of intersections and public right-of-ways to include adequate and safe access for all users including pedestrians, bicyclists, and motorists of all ages and abilities. ‡
X	• The development of a connected system of streets, roads, and highways that provides continuous, safe, and convenient travel for all users. ‡
	• The consideration of separate performance and level-of-service standards for bicycle and pedestrian traffic or integrated performance and level-of-service standards that include multiple modes. ‡
	• The development and improvement of transit, including transit services within a roadway right-of-way.
	• The consideration of bus HOV lanes or other exclusive right-of-way for transit vehicles.
X	• The consideration of transit priority measures such as signal priority and queue jump lanes.

Data Collection Techniques:

- Identify existing and proposed modes of transportation. ‡
- Assess all thoroughfares to determine if they are providing sufficient multimodal transportation options. ‡
- Assess the number and distribution of households with and without an automobile. ‡
- Assess the transportation needs of special groups within the population and the extent to which such needs are being met by existing streets, roads, and highways. (e.g., children, persons with disabilities, and the elderly). ‡
- Project future modal split by estimating the percentage of trips by transit, passenger car, van pools, etc.
- Assess the adequacy of the existing streets, roads, and highway systems and the need for expansion, improvements, and/or transportation operations management based on projected traffic including that generated by planned land use changes. Consider that the need for expansion should recognize economic principles such as cost effectiveness and efficiency as well as environmental and social consequences. ‡
- Analyze existing street, road, and highway traffic conditions for all transportation modes to determine current levels of use throughout the entire day. Assess whether existing travel demand or transportation network supply could be better managed to limit the need for expansion of streets, roads, and highways. ‡
- Analyze existing performance and levels of service of existing streets, roads, and highways for all transportation modes. Compare projected with desired performance and level of service standards for all transportation modes. ‡
- Project future traffic volumes for all modes on existing and planned streets, roads, and highways by accounting for the effects of changes in the following built environment characteristics: ‡
    - Density of land uses;
    - Diversity of land uses;

    - Design of network;
    - Destinations (regional accessibility);
    - Distance to transit;
    - Demographics;
    - Development scale; and,
    - Demand management (i.e. pricing, etc.)
- Determine the effects of projected traffic volumes for all transportation modes on existing street, road, and highway capacities. ‡
- Identify physical barriers and other constraints that prevent or inhibit use or access by all modes. ‡
- Analyze historical data and trends with regard to collisions involving all modes of travel. ‡
- Review the CA Highway Patrol's Statewide Integral Traffic Record System to identify areas where safety could be addressed. ‡
- Identify problem locations by analyzing injury severity and determining collision frequency relative to exposure by conducting motor vehicle, pedestrian, and bicycle counts. ‡
- Review traffic projects pertinent to local planning that are proposed within neighboring jurisdictions.
- Review pertinent regional transportation plans and project funding priorities under the regional transportation improvement program.
- Analyze the potential effects of alternative plan proposals and implementation measures (related to transportation and/or land use) on desired projected performance and multimodal levels of service.
- Analyze the potential effects of alternative plan proposals and implementation measures (related to transportation and/or land use) on residential land uses.
- The identification of farm-to-market transportation needs on streets, roads, and highways. ‡

Transit and Railroads

Policies and data collection for transit and railroads should consider both passenger and freight rail, and light rail and bus rapid transit alignments.

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
X	• The development and improvement of transit and paratransit services, including mass rapid transit services, commuter light rail and heavy rail metro/subway systems, in consultation with the appropriate transportation agencies. ‡

X	• The accessibility and accommodation of all transit users. ‡
	• The review and/or development of paratransit plan proposals for jitneys, car pooling, van pooling, taxi service, dial-a-ride, etc. ‡
X	• The adoption of technology that creates a more effective usage of existing transit such as real time monitors and personalized automatic notification arrivals. ‡
	• The development and improvement of railroad facilities and services.
	• The preservation and repositioning of abandoned railroad right-of-ways for future transportation corridor use, including bicycle paths and trails, or new passenger rail or bus services. ‡

Data Collection Techniques:

- Analyze existing public transit demand on transit capacity and services. ‡
- Assess the adequacy of existing transit services and the need for expansion and improvements. ‡
- Examine trends in transit use and estimates of future demand. ‡
- Assess the needs of people who depend on public transit. ‡
- Determine the effects of projected public transit demand on transit capacity and services. ‡
- Determine existing and projected performance and levels-of-service standards for transit. ‡
- Evaluate the transportation needs that are or are not being met by public or private bus companies. ‡
- Examine private bus company plans to provide bus services in the future. ‡
- Inventory existing paratransit services, uses, and routes. ‡
- Inventory the existing and future needs served by paratransit. ‡
- Inventory rail lines and facilities and assess plans for expansion and improvements.
- Determine transportation needs that are not being met by railroads.
- Identify abandoned railroad right of ways which could be preserved for future transportation corridor use, including bicycle paths and trails, or new passenger rail or bus service. ‡
- The identification of farm-to-market transportation needs for rail services. ‡

Navigable Waterways

Possible Policy Areas:

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The maintenance and improvement of navigable waterways.

Data Collection Techniques:

- Assess the adequacy of navigable waterways, including the need for expansion and improvements.

- Assess current and future land uses and communities near navigable waterways, ports, and harbors.
- Project future needs for navigable waterways.
- The identification of farm-to-market transportation needs on navigable waterways and at ports and harbors. ‡

Transportation Operations Management

Compatible with City of Oceanside Policies	Possible Policy Areas:
	• The development of transportation operations management policies, such as the consideration of reducing speeds, separating pedestrians and bicyclists from vehicle traffic, and adding or upgrading traffic control devices, etc. ‡
	• The provision of adequate crossing times and detection for all users at signalized intersections, consistent with AB 1581 (Fuller, Statutes of 2007). ‡
	• The appropriate balancing of needs of various users when establishing speed limits for motor vehicles, consistent with AB 2767 (Jackson, Statutes of 2000). ‡
	• The scheduling and financing of circulation operations maintenance projects.

Data Collection Techniques:

- Review pertinent regional, state, and federal corridor plans.
- Analyze the projected effects on the transportation system of construction improvements versus the projected effects of transportation operation management.
- Compare the costs of construction improvements versus the costs of transportation operation management.

Transportation Routes

Truck Routes

Compatible with City of Oceanside Policies	Possible Policy Areas:
	• The development of proposed truck routes and policies supporting truck route regulations. ‡
	• The development and preservation of farm-to-market routes. ‡
	• The accessibility and accommodation of pedestrian and bicycle traffic, where appropriate, on truck routes, including farm-to-market routes. ‡

Data Collection Techniques:

- Identify existing truck routes and determine needed improvements. ‡
- The identification of farm-to-market routes. ‡

Pedestrian and Bicycle Routes

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
X	• The development of a comprehensive pedestrian and/or bicycle plan. See California Streets and Highways Codes Sec. 891.2 requirements for bicycle transportation plans. ‡
X	• The development and improvement of pedestrian and bicycle routes, on and off, streets, roads, and highways. Consider special accommodations such as car-free zones, bicycle boulevards, and paths. ‡
X	• The connectivity of pedestrian and bicycle routes between homes, job centers, schools and facilities, and other frequently visited destinations. ‡
X	• The development of Safe Routes to School programs that address pedestrian and bicycle safety for a two mile radius around all elementary, middle, and high school facilities. ‡
X	• The development of pedestrian and bicycle facilities along routes that support the use of these routes such as benches, shelters, trees, bicycle parking, etc. ‡
	• The dedication and preservation of independent alignments (utility, abandoned waterways, or live rail right-of-ways) for the development of bicycle paths. ‡
	• The development of performance and level-of-service standards for pedestrian and bicycle routes and intersections. ‡
X	• The development and use of marketing and incentive programs to promote the increase of walking and bicycling. ‡
***It should be noted that the City of Oceanside has a Bicycle Master Plan and a Pedestrian Master Plan that provides goals and guidelines for bicycle and pedestrian planning in Oceanside.*	

Data Collection Techniques:

- Assess the adequacy of existing bicycle and pedestrian route access, accommodations, and the need for improvements or additional infrastructure, considering connectivity to other transportation modes. ‡
- Identify gaps in bicycle and pedestrian access routes and determine how future projects can improve pedestrian and bicycle circulation. ‡
- Assess the adequacy of existing bicycle and pedestrian routes to and from school facilities in regards to the accessibility and safety of children. ‡
- Assess the adequacy of existing pedestrian routes to determine if all routes meet *Americans with Disabilities Act (ADA) Accessibility Guidelines* and applicable ADA Transition Plans. ‡
- Examine trends in bicycle usage. ‡
- Study pedestrian activity and patterns. ‡
- Assess historical data and trends with regard to vehicle, bicycle, and pedestrian collisions. ‡

- Inventory availability and adequacy of bicycle parking at major land use destinations, along transit routes and at transit terminals. ‡

Transit Routes

Compatible with City of Oceanside Policies	Possible Policy Areas:
X	• The development and improvement of public and private transit routes. ‡
	• The development and improvement of access to and from transit routes by walking and bicycling and by people with disabilities. ‡
	• The development of performance and level-of-service standards for transit routes and intersections that consider all transportation modes. ‡

Data Collection Techniques:

- Assess the adequacy of existing transit routes and the need for expansion or improvements. ‡
- Identify public and private bus routes within the local jurisdiction and determine the need for expansion or improvements. ‡
- Assess the accessibility to transit stops by walking or bicycling and by people of all abilities. ‡

Emergency Routes

Compatible with City of Oceanside Policies	Possible Policy Areas:
X	• The identification, development, and maintenance of evacuation and emergency access routes.

Data Collection Techniques:

- Analyze the adequacy of emergency access and evacuation routes.

Terminals

General and Commercial Airports

Compatible with City of Oceanside Policies	Possible Policy Areas:
	• The development and improvement of aviation facilities found in Airport Master Plans and/or Airport Layout Plans.
	• The consistency of the general plan with the provisions of any applicable Airport Land Use Compatibility Plan (§65302.3).
	• The mitigation of aviation-related hazards including hazards to aircraft and hazards posed by aircraft.

	• The access to and from aviation facilities by all modes of transportation. ‡
	• The inclusion of bicycle parking at airports. ‡

Data Collection Techniques:

- Assess the adequacy of and safety hazards associated with existing aviation facilities and the need for expansion and improvements.
- Inventory potential noise and safety hazards posed by airport activities to surrounding land uses.
- Inventory potential safety hazards to aircraft passengers posed by existing or proposed land uses near airports.
- Assess the provisions of any Airport Land Use Compatibility Plan prepared pursuant to Public Utilities Code §21675.
- Assess the adequacy of access by all transportation modes to and from airports, based on existing and projected passenger and cargo loads. ‡

Ports and Harbors

Policies and data collection for ports and harbors should consider the needs of both deep-draft and small boats.

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The development and improvement of port, harbor, and waterway facilities.
	• The provision of the movement of goods to and from ports and harbors. ‡
X	• The accessibility to and from ports and harbors by all modes of transportation. ‡

Data Collection Techniques:

- Assess the adequacy and accessibility of port and harbor facilities, by all modes of transportation, including the need for expansion and improvements. ‡
- Assess the adequacy and accessibility of goods movement to and from ports and harbors. ‡
- Assess current and future land uses and communities near ports and harbors.
- Project future needs for port and harbor facilities.
- Review plans for improvements by harbor and port districts.

Railroad Depots

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
X	• The development and improvement of railroad depots.
	• The provision of the movement of goods to and from railroad depots. ‡

Data Collection Techniques:

- Assess the adequacy of existing railroad depots including the need for expansion or improvements.
- Assess the adequacy and accessibility of goods movement to and from railroad depots. ‡

Public and Private Transit Terminals

Policies and data collection for both public and private transit terminals should consider public or private buses, light rail systems, rapid transit systems, commuter railroads, high-speed rail, ferryboats, etc.

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The location and characteristics of transit terminals to maximize accessibility by all modes of transportation. ‡
	• The development and improvement of both public and private transit terminals and stops. ‡
	• The development of intermodal transfer facilities, such as bicycle parking and bus transfer stations. ‡
	• The provision of adequate and safe transit facilities including covered shelters, lighting, safe crossings, and locations that support eyes on the street. ‡
	• The provision of safe and efficient multimodal access to and within transit terminals, complying with ADA standards. ‡

Data Collection Techniques:

- Identify all public transit terminals. ‡
- Assess the adequacy and accessibility of all public transit terminals. Ensure that all terminals are accessible by and accommodate for all potential users. ‡
- Evaluate public and private bus company terminal services and facilities; conditions, locations, and capital improvement plans. ‡
- Identify transportation nodes suitable for future transit-oriented development, including passenger rail. ‡
- Inventory and assess the need for bicycle parking improvements at all terminal types. ‡

Freight Truck Terminals and Warehouses

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The development and improvements of freight trucking terminals and warehouses. ‡

	• The provision of the movement of goods to and from freight truck terminals and warehouses.‡
	• The provision of the movement of goods from farms to storage facilities. ‡

•

Data Collection Techniques:

- Project future needs for future freight trucking terminals and warehouses.‡
- Assess the adequacy and accessibility of goods movement to and from freight truck terminals and warehouses. ‡
- Assess the adequacy and accessibility of goods movement from farms to storage facilities. ‡

Military Facilities

Policies and data collection for military facilities should consider military airports, ports and harbors, and accessible routes to and from military operations.

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The inclusion of all military transportation thoroughfares and infrastructure in the planning area as part of the overall circulation system.
	• The consideration of the needs of military installations and training needs when planning transportation and infrastructure projects.
	• The reassurance that community and military transportation corridors maintain viability.
	• The consideration of all military terminals including airports, ports, and harbors.

Data Collection Techniques:

- Consult with neighboring military planners to ensure that military installations, infrastructure, and training activities are considered in the circulation system.
- Assess major streets, roads, and highways near or surrounding all military facilities, including the need for development and maintenance of adequate ingress and egress routes.
- Assess all military terminals in the same manner as general and commercial terminals.

Utilities

Policies and data collection for utilities should consider sewer, water and drainage lines and facilities, oil and natural gas pipelines, power plants, transmission lines and corridors, proposed or state identified transmission line corridors, renewable and non-renewable energy, and energy storage.

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
	• The acquisition of necessary public utility right-of-ways.
	• The development of standards for transportation and utility-related exactions.
	• The development, improvement, timing, and location of community sewer, water, and drainage lines and facilities.
	• The development, improvement, timing, and current and future locations of: o Oil and natural gas pipelines; o Power plants; o Major electric transmission lines and corridors; o Utility scaled and distributed energy generation; and, o Telecommunication cables and equipment.
	• The development of preferences for financing measures to expand and improve public facilities.
	• The availability of assistance to those who cannot afford utility services.

Data Collection Techniques:

- Assess the adequacy and availability of existing community water, sewer, energy, and drainage facilities, and the need for expansion and improvements.
- Assess existing and projected capacity of treatment plants and trunk lines.
- Determine the location of existing and proposed power plants, oil and gas pipelines, and major electric transmission lines and corridors.
- Assess potential future development of power plants, transmission lines, and renewable and non renewable energy. Consider such factors as the demand for transmission facilities, the transport and storage of hazardous materials, and local transportation impacts of current and future power plant developments.
- Assess power line or other utility easements for future bicycle paths or multipurpose paths. ‡
- Determine the locations of utility infrastructure that may be blocking the pedestrian right-of-way such as utility poles. ‡ *- It should be noted that the City of Oceanside's Pedestrian Master Plan (November 2009) identified areas where pedestrian improvements were needed (which included sidewalks blocked by utility infrastructure).*
- Determine the locations of utility infrastructure that may create hazardous conditions for bicyclists. ‡ *- It should be noted that the City of Oceanside's Bicycle Master Plan (December 2008) identified areas where bicycle improvements were needed (which included identifying areas with hazardous conditions for bicyclists).*

Other Issues

Land Uses and Transportation Integration

Compatible with City of Oceanside Policies	Possible Policy Areas:
	• The development of transit-oriented development standards, including the appropriate mix of density and intensity of land uses near transit stations, parking requirements, and service and delivery requirements. ‡
	• The creation of land use patterns, such as mixed-use overlay districts, that allow frequently visited destinations to be accessible by multiple transportation modes. ‡
X	• The availability of transportation infrastructure needed to accommodate increased density and transit-oriented development. ‡
	• The consideration of flexible performance and level-of-service standards, in areas planned for increased density and mixed uses to increase walking, bicycling, and transit ridership. ‡

Data Collection Techniques:

- Assess needed land uses, facilities, and structures that will enhance pedestrian, bicycle, and transit travel. ‡

Parking Facilities

Compatible with City of Oceanside Policies	Possible Policy Areas:
X	• The provision of bicycle parking. ‡
	• The development of strategies for the control of parking demand such as improved transit • services, amenities for bicyclists, subsidized rideshare vehicles, and the consideration of eliminating minimum parking requirements. ‡
	• The development of strategies for the management of vehicle parking supply such as increased parking fees, graduated parking fees, shared parking, metered on-street parking, staggered work schedules, etc.

Data Collection Techniques:

- Assess the supply, demand, and utilization of existing on- and off-street parking, particularly in urban and commercial areas.
- Assess the effects of parking policies (i.e. off-street parking standards, on-street parking restrictions, graduated parking fees, etc.) on congestion, energy use, air quality, and public transit ridership. ‡
- Assess the need for and types of bicycle parking. ‡
- Analyze existing bicycle parking standards or requirements including parking requirements for commercial buildings, retail complexes, schools, etc. ‡

Air Pollution

Compatible with City of Oceanside Policies	Possible Policy Areas:
	• The development of measures that would reduce public, private, and commercial motor vehicle emissions, consistent with regional air quality and transportation plan policies. ‡

Data Collection Techniques:

- Assess existing air quality pursuant to air quality district plans.
- Analyze air quality trends.
- Estimate air quality impacts of motor vehicle trips generated by land use changes and new thoroughfares based on regional air quality and transportation plans.

- Identify and evaluate measures that will reduce the air quality impacts of motor vehicle trips that are consistent with regional air quality and transportation plans.

Electric and Non-Carbon Emitting Vehicles

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
X	• The development of infrastructure implementation strategies focused on supporting the use of electric and other non-carbon emitting vehicles.

Data Collection Techniques:

- Analyze the demand for electric and non-carbon emitting supportive infrastructure along streets, roads, and highways.

Green Streets

Compatible with City of Oceanside Policies	**Possible Policy Areas:**
X	• The development of shade trees, green medians, and landscape standards for streets, roads, highways, and pedestrian and bicycle paths and trails.
	• The inclusion of trees, planting strips, and other landscaping as a street design standard.

Data Collection Techniques:

- Assess current tree canopy conditions on existing streets, roads, and highways, as well as at existing transit terminals. ‡
- Assess future tree canopy conditions for proposed future streets, roads, and highways, as well as at proposed future transit terminal sites. ‡
- Assess the adequacy of budgets for maintaining shade trees and related landscaping along streets and paths. ‡

Appendix D

Existing Roadway Segment Classification, ADT and LOS Tables

TRAFFIC IMPACT ANALYSIS REPORT

MASTER TRANSPORTATION PLAN
Existing Roadway Volumes & LOS and Intersection Delay & LOS

FINAL

APRIL 2012

Prepared by:

IBI GROUP

1.0 EXISTING CONDITIONS

The project study area includes major roadways and intersections located in the City of Oceanside. Descriptions of existing geometric features for roadways and intersections with level of service analysis results are included in this section.

1.1 ROADWAY CONDITIONS

1.1.1 Existing Roadway Network

Roadways within the City of Oceanside are described in this section. Items of note include existing geometry, bicycle facilities, adjacent land uses, and the City of Oceanside Circulation Element roadway classification designation.

Cannon Road is a major arterial between the western city limits and Melrose Drive. It is a four-lane divided roadway that transitions to a two-lane divided roadway west of Leisure Village Drive. Cannon Road primarily provides access to commercial and retail shopping centers and connecting residential streets. Class II bicycle lanes are striped along both sides of the street within the city limits and on-street parking is not permitted. It currently does not connect to Cannon Road in the City of Carlsbad.

Canyon Drive is secondary collector between SR76 and Mission Avenue and a collector with a two-way left-turn lane between Mission Avenue and Oceanside Boulevard. It primarily provides access to residential neighborhoods. It is a four-lane undivided roadway between SR76 and Mission Avenue and a two-lane roadway with a continuous two-way left turn lane between Mission Avenue and Oceanside Boulevard. Class II bicycle lanes are striped along both sides of the street within the study area and on-street parking is permitted intermittently between Loma Alta Drive and Crouch Street.

Coast Highway is a collector between Harbor Drive and SR76 and a secondary collector with left turn pockets between SR76 and the southern City limits. It primarily provides access to commercial and retail shopping centers. It is a two-lane undivided roadway between Harbor Drive and SR76 and a four-lane undivided roadway between SR76 and the southern City limits. There are no designated bicycle lanes but on-street parking is permitted.

College Boulevard is a major arterial and provides access to retail/commercial centers and residential neighborhoods. It is a six-lane divided roadway between N. River Road and SR76 (except on the bridge over the San Luis Rey River), a four-lane divided roadway between SR76 and Waring Road, and a six-lane divided roadway between Waring Road and Lake Boulevard, and a four-lane roadway between Lake Boulevard and the southern city limits. Class II bicycle lanes are striped along both sides of the street within the study area and on street parking is permitted between Thunder Drive and Roselle Street.

Douglas Drive is a secondary collector between North River Road and Vandegrift Boulevard and a major arterial between North River Road and SR76. It is a four-lane roadway with a two-way left turn lane between Vandegrift Boulevard and Via Malaguena, and it has a two-way left turn lane or striped median between Via Malaguena and North River Road. It is divided between North River Road and El Camino Real. There is a two-way left turn lane or striped median

between El Camino Real and SR76. Class II bicycle lanes are provided on both sides of the street between Vandegrift Boulevard and Mission Avenue. On-street parking is not permitted.

El Camino Real is a major arterial between Douglas Drive and Oceanside Boulevard and a prime arterial between Oceanside Boulevard and SR78. It provides access to retail/commercial centers and residential neighborhoods. It is a four-lane roadway with a continuous two-way left turn lane between Douglas Drive and Mission Avenue, a four-lane divided roadway between Mission Avenue and Oceanside Boulevard, and a six-lane divided roadway between Oceanside Boulevard and SR78. Class II bicycle lanes are striped along both sides of the street within the study area and on-street parking is not permitted.

Emerald Drive is a secondary collector between Sunset Drive and Lake Boulevard. It is a four-lane roadway with a continuous center two-way left-turn lane. Emerald Drive provides access to residential neighborhoods. Class II bicycle lanes are striped on both sides of the street and on-street parking is not permitted.

Frazee Road is a major arterial between Old Grove Road and College Boulevard and a collector road between College Boulevard and Sagewood Drive and west of Old Grove Road. It is a four-lane divided roadway between Old Grove Road and College Boulevar that primarily provides access to residential neighborhoods. Class II bicycle lanes are striped on both sides of the street and on-street parking is not permitted.

Lake Boulevard is a secondary collector that provides access to residential neighborhoods and retail/commercial centers. It is a four-lane roadway with a continuous two-way left-turn lane; however, it is a two-lane roadway with a continuous two-way left-turn lane between Thunder Drive and Sundown Lane. Class II bicycle lanes are striped on both sides of the street. On-street parking is permitted between Thunder Drive and Sundown Lane.

Melrose Drive is a major arterial between SR76 and Spur Avenue, an unimproved two-lane roadway between North Santa Fe Avenue and Sagewood Drive, a four-lane divided roadway between Sagewood Drive and Meadowbrook Drive and a two-lane unimproved roadway between Meadowbrook Drive and Oceanside Boulevard. It is five lanes (three southbound, two northbound) from Oceanside Boulevard to south of the railroad tracks and transitions to four-lanes within the City of Vista to SR78. It is a six-lane divided roadway within the city limits both north and south of Cannon Road. It provides access to retail/commercial shopping centers and residential neighborhoods. Class II bicycle lanes are striped on both sides of the street and on-street parking is not permitted.

Mesa Drive is a collector between Mission Avenue and Foussat Road and a secondary collector between Foussat Road and N. Santa Fe Avenue. It provides access to residential neighborhoods. It is a two-lane undivided roadway between Mission Avenue and just east of Foussat Road, and a two-lane roadway with a continuous two-way left-turn lane just east of Foussat Road to El Camino Real. It is four-lanes with a continuous two-way left-turn lane east of El Camino Real with raised medians just east and west of Rancho Del Oro Road. The two-way left-turn lane continues east of Rancho Del Oro Road to Via Empressa where it becomes a divided roadway with medians to College Boulevard. It is a four-lane roadway with a continuous two-way left-turn lane east of College Boulevard to N. Santa Fe Avenue. Class II bicycle lanes are striped along both sides of the street between Foussat Road and N. Santa Fe Avenue. On-street parking is not permitted.

Mission Avenue is a secondary collector between Pacific Street and Horne Street and a major arterial between Horne Street and just west of Rancho Del Oro Road. It provides access to commercial and retail shopping centers and districts. It also provides access to the beach and Oceanside Pier parking lots. Mission Avenue is a four-lane divided roadway between Pacific Street and Cleveland Street, a four-lane undivided roadway between Cleveland Street and Horne Street, and a four-lane divided roadway from Horne Street to just west of Rancho Del Oro Road. Mission Avenue becomes a two lane divided road between just west of Rancho Del Oro Road and west of Old Grove Road. It is a four-lane divided roadway west of Old Grove Road to Frazee Road; however, a section of Mission Avenue between Old Grove Road and Valley Heights Road is only two-lanes. Class II bicycle lanes are striped along both sides of the street between I-5 and Frazee Road and on-street parking is not permitted.

North Avenue is a secondary collector that provides access to residential neighborhoods, office complexes, and serves a connection to the City of Vista. It is a two-lane undivided roadway between Olive Drive and Seasons Road, a two-lane roadway with a center continuous two-way left-turn lane from Seasons Road to just west of Maryland Drive, and primarily a two-lane undivided roadway between Maryland Drive and Melrose Drive. Class II bicycle lanes are provided on western/southern side of North Avenue between Olive Drive and Seasons Drive. Class II bicycle lanes are also provided on both sides of the street between Seasons Drive and Lee Drive and on the southern side of North Avenue between Lee Drive and Maryland Drive. On-street parking is not permitted except between Lee Drive and Maryland Drive on the northern side of the street.

North River Road is a major arterial between Douglas Drive and Vandegrift Boulevard and a collector east of Vandegrift Boulevard to the city limits. It primarily provides access to residential neighborhoods. It is a four-lane divided roadway between Douglas Drive and Vandegrift Boulevard, a continuous two-lane with two-way left turn lane between Vandegrift Boulevard and Stallion Drive and a two-lane undivided roadway between Stallion Drive and the eastern city limits. Class II bicycle lanes are striped along both sides of the street between Douglas Drive and College Boulevard. On-street parking is not permitted.

North Santa Fe Avenue is a major arterial between SR76 and the eastern city limits. It primarily provides access to residential neighborhoods. It is a four-lane divided roadway between SR76 and the eastern city limits. Class II bicycle lanes are striped on both sides of the street between Mesa Drive and Melrose Drive. On-street parking is not permitted.

Oceanside Boulevard is a collector between Pacific Street and Coast Highway, a secondary collector between Coast Highway and El Camino Real, a prime arterial between El Camino Real and College Boulevard, and a major arterial between College Boulevard and the eastern city limits. It provides access to industrial, residential, and retail/commercial centers. It is a two-lane undivided roadway between Pacific Street and Coast Highway, a four-lane undivided roadway between Coast Highway and I-5, a four-lane roadway with a continuous two-way left turn lane between I-5 and El Camino Real, a six-lane undivided roadway between El Camino Real and Rancho Del Oro Road, a six-lane divided roadway between Rancho Del Oro Road and College Boulevard, and a four-lane divided roadway between College Boulevard and the eastern city limits. Class II bicycle lanes are provided on both sides of the street and on-street parking is not permitted.

Old Grove Road is a collector north of Frazee Road, a major arterial between Frazee Road and College Boulevard, and a collector between College Boulevard and Pine Ridge Road. It provides access to residential neighborhoods, retail/commercial centers, and to the Rancho Del Oro Industrial Park. It is a two-lane undivided roadway north of Frazee Road, a four-lane divided roadway between Frazee Road and College Boulevard, and a two-lane divided roadway between College Boulevard and Pine Ridge Road. There are Class II bicycle lanes striped along both sides of the street and on-street parking is not permitted.

Olive Drive is a secondary collector that primarily provides access to residential neighborhoods and serves as a connection to the City of Vista. It is a four-lane roadway with a center continuous two-way left-turn lane. There are no designated bicycle lanes and on-street parking is not permitted.

Pala Road is a secondary collector roadway from Douglas Drive to its westerly terminus and a collector east of Douglas Drive. It primarily provides access to residential neighborhoods. It is a two-lane roadway with a continuous two-way left turn lane. Class II bicycle lanes are striped along both sides of the street within the study area and on-street parking is not permitted. It currently does not connect to Foussat Road.

Plaza Drive is a secondary collector to just east of SR78 Eastbound on/off-ramps. It provides access to retail/commercial centers and access to the SR78 and the City of Vista. It is primarily a four-lane divided roadway between College Boulevard and just west of the SR78 Eastbound on/off ramp. It is unimproved from just east of SR78 Eastbound on/off-ramps to just west of Thunder Drive. From Thunder Drive to the eastern city limits, it is three lanes (two eastbound and one westbound) with a continuous two-way left-turn lane. There are no designated bicycle lanes within the study area, and on-street parking is not permitted.

Rancho Del Oro Drive/Road is a major arterial and primarily provides access to residential neighborhoods, a school, and Ocean Ranch Industrial Park. However, south of Oceanside Boulevard Rancho Del Oro Road does not operate as a four-lane major arterial but is more rural in character with stop controlled intersections leading to Vista Way with the exception of one traffic signal at Glaser Drive. It is a four-lane divided roadway. There are Class II bicycle lanes striped along both sides of the street and on-street parking is not provided.

Vandegrift Boulevard is a major arterial and provides access to commercial shopping centers and residential neighborhoods. It is a five-lane divided roadway between College Boulevard and the back gate of Camp Pendleton with three lanes northbound and two lanes southbound between College Boulevard and Douglas Drive. It is two lanes northbound and three lanes southbound between Douglas Drive and the back gate of Camp Pendleton. Vandegrift Boulevard provides access to residential neighborhoods, small commercial shopping, and direct access to Camp Pendleton to the north. Class II bicycle lanes are striped along both sides of the street and on-street parking is not permitted.

Vista Way is a secondary collector and provides access to residential neighborhoods and retail/commercial centers. It is a four-lane roadway with a continuous two-way left turn lane between Jefferson Street and the eastern city limits. Vista Way is a two-lane roadway with a continuous two-way left turn lane from Coast Highway to I-5/SR78 Interchange. Class II bicycle lanes are provided on both sides of the street and on-street parking is not permitted.

State Route 76 is an expressway between I-5 and Melrose Drive and a major arterial east of Melrose Drive. It is a four-lane divided expressway between I-5 and Melrose Drive and a two-lane undivided roadway east of Melrose Drive. SR76 is currently under construction east of Melrose Drive to be widened to a four-lane roadway. Class II bicycle lanes are striped along both sides of the street within the study area and on-street parking is not permitted.

1.1.2 Existing Average Daily Traffic (ADT) and Roadway Level of Service (LOS)

Average Daily Traffic (ADT) volumes for the study area network are summarized in the table below. As seen in the table below, the following roadway segments operate at a deficient LOS:

- Coast Highway: Wisconsin Avenue to Oceanside Boulevard (LOS E)
- College Boulevard: Old Grove Road to Oceanside Boulevard (LOS E)
- College Boulevard: Oceanside Boulevard to Olive Drive (LOS F)
- College Boulevard: Olive Drive to Thunder Drive (LOS E)
- Lake Boulevard: Thunder Drive to Sundown Lane (LOS E)
- Oceanside Boulevard: I-5 to Crouch Street (LOS E)
- Oceanside Boulevard: Crouch Street to Foussat Road (LOS F)
- Oceanside Boulevard: Foussat Road to El Camino Real (LOS E)
- Vista Way: Coast Highway to I-5 (LOS F)
- Vista Way: College Boulevard to SR78 EB Ramps (LOS E)
- SR76: Melrose Drive to Eastern City Limits (LOS F)

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
Cannon Road					
Melrose Drive to Shadowridge Drive	4D	Major Arterial	40,000	10,400	A
Canyon Drive					
SR76 to Mission Avenue	4U	Secondary Collector	25,000	5,400	A
Mission Avenue to Oceanside Boulevard	2TWLT	Collector	15,000	8,100	C
Coast Highway					
Harbor Drive to SR76	2U	Collector	10,000	9,000	D
SR76 to Mission Avenue	4U	Secondary Collector	25,000	18,300	D
Mission Avenue to Wisconsin Avenue	4U	Secondary Collector	25,000	21,600	D
Wisconsin Avenue to Oceanside Boulevard	4U	Secondary Collector	25,000	**22,100**	**E**
Oceanside Boulevard to Cassidy Street	4U	Secondary Collector	25,000	20,400	D

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
Cassidy Street to Vista Way	4U	Secondary Collector	25,000	19,600	D
Vista Way to Southern City Limits	4U	Secondary Collector	25,000	17,900	C
College Boulevard					
N. River Road to SR76	6D	Major Arterial	50,000	38,500	C
SR76 to Frazee Road	4D	Major Arterial	40,000	30,300	D
Frazee Road to Mesa Drive	4D	Major Arterial	40,000	32,700	D
Mesa Drive to Old Grove Road	4D	Major Arterial	40,000	29,000	C
Old Grove Road to Oceanside Boulevard	4D	Major Arterial	40,000	**38,200**	**E**
Oceanside Boulevard to Olive Drive	4D	Major Arterial	40,000	**46,700**	**F**
Olive Drive to Thunder Drive	4D	Major Arterial	40,000	**35,800**	**E**
Thunder Drive to Waring Road	4D	Major Arterial	40,000	31,100	D
Waring Road to Vista Way	6D	Major Arterial	50,000	40,200	D
Vista Way to SR78	6D	Major Arterial	50,000	38,300	C
SR78 to Plaza Drive	6D	Major Arterial	50,000	40,500	D
Plaza Drive to Lake Boulevard	6D	Major Arterial	50,000	33,800	C
Lake Boulevard to Southern City Limits	4D	Major Arterial	40,000	24,300	C
Douglas Drive					
Vandegrift Boulevard to Via Malaguena	4D/U	Secondary Collector	30,000	8,200	A
Via Malaguena to Cardiff Bay Drive	2D	Collector	10,000	8,200	D
Cardiff Bay Drive to N. River Road	4TWLT	Secondary Collector	30,000	14,100	C
N. River Road to Pala Road	4D	Major Arterial	40,000	32,700	D
Pala Road to El Camino Real	4D	Major Arterial	40,000	35,000	D
El Camino Real to Mission Avenue	4TWLT	Secondary Collector	30,000	21,000	D
Mission Avenue to SR76	4U	Major Arterial	40,000	20,400	B
El Camino Real					
Douglas Drive to Mission Avenue	4TWLT	Major Arterial	40,000	22,600	C
Mission Avenue to Mesa Drive	4D	Major Arterial	40,000	21,200	C
Mesa Drive to Oceanside Boulevard	4D	Major Arterial	40,000	33,000	D
Oceanside Boulevard to Fire Mountain Road	6D	Prime Arterial	60,000	35,800	C

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
Fire Mountain Road to Via Las Rosas	6D	Prime Arterial	60,000	36,200	C
Via Las Rosas to Vista Way	6D	Prime Arterial	60,000	43,700	C
Vista Way to SR78	6D	Prime Arterial	60,000	51,100	D
Emerald Drive					
Lake Boulevard to Sunset Dr	4TWLT	Secondary Collector	30,000	2,300	A
Frazee Road					
Old Grove Road to SR76	4D	Major Arterial	40,000	5,500	A
SR76 to College Boulevard	4D	Major Arterial	40,000	9,300	A
College Boulevard to Sagewood Drive	2D/U	Collector	10,000	3,600	A
Lake Boulevard					
College Boulevard to Thunder Drive	4TWLT	Secondary Collector	30,000	13,100	B
Thunder Drive to Sundown Lane	2TWLT	Collector	15,000	**14,800**	**E**
Sundown Lane to Sky Haven Lane	4TWLT	Secondary Collector	30,000	14,800	C
Sky Haven Lane to Cannon Road	4TWLT	Secondary Collector	30,000	13,400	B
Melrose Drive					
SR76 to Spur Avenue	4D	Major Arterial	40,000	9,300	A
N. Santa Fe Avenue to Oceanside Boulevard	2/4D	Major Arterial	40,000	14,300	A
Oceanside Boulevard to City Limits	4D	Major Arterial	40,000	19,400	B
City Limits to Cannon Road	6D	Prime Arterial	60,000	27,400	B
Cannon Road to Southern City Limits	6D	Prime Arterial	60,000	30,000	B
Mesa Drive					
Mission Avenue to Foussat Road	2U	Collector	10,000	5,600	C
Foussat Road to El Camino Real	2TWLT	Collector	15,000	4,700	A
El Camino Real to Rancho Del Oro Road	4U/TWLT/D	Secondary Collector	30,000	13,300	B
Rancho Del Oro Road to Old Grove Road	4TWLT	Secondary Collector	30,000	11,400	B
Old Grove Road to College Boulevard	4TWLT	Secondary Collector	30,000	14,800	C

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
College Boulevard to N. Santa Fe Avenue	4TWLT	Secondary Collector	30,000	11,800	B
Mission Avenue					
Pacific Street to Coast Hwy	4U	Secondary Collector	25,000	8,500	A
Coast Hwy to Horne Street	4U	Secondary Collector	25,000	8,500	A
Horne Street to I-5	4D	Major Arterial	40,000	15,600	B
I-5 to Canyon Drive	4D	Major Arterial	40,000	27,900	C
Canyon Drive to Mesa Drive	4D	Major Arterial	40,000	23,800	C
Mesa Drive to Foussat Road	4D	Major Arterial	40,000	19,500	B
Foussat Road to El Camino Real	4D	Major Arterial	40,000	23,800	C
El Camino Real to Douglas Drive	4D	Major Arterial	40,000	20,200	B
Douglas Drive to Rancho Del Oro Road	4D	Major Arterial	40,000	25,000	C
Rancho Del Oro Road to Old Grove Road	2U/4U	Secondary Collector	25,000	10,500	B
Old Grove Road to Frazee Road	4TWLT/ U/D & 2U	Secondary Collector	30,000	8,500	A
North Avenue					
Olive Drive to Temple Heights Drive	2TWLT	Collector	15,000	6,600	B
Temple Heights Drive to Melrose Drive	2TWLT	Collector	15,000	3,800	A
North River Road					
Douglas Drive to College Boulevard	4D	Major Arterial	40,000	19,500	B
College Boulevard to Vandegrift Boulevard	5D	Major Arterial	45,000	31,900	C
Vandegrift Boulevard to Stallion	2TWLT	Collector	15,000	10,100	D
Stallion Road to Eastern City Limits	2U	Collector	10,000	4,800	B
North Santa Fe Avenue					
SR76 to Mesa Drive	4D	Major Arterial	40,000	21,800	C
Mesa Drive to Melrose Drive	4D	Major Arterial	40,000	22,700	C
Melrose Drive to Eastern City Limits	4D	Secondary Collector	30,000	15,400	C
Oceanside Boulevard					

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
Pacific Street to Coast Hwy	2U	Collector	10,000	5,400	B
Coast Highway to I-5	4U	Secondary Collector	25,000	21,700	D
I-5 to Crouch Street	4TWLT	Secondary Collector	30,000	**29,800**	**E**
Crouch Street to Foussat Road	4TWLT	Secondary Collector	30,000	**31,300**	**F**
Foussat Road to El Camino Real	4TWLT	Secondary Collector	30,000	**25,900**	**E**
El Camino Real to Rancho Del Oro Road	6D	Prime Arterial	60,000	29,900	B
Rancho Del Oro Road to College Boulevard	6D	Prime Arterial	60,000	29,700	B
College Boulevard to Melrose Drive	4D	Major Arterial	40,000	25,400	C
Melrose Drive to Eastern City Limits	4D	Major Arterial	40,000	17,900	B
Old Grove Road					
Frazee Road to SR76	4D	Major Arterial	40,000	7,500	A
SR76 to Mission Avenue	4D	Major Arterial	40,000	10,800	A
Mission Avenue to Mesa Drive	4D	Major Arterial	40,000	11,200	A
Mesa Drive to College Boulevard	4D	Major Arterial	40,000	11,600	A
Olive Drive					
College Boulevard to Emerald Drive	4TWLT	Secondary Collector	30,000	16,100	C
Pala Road					
Los Arbolitos Boulevard to Douglas Drive	2TWLT	Collector	15,000	4,900	A
Plaza Drive					
College Boulevard to SR78 EB on/off-ramps	4D	Secondary Collector	30,000	20,000	C
SR78 EB on/off-ramps to Eastern City Limits	4D	Secondary Collector	30,000	14,500	C
Rancho Del Oro Drive					
Mission Avenue to SR76	4D	Major Arterial	40,000	8,900	A
SR76 to Mesa Drive	4D	Major Arterial	40,000	14,300	A
Mesa Drive to Oceanside Boulevard	4D	Major Arterial	40,000	12,400	A
Oceanside Boulevard to Cameo Drive	4D	Major Arterial	40,000	12,600	A
Cameo Drive to SR78	4D	Major Arterial	40,000	13,700	A

Table 5-1
Existing Segment Volumes

Street	Lanes[a]	Classification	LOS E Capacity[b]	ADT[c]	LOS[d]
Vandegrift Boulevard					
Northern City Limits to Douglas Drive	5D	Major Arterial	45,000	21,700	B
Douglas Drive to N. River Road	5D	Major Arterial	45,000	22,800	B
Vista Way					
Coast Highway to I-5	2TWLT	Collector	15,000	**17,400**	**F**
Jefferson Street to El Camino Real	4TWLT	Secondary Collector	30,000	13,500	B
El Camino Real to Rancho Del Oro Road	4TWLT	Secondary Collector	30,000	14,300	C
Rancho Del Oro Road to College Boulevard	4TWLT	Secondary Collector	30,000	20,300	D
College Boulevard to SR78 WB Ramps	4TWLT	Secondary Collector	30,000	**28,000**	**E**
SR78 WB Ramps to Thunder Drive	4TWLT	Secondary Collector	30,000	16,200	C
State Route 76					
I-5 to Canyon Drive	4D	Expressway	60,000	49,500	C
Canyon Drive to Foussat Road	4D	Expressway	60,000	54,000	D
Foussat Road to Douglas Drive	4D	Expressway	60,000	51,000	D
Douglas Drive to Rancho Del Oro Road	4D	Expressway	60,000	45,500	C
Rancho Del Oro Road to Frazee Road	4D	Expressway	60,000	44,000	C
Frazee Road to College Boulevard	4D	Expressway	60,000	44,000	C
College Boulevard to N. Santa Fe Avenue	4D	Expressway	60,000	36,000	C
N. Santa Fe Avenue to Melrose Drive	4D	Expressway	60,000	40,000	C
Melrose Drive to Eastern City Limits	2U	Expressway	30,000	**35,500**	**F**

Footnotes:

a. #D – total number of lanes in both directions divided by a raised median; #U – total number of undivided lanes in both lanes, including facilities with a striped median island; and #TWLT – total number of lanes in both directions with a center continuous two-way left turn lane.
b. LOS E capacity is based on criteria established in the City of Oceanside Circulation Element Roadway Capacity Table (2009)
c. ADT – average daily traffic volumes
d. LOS – level of service

Notes:

1. **Bold** indicates an unacceptable level of service.
2. It should be noted that some existing streets are not currently built to their full capacity/classification.

1.2 STUDY AREA INTERSECTIONS

1.2.1 Existing Intersection Geometry & Controls

Fifty study intersections have been selected for analysis based on the 1995 Circulation Element, city staff input, and major corridors.. The list of study intersections includes:

1. Coast Highway & SR76
2. Coast Highway & Surfrider Way
3. Coast Highway & Mission Avenue
4. Coast Highway & Oceanside Boulevard
5. Coast Highway & Vista Way
6. Mission Avenue & Horne Street
7. Mission Avenue & I-5 SB Ramps
8. Mission Avenue & I-5 NB Ramps
9. Mission Avenue & Canyon Drive
10. Oceanside Boulevard & I-5 SB Ramps
11. Oceanside Boulevard & I-5 NB Ramps
12. Oceanside Boulevard & Crouch Street
13. SR76 & Foussat Road
14. El Camino Real & Mission Avenue
15. El Camino Real & Mesa Drive
16. El Camino Real & Oceanside Boulevard
17. El Camino Real & Vista Way
18. El Camino Real & SR78 WB Ramps
19. El Camino Real & SR78 EB Ramps
20. Vista Way & Jefferson Street
21. Douglas Drive & North River Road
22. Douglas Drive & El Camino Real
23. Douglas Drive & Mission Avenue
24. Rancho Del Oro Drive & SR76
25. Rancho Del Oro Drive & Mesa Drive
26. Rancho Del Oro Road & Oceanside Boulevard
27. Rancho Del Oro Road & Vista Del Oro Drive
28. Rancho Del Oro Road & Cameo Drive
29. Rancho Del Oro Road & Trieste Way & Sicily Way
30. Rancho Del Oro Road & Vista Way
31. Vandegrift Boulevard & Douglas Drive
32. Vandegrift Boulevard & North River Road
33. College Boulevard & North River Road
34. College Boulevard & SR76
35. College Boulevard & Mesa Drive
36. Old Grove Road & Mesa Drive
37. College Boulevard & Old Grove Road
38. College Boulevard & Oceanside Boulevard
39. College Boulevard & Olive Drive
40. College Boulevard & Vista Way
41. College Boulevard & Plaza Drive
42. College Boulevard & Lake Boulevard
43. North Santa Fe Avenue & Mesa Drive
44. Melrose Drive & SR76
45. Melrose Drive & North Santa Fe Avenue
46. Melrose Drive & Oceanside Boulevard
47. Melrose Drive & Cannon Road
48. College Boulevard & SR78 EB Ramp
49. Vista Way & SR78 WB Ramp
50. Plaza Drive & SR78 EB Ramp

1.2.2 Existing Intersection Level of Service (LOS)

A summary of the peak hour level of service analysis results for the existing condition is included in the table below. There are several intersections that operate at a deficient level of service E or F under existing conditions:

- Mission Avenue & I-5 NB Ramps (PM - LOS F)
- Oceanside Boulevard & I-5 SB Ramps (PM - LOS E)
- Rancho Del Oro Road & Cameo Drive (AM & PM - LOS E)
- College Boulevard & North River Road (PM - LOS E)
- College Boulevard & SR 76 (PM - LOS F)

Table 5-2
Existing Peak Hour Intersection LOS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
1. Coast Hwy & SR76	Signal	AM PM	15.1 18.7	B B
2. Coast Hwy & Surfrider Way	Signal	AM PM	11.1 13.1	B B
3. Coast Hwy & Mission Ave	Signal	AM PM	11.6 12.7	B B
4. Coast Hwy & Oceanside Blvd	Signal	AM PM	36.4 42.1	D D
5. Coast Hwy & Vista Way	Signal	AM PM	24.6 36.2	C D
6. Mission Ave & Horne St	Signal	AM PM	22.8 33.3	C C
7. Mission Ave & I-5SB Ramps	Signal	AM PM	24.3 30.7	C C
8. Mission Ave & I-5NB Ramps	Unsignalized	AM PM	23.3 **309.8**	C **F**
9. Mission Ave & Canyon Dr	Signal	AM PM	32.5 31.5	C C
10. Oceanside Blvd & I-5 SB Ramps	Signal	AM PM	34.1 **55.3**	C **E**

Table 5-2
Existing Peak Hour Intersection LOS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
11. Oceanside Blvd & I-5 NB Ramps	Signal	AM PM	20.5 31.6	C C
12. Oceanside Blvd & Crouch St	Signal	AM PM	27.5 39.1	C D
13. SR76 & Foussat Rd	Signal	AM PM	44.5 24.0	D C
14. El Camino Real & Mission Ave	Signal	AM PM	36.9 35.0	D C
15. El Camino Real & Mesa Dr	Signal	AM PM	31.5 26.0	C C
16. El Camino Real & Oceanside Blvd	Signal	AM PM	49.2 30.2	D C
17. El Camino Real & Vista Way	Signal	AM PM	35.5 48.7	D D
18. El Camino Real & SR78 WB Ramps	Signal	AM PM	23.9 29.5	C C
19. El Camino Real & SR78 EB Ramps	Signal	AM PM	23.3 39.6	C D
20. Vista Way & Jefferson St	Signal	AM PM	23.9 33.5	C C
21. Douglas Dr & North River Rd	Signal	AM PM	32.1 32.2	C C
22. Douglas Dr & El Camino Real	Signal	AM PM	54.2 33.1	D C
23. Douglas Dr & Mission Ave	Signal	AM PM	34.1 39.0	C D
24. Rancho Del Oro Dr & SR76	Signal	AM PM	36.8 47.9	D D
25. Rancho Del Oro Dr & Mesa Dr	Signal	AM PM	33.3 24.7	C C

Table 5-2
Existing Peak Hour Intersection LOS

	Intersection	Control Type	Peak Hour	Existing	
				Delay[a]	LOS[b]
26.	Rancho Del Oro Rd & Oceanside Blvd	Signal	AM PM	25.0 27.2	C C
27.	Rancho Del Oro Rd & Vista Del Oro Dr [c]	AWSC[d]	AM PM	13.1 11.7	B B
28.	Rancho Del Oro Rd & Cameo Dr [c]	AWSC[d]	AM PM	**36.4** **38.3**	**E** **E**
29.	Rancho Del Oro Rd & Trieste Way & Sicily Way [c]	AWSC[d]	AM PM	10.7 11.4	B B
30.	Rancho Del Oro Rd & Vista Way	Signal	AM PM	31.4 46.7	C D
31.	Vandegrift Blvd & Douglas Dr	Signal	AM PM	18.9 17.0	B B
32.	Vandegrift Blvd & North River Rd	Signal	AM PM	16.8 32.1	B C
33.	College Blvd & North River Rd	Signal	AM PM	21.5 **61.0**	C **E**
34.	College Blvd & SR76	Signal	AM PM	44.2 **88.2**	D **F**
35.	College Blvd & Mesa Dr	Signal	AM PM	28.2 40.9	C D
36.	Old Grove Rd & Mesa Dr	Signal	AM PM	18.6 23.9	B C
37.	College Blvd & Old Grove Rd	Signal	AM PM	30.7 33.4	C C
38.	College Blvd & Oceanside Blvd	Signal	AM PM	48.3 48.0	D D
39.	College Blvd & Olive Dr	Signal	AM PM	24.2 30.7	C C
40.	College Blvd & Vista Way	Signal	AM PM	52.3 53.6	D D

Table 5-2
Existing Peak Hour Intersection LOS

Intersection	Control Type	Peak Hour	Existing	
			Delay[a]	LOS[b]
41. College Blvd & SR78 EB Off Ramp	Signal	AM PM	17.2 16.7	B B
42. College Blvd & Plaza Dr	Signal	AM PM	21.6 31.6	C C
43. College Blvd & Lake Blvd	Signal	AM PM	18.6 27.8	B C
44. Vista Way & SR78 WB Ramp	Signal	AM PM	27.8 30.4	C C
45. Plaza Dr & SR78 EB Ramp	Signal	AM PM	23.4 28.0	C C
46. North Santa Fe Ave & Mesa Dr	Signal	AM PM	18.1 20.4	B C
47. Melrose Dr & SR76	Signal	AM PM	23.9 21.6	C C
48. Melrose Dr & North Santa Fe Ave	Signal	AM PM	15.3 21.1	B C
49. Melrose Dr & Oceanside Blvd	Signal	AM PM	21.2 25.5	C C
50. Melrose Dr & Cannon Rd	Signal	AM PM	12.2 13.3	B B

Footnotes:

a. Delay is expressed as average seconds of delay per vehicle.
b. LOS – Level of Service
c. These intersection calculations were done in Traffix using 2000 HCM methodologies. Synchro only allows geometry of 2-lanes per leg for AWSC intersections.
d. AWSC – All way stop controlled intersection

Notes:

1. **Bold** indicates an unacceptable level of service.
2. Acceptable level of service at intersections in Oceanside is LOS D.

Appendix E

Proposed Master Transportation Plan Roadway Segment Classification, ADT and LOS Tables

TRAFFIC IMPACT ANALYSIS REPORT

MASTER TRANSPORTATION ROADWAY PLAN
ADT Volumes & LOS

FINAL

APRIL 2012

Prepared by:

IBI GROUP

1.0 PROPOSED MASTER TRANSPORTATION ROADWAY PLAN (YEAR 2030) ANALYSIS

The Proposed Master Transportation Roadway Plan, Year 2030, (*Alternative 1 from the Traffic Impact Study*) is an alternative of the Modified 1995 CE scenario. Three of the key network pieces from the Modified 1995 CE scenario change for Proposed Master Transportation Plan. The Proposed Master Transportation Roadway Plan (*Alternative 1 from the Traffic Impact Study*) was developed based on input from City staff, initial review of the model output, and input received at public meetings. The key network elements for the Proposed Master Transportation Roadway Plan consist of the following:

- State Route 76 is 6 Lanes
- Rancho Del Oro Road / State Route 78 Interchange is Included
- College Boulevard is a 4- and 6-Lane Hybrid
    - College Blvd is 6 lanes between Avenida de la Plata & Olive Drive and 4 lanes between Olive Drive & Waring Road
- Melrose Drive between North River Road and State Route 76 is Not Included
- Melrose Drive between North Santa Fe Avenue and Spur Avenue is Included
- Pala Road Connection to Foussat Road is Included
- Mission Avenue is a One-Way Couplet
- Coast Highway is 4 Lanes (Secondary Collector)

The differences between network Year 2030 Proposed Master Transportation Roadway Plan and Modified 1995 CE scenario are on College Boulevard, Melrose Drive between North River Road and SR76, and Mission Avenue.

1.1 SEGMENT ANALYSIS

The Proposed Master Transportation Roadway Plan scenario traffic forecasting was conducted using the Series 11 North County Subarea Model. The model output average daily traffic (ADT) volumes were reviewed and post-processed based on the new network and compared against the Modified 1995 CE scenario for overall consistency. The Proposed Master Transportation Roadway Plan (Year 2030) scenario segment volumes are compared to the Modified 1995 CE scenario segment volumes in the table shown below. As shown in table, there are segments that operate at a deficient level of service (LOS E or LOS F) under the Proposed Master Transportation Roadway Plan (*Alternative 1 from the Traffic Impact Study, some of the unacceptable segments have mitigation measures accepted therefore they are no longer operating at unacceptable levels of service in the proposed Master Transportation Roadway Plan network*) network.

- Coast Highway: Wisconsin Avenue to Oceanside Boulevard (LOS E)
- College Boulevard: SR76 to Mesa Drive (LOS E)
- College Boulevard: Old Grove Road to Avenida de la Plata (LOS E)
- College Boulevard: Oceanside Boulevard to Thunder Drive (LOS E)

- College Boulevard: Vista Way to Plaza Drive (LOS E)
- College Boulevard: Lake Boulevard to Southern City Limits (LOS F)
- Douglas Drive: Via Malaguena to Cardiff Bay Drive (LOS E)
- Douglas Drive: North River Road to Pala Road (LOS E)
- Douglas Drive: Pala Road to El Camino Real (LOS E)
- El Camino Real: Mesa Drive to Oceanside Boulevard (LOS E)
- El Camino Real: Vista Way to SR78 (LOS E)
- Lake Boulevard: Thunder Drive to Sundown Lane (LOS F)
- Mesa Drive: Mission Avenue to Foussat Road (LOS F)
- Oceanside Boulevard: Crouch Street to Foussat Road (LOS E)
- North River Road: College Boulevard to Vandegrift Boulevard (LOS E)
- Vista Way: Coast Highway to I-5 (LOS F)
- Vista Way: College Boulevard to SR78 WB Ramps (LOS F)
- State Route 76: Melrose Drive to Eastern City Limits (LOS F)

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Cannon Road									
Melrose Drive to Shadowridge Drive	29,100	C	0.78	4D	Major Arterial	40,000	28,300	C	0.71
Canyon Drive									
SR76 to Mission Avenue	10,700	B	0.43	4U	Secondary Collector	25,000	10,700	B	0.43
Mission Avenue to Oceanside Boulevard	9,300	B	0.37	4U	Secondary Collector	25,000	9,300	B	0.37
Coast Highway									
Harbor Drive to SR76	17,100	C	0.68	4U	Secondary Collector	25,000	16,600	C	0.66
SR76 to Mission Avenue	20,100	D	0.80	4U	Secondary Collector	25,000	18,100	D	0.72
Mission Avenue to Wisconsin Avenue	**23,700**	**E**	**0.95**	4U	Secondary Collector	25,000	21,600	D	0.86
Wisconsin Avenue to Oceanside Boulevard	**23,600**	**E**	**0.94**	4U	Secondary Collector	25,000	**23,300**	**E**	**0.93**

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Oceanside Boulevard to Cassidy Street	21,800	D	0.87	4U	Secondary Collector	25,000	21,900	D	0.88
Cassidy Street to Vista Way	20,900	D	0.84	4U	Secondary Collector	25,000	19,700	D	0.79
Vista Way to Southern City Limits	19,700	D	0.79	4U	Secondary Collector	25,000	17,700	C	0.71
College Boulevard									
N. River Road to SR76	42,200	D	0.84	6D	Major Arterial	50,000	44,900	D	0.90
SR76 to Frazee Road	**36,300**	**E**	**0.91**	4D	Major Arterial	40,000	**36,100**	**E**	**0.90**
Frazee Road to Mesa Drive	**36,900**	**E**	**0.92**	4D	Major Arterial	40,000	**36,700**	**E**	**0.92**
Mesa Drive to Old Grove Road	32,600	D	0.82	4D	Major Arterial	40,000	31,100	D	0.78
Old Grove Road to Avenida de la Plata	39,000	D	0.78	4D	Major Arterial	40,000	**37,500**	**E**	**0.94**
Avenida de la Plata to Oceanside Boulevard	42,500	D	0.85	6D	Major Arterial	50,000	40,100	D	0.80
Oceanside Boulevard to Olive Drive	**52,000**	**F**	**1.04**	6D	Major Arterial	50,000	**47,700**	**E**	**0.95**
Olive Drive to Thunder Drive	40,000	C	0.80	4D	Major Arterial	40,000	**35,900**	**E**	**0.90**
Thunder Drive to Waring Road	35,400	C	0.71	4D	Major Arterial	40,000	32,600	D	0.82
Waring Road to Vista Way	**45,800**	**E**	**0.92**	6D	Major Arterial	50,000	43,900	D	0.88
Vista Way to SR78	**47,100**	**E**	**0.94**	6D	Major Arterial	50,000	**45,800**	**E**	**0.92**
SR78 to Plaza Drive	**49,300**	**E**	**0.99**	6D	Major Arterial	50,000	**49,000**	**E**	**0.98**
Plaza Drive to Lake Boulevard	39,300	C	0.79	6D	Major Arterial	50,000	39,100	C	0.78
Lake Boulevard to Southern City Limits	**41,400**	**F**	**1.04**	4D	Major Arterial	40,000	**41,500**	**F**	**1.04**

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Douglas Drive									
Vandegrift Boulevard to Via Malaguena	13,300	B	0.44	4D/U	Secondary Collector	30,000	13,600	B	0.45
Via Malaguena to Cardiff Bay Drive	13,300	B	0.44	2TWLT	Collector	15,000	**13,600**	**E**	**0.91**
Cardiff Bay Drive to N. River Road	17,500	C	0.58	4TWLT	Secondary Collector	30,000	18,000	C	0.60
N. River Road to Pala Road	**37,500**	**E**	**0.94**	4D	Major Arterial	40,000	**39,100**	**E**	**0.98**
Pala Road to El Camino Real	**38,400**	**E**	**0.96**	4D	Major Arterial	40,000	**39,500**	**E**	**0.99**
El Camino Real to Mission Ave	23,900	C	0.60	4U	Major Arterial	40,000	24,000	C	0.60
Mission Avenue to SR76	25,400	C	0.64	4U	Major Arterial	40,000	25,600	C	0.64
El Camino Real									
Douglas Drive to Mission Avenue	25,400	C	0.64	4D	Major Arterial	40,000	25,900	C	0.65
Mission Avenue to Mesa Drive	25,500	C	0.64	4D	Major Arterial	40,000	25,800	C	0.65
Mesa Drive to Oceanside Boulevard	**39,600**	**E**	**0.99**	4D	Major Arterial	40,000	**39,700**	**E**	**0.99**
Oceanside Boulevard to Fire Mountain Road	43,100	C	0.72	6D	Prime Arterial	60,000	43,400	C	0.72
Fire Mountain Road to Via Las Rosas	48,200	C	0.80	6D	Prime Arterial	60,000	48,400	C	0.53
Via Las Rosas to Vista Way	53,600	D	0.89	6D	Prime Arterial	60,000	53,700	D	0.90
Vista Way to SR78	**58,900**	**E**	**0.98**	6D	Prime Arterial	60,000	**59,000**	**E**	**0.98**
Emerald Drive									
Lake Boulevard to Sunset Drive	4,200	A	0.14	4TWLT	Secondary Collector	30,000	4,300	A	0.14

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Frazee Road									
Old Grove Road to SR76	5,700	A	0.14	4D	Major Arterial	40,000	5,800	A	0.15
SR76 to College Boulevard	12,000	A	0.30	4D	Major Arterial	40,000	12,100	A	0.30
College Boulevard to Sagewood Drive	5,200	B	0.52	2D	Collector	10,000	5,400	B	0.54
Lake Boulevard									
College Boulevard to Thunder Drive	19,500	C	0.65	4TWLT	Secondary Collector	30,000	19,300	C	0.64
Thunder Drive to Sundown Lane	16,200	C	0.54	2TWLT	Collector	15,000	**16,100**	**F**	**1.07**
Sundown Lane to Sky Haven Lane	16,200	C	0.54	4TWLT	Secondary Collector	30,000	16,100	C	0.54
Sky Haven Lane to Cannon Road	14,700	C	0.49	4TWLT	Secondary Collector	30,000	14,600	C	0.49
Melrose Drive									
SR76 to N. Santa Fe Avenue	26,500	C	0.53	6D	Major Arterial	50,000	23,200	B	0.46
N. Santa Fe Avenue to Oceanside Boulevard	36,600	C	0.61	6D	Prime Arterial	60,000	36,600	C	0.59
Oceanside Boulevard to City Limits	43,800	C	0.73	6D	Prime Arterial	60,000	43,800	C	0.72
City Limits to Cannon Road	32,100	B	0.54	6D	Prime Arterial	60,000	32,100	B	0.53
Cannon Road to Southern City Limits	34,100	B	0.57	6D	Prime Arterial	60,000	34,100	B	0.57
Mesa Drive									
Mission Avenue to Foussat Road	**11,100**	**F**	**1.11**	2U	Collector	10,000	**11,100**	**F**	**1.11**
Foussat Road to El Camino Real	8,800	C	0.59	2TWLT	Collector	15,000	8,700	C	0.58
El Camino Real to Rancho Del	17,300	C	0.58	4TWLT/D	Secondary Collector	30,000	17,300	C	0.58

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Oro Drive									
Rancho Del Oro Drive to Old Grove Road	18,100	C	0.60	4TWLT/D	Secondary Collector	30,000	18,100	C	0.60
Old Grove Road to College Boulevard	18,700	C	0.62	4TWLT	Secondary Collector	30,000	18,600	C	0.62
College Boulevard to N. Santa Fe Avenue	15,100	C	0.50	4TWLT	Secondary Collector	30,000	14,900	C	0.50
Mission Avenue									
Pacific Street to Cleveland Street	14,400	C	0.48	4D	Secondary Collector	30,000	14,400	C	0.48
Cleveland Street to Coast Highway	14,400	C	0.36	One-way (2-Lane)	Collector	15,000	7,200	C	0.48
Coast Highway to Clementine Street	15,900	C	0.40	One-way (2-Lane)	Collector	15,000	11,500	D	0.76
Clementine Street to Horne Street	16,800	C	0.42	4U	Secondary Collector	25,000	21,400	D	0.86
Horne Street to I-5	27,000	C	0.68	4D	Major Arterial	40,000	27,000	C	0.69
I-5 to Canyon Drive	34,600	D	0.87	4D	Major Arterial	40,000	35,000	D	0.88
Canyon Drive to Mesa Drive	27,000	C	0.68	4D	Major Arterial	40,000	27,400	C	0.69
Mesa Drive to Foussat Road	27,200	C	0.68	4D	Major Arterial	40,000	27,400	C	0.69
Foussat Road to El Camino Real	29,400	C	0.74	4D	Major Arterial	40,000	29,500	C	0.74
El Camino Real to Douglas Drive	25,300	C	0.63	4D	Major Arterial	40,000	25,400	C	0.64
Douglas Drive to Rancho Del Oro Drive	31,000	D	0.78	4D	Major Arterial	40,000	31,600	D	0.79
Rancho Del Oro Drive to Old Grove Road	12,900	B	0.52	4U	Secondary Collector	25,000	12,900	B	0.52

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Old Grove Road to Frazee Road	9,100	A	0.30	4TWLT/U/D	Secondary Collector	30,000	9,100	A	0.30
North Avenue									
Olive Drive to Temple Heights Drive	7,800	A	0.26	4TWLT	Secondary Collector	30,000	7,900	A	0.26
Temple Heights Drive to Melrose Drive	3,900	A	0.13	4TWLT	Secondary Collector	30,000	4,100	A	0.14
North River Road									
Douglas Drive to College Boulevard	23,400	C	0.59	4D	Major Arterial	40,000	24,500	C	0.61
College Boulevard to Vandegrift Boulevard	38,300	D	0.85	5D	Major Arterial	45,000	**42,300**	**E**	**0.94**
Vandegrift Boulevard to Stallion Road	9,700	A	0.24	4D	Major Arterial	40,000	10,800	A	0.27
Stallion Road to Melrose Dr	10,600	B	0.27	4D	Major Arterial	40,000	7,000	A	0.18
Melrose Drive to Eastern City Limits	12,900	B	0.86	4TWLT	Secondary Collector	30,000	9,400	A	0.31
North Santa Fe Avenue									
SR76 to Mesa Drive	25,700	C	0.64	4D	Major Arterial	40,000	26,800	C	0.67
Mesa Drive to Melrose Drive	27,500	C	0.69	4D	Major Arterial	40,000	28,600	C	0.72
Oceanside Boulevard									
Pacific Street to Coast Highway	8,700	D	0.87	2U	Collector	10,000	8,500	D	0.85
Coast Highway to I-5	21,100	D	0.84	4U	Secondary Collector	25,000	21,100	D	0.84
I-5 to Crouch Street	32,600	D	0.82	4TWLT	Major Arterial	40,000	32,700	D	0.82
Crouch Street to Foussat Road	**37,900**	**E**	**0.95**	4TWLT	Major Arterial	40,000	**38,000**	**E**	**0.95**
Foussat Road to El Camino Real	33,800	D	0.85	4TWLT	Major Arterial	40,000	33,900	D	0.85
El Camino Real to Rancho Del	37,100	C	0.62	6D	Prime Arterial	60,000	37,100	C	0.62

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Oro Road									
Rancho Del Oro Road to College Boulevard	41,400	C	0.69	6D	Prime Arterial	60,000	41,400	C	0.69
College Boulevard to Melrose Drive	29,500	C	0.74	4D	Major Arterial	40,000	29,400	C	0.74
Melrose Drive to Eastern City Limits	28,000	C	0.70	4D	Major Arterial	40,000	28,200	C	0.71
Old Grove Road									
Frazee Road to SR76	8,000	A	0.20	4D	Major Arterial	40,000	8,000	A	0.20
SR76 to Mission Avenue	17,800	B	0.45	4D	Major Arterial	40,000	17,900	B	0.45
Mission Avenue to Mesa Drive	17,700	B	0.44	4D	Major Arterial	40,000	17,800	B	0.45
Mesa Drive to College Boulevard	24,900	C	0.62	4D	Major Arterial	40,000	24,900	C	0.62
Olive Drive									
College Boulevard to Emerald Drive	17,700	C	0.59	4TWLT	Secondary Collector	30,000	18,600	C	0.62
Pala Road									
Foussat Road Los Arbolitos Boulevard	7,000	A	0.23	4TWLT	Secondary Collector	30,000	7,500	A	0.25
Los Arbolitos Boulevard to Douglas Drive	8,300	A	0.28	4TWLT	Secondary Collector	30,000	8,800	A	0.29
Plaza Drive									
College Boulevard to SR78 EB on/off-ramps	22,100	D	0.74	4D	Secondary Collector	30,000	22,200	D	0.74
SR78 EB on/off-ramps to Eastern City Limits	16,000	C	0.53	4D	Secondary Collector	30,000	16,000	C	0.53
Rancho Del Oro Drive									
Mission Avenue to SR76	9,000	A	0.23	4D	Major Arterial	40,000	9,300	A	0.23

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
SR76 to Mesa Drive	24,200	C	0.61	4D	Major Arterial	40,000	24,400	C	0.61
Mesa Drive to Oceanside Boulevard	26,500	C	0.66	4D	Major Arterial	40,000	26,700	C	0.67
Oceanside Boulevard to Cameo Drive	32,400	D	0.81	4D	Major Arterial	40,000	32,700	D	0.82
Cameo Drive to SR78	30,800	D	0.77	4D	Major Arterial	40,000	31,100	D	0.78
Vandegrift Boulevard									
Northern City Limits to Douglas Drive	26,000	C	0.58	5D	Major Arterial	45,000	26,000	C	0.58
Douglas Drive to N. River Road	27,600	C	0.61	5D	Major Arterial	45,000	29,100	C	0.65
Vista Way									
Coast Highway to I-5	18,100	C	0.60	2TWLT	Collector	15,000	**18,200**	**F**	**1.21**
Jefferson Street to El Camino Real	15,400	C	0.51	4TWLT	Secondary Collector	30,000	15,400	C	0.51
El Camino Real to Rancho Del Oro Road	18,100	C	0.60	4TWLT	Secondary Collector	30,000	18,200	C	0.61
Rancho Del Oro Road to College Boulevard	24,600	D	0.82	4TWLT	Secondary Collector	30,000	24,600	D	0.82
College Boulevard to SR78 WB Ramps	**31,500**	**F**	**1.05**	4TWLT	Secondary Collector	30,000	**31,100**	**F**	**1.04**
SR78 WB Ramps to Thunder Drive	19,200	C	0.64	4TWLT	Secondary Collector	30,000	18,800	C	0.63
State Route 76									
I-5 to Canyon Drive	60,700	D	0.76	6D	Expressway	80,000	60,800	D	0.76
Canyon Drive to Foussat Road	65,900	D	0.82	6D	Expressway	80,000	66,100	D	0.83
Foussat Road to Douglas Drive	59,800	C	0.75	6D	Expressway	80,000	59,800	C	0.75

Proposed Master Transportation Roadway Plan Year 2030
Segment ADT Volumes

	Modified 1995 CE			Master Transportation Roadway Plan					
Street	**ADT[a]**	**LOS[b]**	**V/C[c]**	**Alternative 1 Lanes[d]**	**Classification**	**LOS E Capacity[e]**	**ADT**	**LOS**	**V/C**
Douglas Drive to Rancho Del Oro Drive	54,100	C	0.68	6D	Expressway	80,000	53,800	C	0.67
Rancho Del Oro Drive to Frazee Road	58,200	C	0.73	6D	Expressway	80,000	57,900	C	0.72
Frazee Road to College Boulevard	51,500	C	0.64	6D	Expressway	80,000	51,100	C	0.64
College Boulevard to N. Santa Fe Avenue	56,200	C	0.70	6D	Expressway	80,000	57,500	C	0.72
N. Santa Fe Avenue to Melrose Drive	58,000	C	0.73	6D	Expressway	80,000	57,700	C	0.72
Melrose Drive to Eastern City Limits	**61,800**	**F**	**1.03**	4D	Expressway	60,000	**65,000**	**F**	**1.08**

Footnotes:

a. ADT = Average Daily Traffic Volumes
b. LOS = Level of Service
c. V/C = Volume-to-Capacity Ratio
d. #D – total number of lanes in both directions divided by a raised median ; #U – total number of undivided lanes in both lanes ; #TWLT – total number of lanes in both directions with a center continuous two-way left turn lane.
e. LOS E is based on criteria established in the City of Oceanside Circulation Element Roadway Capacity Table (2009)

Notes:

1. **Bold** indicates an unacceptable level of service.
2. Red text indicates a change from Modified 1995 CE to the Master Transportation Roadway Plan in the network.

Appendix F

Proposed Master Transportation Plan Key Intersections Delay and LOS Tables

TRAFFIC IMPACT ANALYSIS REPORT

MASTER TRANSPORTATION ROADWAY PLAN
Intersection Delay & LOS & Potential Mitigation Measures

FINAL

APRIL 2012

Prepared by:

IBI GROUP

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The Proposed Master Transportation Roadway Plan, Year 2030, (*Alternative 1 from the Traffic Impact Study*) is an alternative of the Baseline scenario. Three of the key network pieces from the Baseline scenario change for Proposed Master Transportation Roadway Plan. The Proposed Master Transportation Roadway Plan (*Alternative 1 from the Traffic Impact Study*) was developed based on input from City staff, initial review of the model output, and input received at public meetings. The key network elements for the Proposed Master Transportation Roadway Plan consist of the following:

- State Route 76 is 6 Lanes
- Rancho Del Oro Road / State Route 78 Interchange is Included
- College Boulevard is a 4- and 6-Lane Hybrid
    - College Blvd is 6 lanes between Avenida de la Plata & Olive Drive and 4 lanes between Olive Drive & Waring Road
- Melrose Drive between North River Road and State Route 76 is Not Included
- Melrose Drive between North Santa Fe Avenue and Spur Avenue is Included
- Pala Road Connection to Foussat Road is Included
- Mission Avenue is a One-Way Couplet
- Coast Highway is 4 Lanes (Secondary Collector)

The differences between network Year 2030 Proposed Master Transportation Roadway Plan and Modified 1995 CE scenario are on College Boulevard, Melrose Drive between North River Road and SR76, and Mission Avenue.

1.1 PROPOSED MASTER TRANSPORTATION PLAN (YEAR 2030) INTERSECTION OPERATIONS

The Proposed Master Transportation Roadway Plan, Year 2030 (*Alternative 1 from the Traffic Impact Study*) intersection turning movement volumes were calculated from the Series 11 North County Subarea model forecast volumes. A comparison of the Proposed Master Transportation Roadway Plan and Modified 1995 CE scenario intersection peak hour operations and LOS is shown in the table below. As shown in the table, there are several intersections that operate at a deficient level of service (LOS E or LOS F) during one or both peak hour time periods under the Proposed Master Transportation Roadway Plan scenario.

- Mission Avenue & I-5 SB Ramps (PM - LOS E)
- Mission Avenue & I-5 NB Ramps (PM - LOS E)
- Oceanside Boulevard & I-5 SB Ramps (PM - LOS F)
- Oceanside Boulevard & I-5 NB Ramps (PM - LOS E)
- Oceanside Boulevard & Crouch Street (PM - LOS E)

- SR76 & Foussat Road (AM - LOS E)
- El Camino Real & Oceanside Boulevard (AM - LOS E)
- El Camino Real & Vista Way (PM - LOS E)
- Vista Way & Jefferson Street (PM - LOS E)
- Douglas Drive & El Camino Real (AM - LOS F; PM - LOS E)
- Douglas Drive & Mission Avenue (AM & PM - LOS E)
- Rancho Del Oro Road & Vista Del Oro Drive (AM & PM - LOS F)
- Rancho Del Oro Road & Cameo Drive (AM & PM - LOS F)
- Rancho Del Oro Road & Trieste Way & Sicily Way (AM & PM - LOS F)
- College Boulevard & North River Road (PM - LOS F)
- College Boulevard & SR76 (AM & PM - LOS F)
- College Boulevard & Lake Boulevard (PM - LOS E)

Proposed Master Transportation Roadway Plan Year 2030
Intersection Operations & Level of Service

Intersection	Control Type	Peak Hour	Modified 1995 CE		Master Transportation Roadway Plan		
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]
1. Coast Hwy & SR76	Signal	AM PM	15.5 21.1	B C	15.5 21.9	B C	0.0 0.8
2. Coast Hwy & Surfrider Way	Signal	AM PM	11.6 14.3	B B	11.6 14.5	B B	0.0 0.2
3. Coast Hwy & Mission Ave	Signal	AM PM	11.7 14.5	B B	11.0 12.9	B B	-0.7 -1.6
4. Coast Hwy & Oceanside Blvd	Signal	AM PM	39.1 49.1	D D	39.1 49.0	D D	0.0 -0.1
5. Coast Hwy & Vista Way	Signal	AM PM	26.4 41.4	C D	26.4 46.9	C D	0.0 5.5
6. Mission Ave & Horne St	Signal	AM PM	27.8 38.6	C D	26.8 42.1	C D	-1.0 3.5
7. Mission Ave & I-5SB Ramps	Signal	AM PM	46.4 **55.2**	D **E**	45.0 **56.2**	D **E**	-1.4 **1.0**
8. Mission Ave & I-5NB Ramps	Signal	AM PM	40.4 48.9	D D	46.9 **57.6**	D **E**	6.5 **8.7**

Proposed Master Transportation Roadway Plan Year 2030
Intersection Operations & Level of Service

	Intersection	Control Type	Peak Hour	Modified 1995 CE		Master Transportation Roadway Plan		
				Delay[a]	LOS[b]	Delay	LOS	Δ[c]
9.	Mission Ave & Canyon Dr	Signal	AM	28.2	C	28.5	C	0.3
			PM	41.5	D	42.9	D	1.4
10.	Oceanside Blvd & I-5 SB Ramps	Signal	AM	51.4	D	54.5	D	3.1
			PM	**82.4**	**F**	**89.5**	**F**	**1.9**
11.	Oceanside Blvd & I-5 NB Ramps	Signal	AM	28.3	C	28.3	C	0.0
			PM	**63.6**	**E**	**65.9**	**E**	**2.3**
12.	Oceanside Blvd & Crouch St	Signal	AM	33.8	C	35.2	D	1.4
			PM	**58.2**	**E**	**59.2**	**E**	**1.0**
13.	SR76 & Foussat Rd	Signal	AM	**67.3**	**E**	**68.9**	**E**	**1.6**
			PM	51.4	D	53.3	D	1.9
14.	El Camino Real & Mission Ave	Signal	AM	47.0	D	47.4	D	-0.6
			PM	45.6	D	46.9	D	1.3
15.	El Camino Real & Mesa Dr	Signal	AM	38.5	D	41.0	D	2.5
			PM	31.5	C	33.5	D	2.0
16.	El Camino Real & Oceanside Blvd	Signal	AM	**56.9**	**E**	**57.1**	**E**	**0.2**
			PM	41.3	D	41.4	D	0.1
17.	El Camino Real & Vista Way	Signal	AM	37.1	D	38.1	D	1.0
			PM	**58.6**	**E**	**56.6**	**E**	**-2.0**
18.	El Camino Real & SR78 WB Ramps	Signal	AM	28.5	C	27.1	C	-1.4
			PM	40.9	D	40.4	D	-0.5
19.	El Camino Real & SR78 EB Ramps	Signal	AM	23.5	C	24.4	C	0.9
			PM	43.5	D	44.9	D	1.4
20.	Vista Way & Jefferson St	Signal	AM	26.6	C	26.6	C	0.0
			PM	**56.5**	**E**	**56.5**	**E**	**0.0**
21.	Douglas Dr & North River Rd	Signal	AM	50.7	D	53.2	D	2.5
			PM	42.3	D	42.9	D	0.6
22.	Douglas Dr & El Camino Real	Signal	AM	**90.7**	**F**	**95.4**	**F**	**4.7**
			PM	**57.7**	**E**	**60.0**	**E**	**2.3**
23.	Douglas Dr & Mission Ave	Signal	AM	**64.4**	**E**	**66.5**	**E**	**2.1**
			PM	**66.6**	**E**	**69.6**	**E**	**3.0**

Proposed Master Transportation Roadway Plan Year 2030
Intersection Operations & Level of Service

Intersection	Control Type	Peak Hour	Modified 1995 CE		Master Transportation Roadway Plan		
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]
24. Rancho Del Oro Dr & SR76	Signal	AM PM	36.1 38.3	D D	38.2 41.4	D D	2.1 3.1
25. Rancho Del Oro Dr & Mesa Dr	Signal	AM PM	49.2 33.1	D C	49.3 33.2	D C	0.1 0.1
26. Rancho Del Oro Rd & Oceanside Blvd	Signal	AM PM	29.7 37.6	C D	30.0 38.6	C D	0.3 1.0
27. Rancho Del Oro Rd & Vista Del Oro Dr [d]	AWSC [e]	AM PM	**148.1** **130.5**	**F** **F**	**148.1** **130.5**	**F** **F**	**0.0** **0.0**
28. Rancho Del Oro Rd & Cameo Dr [d]	AWSC [e]	AM PM	**183.9** **185.0**	**F** **F**	**183.9** **185.0**	**F** **F**	**0.0** **0.0**
29. Rancho Del Oro Rd & Trieste Way & Sicily Way [d]	AWSC [e]	AM PM	**100.8** **152.3**	**F** **F**	**100.8** **152.3**	**F** **F**	**0.0** **0.0**
30. Rancho Del Oro Rd & Vista Way	Signal	AM PM	31.1 46.4	C D	31.6 46.7	D D	0.5 0.3
31. Vandegrift Blvd & Douglas Dr	Signal	AM PM	24.5 30.3	C C	25.8 33..9	C C	1.3 3.6
32. Vandegrift Blvd & North River Rd	Signal	AM PM	18.7 37.7	B D	18.8 40.0	B D	0.1 2.3
33. College Blvd & North River Rd	Signal	AM PM	24.1 **89.8**	C **F**	24.8 **120.9**	C **F**	0.7 **31.1**
34. College Blvd & SR76	Signal	AM PM	**73.2** **147.2**	**E** **F**	**80.7** **162.4**	**F** **F**	**7.5** **15.2**
35. College Blvd & Mesa Dr	Signal	AM PM	39.7 48.7	D D	39.2 48.7	D D	-0.5 0.0
36. Old Grove Rd & Mesa Dr	Signal	AM PM	23.7 41.6	C D	23.6 41.5	C D	-0.1 -0.1
37. College Blvd & Old Grove Rd	Signal	AM PM	**62.5** 38.6	**E** D	33.7 41.5	C D	-28.8 2.9
38. College Blvd & Oceanside Blvd	Signal	AM PM	44.8 **55.3**	D **E**	43.9 53.9	D D	-0.9 -1.4

Proposed Master Transportation Roadway Plan Year 2030
Intersection Operations & Level of Service

Intersection	Control Type	Peak Hour	Modified 1995 CE		Master Transportation Roadway Plan		
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]
39. College Blvd & Olive Dr	Signal	AM PM	25.0 32.6	C C	27.5 40.2	C D	2.5 7.6
40. College Blvd & Vista Way	Signal	AM PM	28.3 33.4	C C	27.1 34.6	C C	-1.2 1.2
41. College Blvd & SR78 EB Off Ramp	Signal	AM PM	11.8 16.3	B B	13.6 22.0	B C	1.8 5.7
42. College Blvd & Plaza Dr	Signal	AM PM	26.6 26.6	C C	25.1 26.5	C C	-1.5 -0.1
43. College Blvd & Lake Blvd	Signal	AM PM	29.9 **58.7**	C **E**	29.9 **58.9**	C **E**	0.0 **0.2**
44. Vista Way & SR78 WB Ramp	Signal	AM PM	29.5 34.1	C C	31.2 34.0	C C	1.7 -0.1
45. Plaza Dr & SR78 EB Ramp	Signal	AM PM	29.1 34.8	C C	29.8 35.0	C C	0.7 0.2
46. North Santa Fe Ave & Mesa Dr	Signal	AM PM	16.2 18.3	B B	16.1 16.1	B B	-0.1 -2.2
47. Melrose Dr & SR76	Signal	AM PM	51.9 **58.4**	D **E**	46.1 45.1	D D	-5.8 -13.3
48. Melrose Dr & North Santa Fe Ave	Signal	AM PM	33.3 30.7	C C	32.2 29.5	C C	-1.1 -1.2
49. Melrose Dr & Oceanside Blvd	Signal	AM PM	33.0 49.5	C D	32.9 48.5	C D	-0.1 -1.0
50. Melrose Dr & Cannon Rd	Signal	AM PM	43.4 32.4	D C	54.3 35.4	D D	10.9 3.0

Footnotes:

a. Delay is expressed as average seconds of delay per vehicle.
b. LOS - Level of Service
c. Δ denotes the difference between the Modified 1995 CE delay and Master Transportation Roadway Plan delay.
d. These intersection calculations were done in Traffix using 2000 HCM methodologies. Synchro only allows geometry of 2-lanes per leg for AWSC intersections.
e. AWSC = All-Way Stop Controlled unsignalized intersection.

Notes:

1. Acceptable level of service at intersections in Oceanside is LOS D.
2. **Bold** indicates an unacceptable level of service.

1.2 RANCHO DEL ORO ROAD SIGNAL WARRANT ANALYSIS

There are three intersections along Rancho Del Oro Road that are shown as all-way stop controlled intersections.

- Rancho Del Oro Road & Vista Del Oro Drive
- Rancho Del Oro Road & Cameo Drive
- Rancho Del Oro Road & Trieste Way & Sicily Way

As seen in the previous table, three unsignalized intersections are shown to operate at LOS F in both the AM and PM peak hours under the Proposed Master Transportation Roadway Plan scenario. Mitigation to bring these three intersections to an acceptable level of service would be in the form of a traffic signal. The MUTCD signal warrant analysis for Warrant 3, Peak Hour has been performed at the three intersections for Proposed Master Transportation Roadway Plan traffic volumes. Two of the three unsignalized intersections meet the peak hour warrant requirements for a traffic signal during both the AM and PM peak hours. The intersection of Rancho Del Oro Road and Trieste Way/Sicily Way does not have adequate minor street traffic (minimum of 100 peak hour trips for one approach) to meet the signal warrant. As seen in the table below, the two intersections that meet the signal warrant are expected to operate at LOS B or better during both the AM and PM peak hours under the Proposed Master Transportation Roadway Plan scenario if traffic signals were installed.

Proposed Master Transportation Roadway Plan Year 2030
Additional Peak Hour Rancho Del Oro Road
Intersection Operations

Intersection	Control Type	Peak Hour	Proposed Master Transportation Roadway Plan	
			Delay[a]	LOS[b]
27. Rancho Del Oro Rd & Vista Del Oro Dr	Signal	AM PM	10.4 8.1	B A
28. Rancho Del Oro Rd & Cameo Dr	Signal	AM PM	12.9 15.4	B B

Footnotes:
a. Delay is expressed as average seconds of delay per vehicle.
b. LOS = Level of Service

Note:
The intersection calculations were done in Synchro for signalized intersection operations.

Even though, the Rancho Del Oro Road/Trieste Way/Sicily Way intersection did not meet Warrant 3, Peak Hour signal warrants and operates at an unacceptable level of service for the AM and PM peak hours, there are other warrants that should be reviewed to determine if a signal should be installed at this intersection. An all-way stop controlled intersection on a major arterial can interrupt the traffic progression on the corridor. If a traffic signal were installed at the

unsignalized intersections on this corridor, it is anticipated that it would improve the traffic progression along the arterial corridor. MUTCD Signal Warrant 6 supports the installation of a traffic signal at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles on a corridor. If a signal were installed at the adjacent intersections of Rancho Del Oro Road/Trieste Way/Sicily Way, other signal warrants (such as Warrant 6) should be reviewed.

1.3 POTENTIAL MITIGATION MEASURES

POTENTIAL MITIGATION MEASURES			
Location	**Mitigation Measure**	**Additional Comments**	**Action by City**
Intersections:			
Mission Ave/I-5SB Ramps	EB – Provide 3 Thru Lanes WB – Provide 2 Left-Turn Lanes, 3 Thru Lanes	This would require widening the Mission Avenue bridge over I-5 and is not deemed as feasible mitigation. In addition, the Caltrans I-5 widening plans show the Mission Avenue bridge remaining as 4-lanes.The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration
Mission Ave/I-5NB Ramps	Provide 3 WB and EB Thru Lanes	This would require widening the Mission Avenue bridge over I-5 and is not deemed as feasible mitigation. In addition, the Caltrans I-5 widening plans show the Mission Avenue bridge remaining as 4-lanes.The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration
Oceanside Blvd/I-5SB Ramps	EB – Provide 2 Left Turn Lanes; 3 Thru Lanes WB – Provide 3 Thru Lanes, 2 Right Turn Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration
Oceanside Blvd/I-5NB Ramps	Provide 3 WB and EB Thru Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration

POTENTIAL MITIGATION MEASURES			
Location	**Mitigation Measure**	**Additional Comments**	**Action by City**
Oceanside Blvd/Crouch St	Provide 3 WB and EB Thru Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration
SR76/Foussat Rd	The AM cannot be fully mitigated, but peak hour conditions can be improved by doing the following: NB – Provide 2 Right Turn Lanes SB – Provide 3 Thru Lanes		Implement the recommended mitigation measures. This will not fully mitigate the intersection, so an overriding consideration should be adopted.
El Camino Real/Oceanside Blvd	Provide 3 EB or WB Thru Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration
El Camino Real/Vista Way	NB – Provide 3 Dedicated Thru Lanes and 1 Dedicated Right Turn Lane	This intersection has overriding considerations from the Quarry Creek study and per the 1995 Circulation Element. The model has since been updated since these studies; therefore, it is recommended that the overrides for this intersection be reconsidered. The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Implement the recommended mitigation measures.
Vista Way/Jefferson St	WB - Provide 1 Thru and 1 Shared Thru-Right Turn Lane		Implement the recommended mitigation measures.
Douglas Dr/El Camino Real	WB – Provide Dedicated Left and Thru Lane SB – Provide 3 Thru Lanes NB – Provide 2 Thru Lanes, 1 Dedicated	There is currently not enough right-of-way to widen this intersection. The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Adopt Overriding Consideration

POTENTIAL MITIGATION MEASURES			
Location	**Mitigation Measure**	**Additional Comments**	**Action by City**
	Right Turn Lane		
Douglas Dr/Mission Ave	EB – Provide 3 Thru Lanes WB – Provide Dedicated Right-Turn Lane and 2 Left-Turn Lanes	There is no right-of-way to available at this intersection. The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Implement the WB dedicated right-turn lane and 2 left-turn lanes. This will not fully mitigate the intersection in the PM peak hour, so an overriding consideration should be adopted.
Rancho Del Oro Rd/Vista Del Oro Dr	Provide a signal, if signal warrants are met.	It should be noted that the residents on Rancho Del Oro Road oppose the installation of a signal here.	Implement the recommended mitigation measures.
Rancho Del Oro Rd/Cameo Dr	Provide a signal, if signal warrants are met.	It should be noted that the residents on Rancho Del Oro Road oppose the installation of a signal here.	Implement the recommended mitigation measures.
Rancho Del Oro Rd/Trieste Way/Sicily Way	Provide a signal, if signal warrants are met.	It should be noted that the residents on Rancho Del Oro Road oppose the installation of a signal here.	Implement the recommended mitigation measures.
College Blvd/N. River Rd	WB (College Blvd) – Provide 1 Left Turn Lane in addition to Shared Left-Thru Lane NB – Provide 3 Thru Lanes, 2 Right Turn Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Implement the recommended mitigation measures.
College Blvd/SR76	This intersection cannot be fully mitigated in Alternative 1 in the PM peak hour but the following will improve peak hour operations: NB – Provide 3 Thru Lanes; 2 Right-Turn Lanes with Overlap SB – Provide 3 Thru	The right-of-way at this intersection is very tight, but should be closely reviewed by the City Engineer before moving forward with proposed mitigation.	Implement the recommended mitigation measures. This will not fully mitigate the intersection in the PM peak hour, so an overriding consideration should be adopted.

POTENTIAL MITIGATION MEASURES			
Location	**Mitigation Measure**	**Additional Comments**	**Action by City**
	Lanes		
College Blvd/Lake Blvd	NB – Provide 2 Right Turn Lanes	The new TMC can also be used to manage the transportation system through adaptive signals on congested corridors.	Implement the recommended mitigation measures.

Appendix G

Traffic Impact Study Detailed Guidelines

REQUIRED COMPONENTS OF TRAFFIC IMPACT STUDY REPORTS

(FINAL REPORTS SHALL BE SUBMITTED IN BOTH HARD COPY AND CD)

The SANTEC/ITE Guidelines for Traffic Impact Studies (TIS) in the San Diego Region, March 2000 (or most recent version) should be followed within the City of Oceanside for any proposed project that would have an impact of the City's roadway network. According to the SANTEC/ITE Guidelines, a TIS should be prepared for all projects which generate traffic greater than 1,000 total average daily trips (ADT) or 100 peak hour trips. If a proposed project is not in conformance with the land use and/or circulation element of the General Plan, then threshold rates of 500 ADT or 50 peak hour trips should be used. A TIS can also be required based on the discretion of the City. Early consultation between the developer and the City is strongly recommended to establish the base input parameters, assumptions, and analysis methodologies for the TIS. The City of Oceanside has a list of required components for TIS reports which is outlined below.

As recommended in the SANTEC/ITE Guidelines, the use of SANDAG Trip Generation rates should be used or the rates from ITE's latest Trip Generation manual. For smart growth/mixed-use development areas, SANDAG has developed a Trip Generation for Smart Growth: Planning Tools for the San Diego Region to identify trip generation rates associated with smart growth developments. This new method of applying Smart Growth trip generation rates is intended to supplement data in the San Diego Traffic Generators Manual, published by SANDAG in 2000, and the accompanying Not-so-Brief-Guide to Trip Generation, published by SANDAG in 2002. The most recent version of the SANDAG Smart Growth or Trip Generation rates should be used.

1. EXECUTIVE SUMMARY

A. Overall Report Summary

B. Conclusions and Mitigation Measures

2. INTRODUCTION

A. Project Description
   i. Vicinity Map
   ii. Project Location Map
   iii. Project Site Plan
   iv. Project Trip Generation

3. DESCRIPTION OF ANALYSIS

A. Project Analysis Timeframes
   i. Existing Conditions
   ii. Existing Conditions Plus Project

iii. Existing Conditions Plus Near-Term Cumulative Projects
iv. Existing Conditions Plus Near-Term Cumulative Projects Plus Project
v. Buildout Conditions (2030)
vi. Buildout Conditions Plus Project

B. Analysis Methodologies
   i. Intersection Delay Analysis
   ii. Roadway Segment Capacity Analysis
   iii. CMP Analysis (if warranted)
   iv. Levels of Significance

C. Traffic Volume Data (No more than 1 year old – must be City approved)

4. EXISTING CONDITIONS

A. Scenario Introduction

B. Study Area (must be City approved)
   i. Description of Study Area intersections and Roadway Segments
   ii. Map of Study Area intersections and Roadway Segments

C. Intersection Peak Hour Analyses (must use signal timing sheets provided by City)
   i. Map of Existing Conditions turn movement geometry
   ii. Map of Existing Conditions peak hour volumes
   iii. Intersection delay and Levels of Service (LOS) table

D. Roadway Segment Daily Analyses
   i. Map of Existing Conditions Average Daily Traffic volumes
   ii. Existing Conditions segment Volume-to-Capacity/LOS table

E. CMP Analyses (if warranted)
   i. LOS table (results may be included with intersections and roadway segment tables)

F. Freeway Mainline and Freeway Ramp Meters/Freeway Interchange analyses (if warranted)
   i. LOS table (results may be included with intersections and roadway segment tables)

G. Scenario Summary

5. EXISTING CONDITIONS + PROJECT

A. Scenario Introduction

B. Project Description

C. Project Site Plan

D. Project Trip Generation, Distribution and Assignment Maps (must be City approved)

E. Map of Pass-By trips (if applicable)

F. Existing Conditions + Project Intersection Peak Hour Analyses (must use signal timing sheets provided by City)
   i. Must include all proposed project driveways
   ii. Map of Existing Conditions proposed project driveway access turn movement geometry
   iii. Map of Existing Conditions plus Project peak hour volumes
   iv. Intersection delay and Levels of Service (LOS) table with comparisons to Existing Conditions delays and LOS

G. Existing Conditions + Project Roadway Segment Daily Analyses
   i. Map of Existing Conditions plus Project Average Daily Traffic volumes
   ii. Existing Conditions plus Project segment Volume-to-Capacity/LOS table with comparisons to Existing Conditions v/c ratios
   iii. Peak hourly segment analysis LOS table (if warranted under project conditions only)

H. Existing Conditions + Project CMP Analyses Under Project Conditions (if warranted)
   i. LOS table with comparisons to Existing Conditions (results may be included with intersections and roadway segment tables)

I. Existing Conditions + Project Freeway Mainline and Freeway Ramp Meters/Freeway Interchange Analyses Under Project Conditions (if warranted)
   i. LOS table with comparisons to Existing Conditions (results may be included with intersections and roadway segment tables)

J. Scenario Summary and Mitigation Measures

6. EXISTING CONDITIONS + NEAR-TERM CUMULATIVE PROJECTS

A. Scenario Introduction

B. List of Approved Cumulative Projects (provided by the City)

C. Map of Cumulative Project Locations

D. Approved Cumulative Projects Trip Generation Table

E. Approved Cumulative Projects Trip Generation, Distribution and Assignment Map for Intersection and Roadway Segment Volumes

F. Near-Term Intersection Peak Hour Analyses
    i. Map of Near-Term Turn Movement Geometry (if changed from Existing Conditions)
    ii. Map of Existing Conditions + Near-Term Cumulative Projects peak hour turn movement volumes
    iii. Existing Conditions + Near-Term Cumulative Projects delay and LOS table

G. Near-Term Roadway Segment Daily Analyses
    i. Map of Existing Conditions + Near-Term Cumulative Projects Average Daily Traffic volumes
    ii. Existing Conditions + Near-Term Cumulative Projects Volume-to-Capacity/LOS table

H. Near-Term CMP Analyses (if warranted)
    i. LOS table (results may be included with intersections and roadway segment tables)

I. Near-Term Freeway Mainline and Freeway Ramp Meters/Freeway Interchange analyses (if warranted)
    i. LOS table (results may be included with intersections and roadway segment tables)

J. Scenario Summary

7. EXISTING CONDITIONS + NEAR-TERM CUMULATIVE PROJECTS + PROJECT

A. Scenario Introduction

B. Near-Term + Project Intersection Peak Hour Analyses
    i. Must include all proposed project driveways

ii. Map of Existing Conditions + Near-Term Cumulative Projects + Project peak hour turn movement volumes
iii. Existing Conditions + Near-Term Cumulative Projects + Project delay and LOS table with comparisons to Existing Conditions + Near-Term Cumulative Projects Delays and LOS

C. Near-Term + Project Roadway Segment Daily Analyses
   i. Map of Existing Conditions + Near-Term Cumulative Projects + Project Average Daily Traffic volumes
   ii. Existing Conditions + Near-Term Cumulative Projects + Project Volume-to-Capacity/LOS table with comparisons to Existing Conditions + Near-Term Cumulative Projects v/c ratios
   iii. Peak hourly segment analysis LOS table (if warranted under project conditions only)

D. Near-Term + Project CMP Analyses (if warranted)
   i. LOS table with comparisons to Near-Term without Project Conditions (results may be included with intersections and roadway segment tables)

E. Near-Term + Project Freeway Mainline and Freeway Ramp Meters/Freeway Interchange analyses (if warranted)
   i. LOS table with comparisons to Near-Term without Project Conditions (results may be included with intersections and roadway segment tables)

F. Scenario Summary and Mitigation Measures

8. BUILDOUT CONDITIONS (Based upon the SANDAG Series 11 North County Model for Year 2030)

A. Scenario Introduction

B. Description of Buildout network and/or anticipated issues

C. Buildout Intersection Peak Hour Analyses
   i. Map of Buildout Turn Movement Geometry (if changed from Existing Conditions, must be City approved)
   ii. Map of Buildout peak hour turn movement volumes
   iii. Buildout delay and LOS table

D. Buildout Roadway Segment Daily Analyses
   i. Map of Buildout Average Daily Traffic volumes
   ii. Buildout Volume-to-Capacity/LOS table

E. Buildout CMP Analyses (if warranted)
    i. LOS table (results may be included with intersections and roadway segment tables)

F. Buildout Freeway Mainline and Freeway Ramp Meters/Freeway Interchange analyses (if warranted)
    i. LOS table (results may be included with intersections and roadway segment tables)

G. Scenario Summary

9. BUILDOUT CONDITIONS + PROJECT

A. Scenario Introduction

B. Map of Project Trip Distribution and Assignment if Changed Under the Buildout Network

C. Buildout + Project Intersection Peak Hour Analyses
    i. Map of Buildout Conditions + Project peak hour turn movement volumes
    ii. Buildout Conditions + Project delay and LOS table with comparisons to Buildout delays and LOS

D. Buildout + Project Roadway Segment Daily Analyses
    i. Map of Buildout Conditions + Project Average Daily Traffic volumes
    ii. Buildout + Project Volume-to-Capacity/LOS table with comparisons to Buildout v/c ratios
    iii. Peak hourly segment analysis LOS table (if warranted under project conditions only)

E. Buildout + Project CMP Analyses (if warranted)
    i. LOS table with comparisons to Buildout Conditions (results may be included with intersections and roadway segment tables)

F. Buildout Freeway Mainline and Freeway Ramp Meters/Freeway Interchange analyses (if warranted)
    i. LOS table with comparisons to Buildout Conditions (results may be included with intersections and roadway segment tables)

G. Scenario Summary and Mitigation Measures

10. CONCLUSIONS AND MITIGATION MEASURES (must be City approved prior to finalizing report)

ANALYSIS METHODOLOGY FOR TRAFFIC IMPACT STUDY REPORTS

(Consultation on the study area and methodology should always be confirmed with the City at the start of the project.)

ROADWAYS

Level of Service standards shall be used to determine acceptable levels of Average Daily Traffic (ADT) for all City roadways. LOS standards must be met by all new development projects or agreed upon mitigation measures must be implemented upon issuance of the certificate of occupancy of the first residential unit, commercial/industrial building or educational facility.

Each classification in the Circulation Element hierarchy of arterial roadways has a design capacity and associated LOS threshold. Table 1 shows the design capacity and LOS thresholds for each roadway classification. If a roadway is calculated to operate at LOS E, then an arterial peak hour analysis should be performed following the (most recent version of) the Highway Capacity Manual (HCM) methodology. The HCM methodology uses the results of signalized intersection analyses, the arterial classification and free flow speed to calculate an average travel speed. The average travel speed is used to determine the arterial level of service. The HCS computer software may be used to determine arterial level of service for peak hour analysis.

Table 1
Circulation Element Roadway Classification LOS & Capacity

Class	Lanes	Cross Section[1]	Level of Service				
			A	B	C	D	E
Expressway	6	102/160 122/200	30,000	42,000	60,000	70,000	80,000
Expressway	4	102/160 122/200	25,000	35,000	50,000	55,000	60,000
Prime Arterial	6	104/124	25,000	35,000	50,000	55,000	60,000
6-Lane Major Arterial	6	104/124	20,000	28,000	40,000	45,000	50,000
5-Lane Major Arterial[2]	5	102/122	17,500	24,500	35,000	40,000	45,000
4-Lane Major Arterial	4	80/100	15,000	21,000	30,000	35,000	40,000
Secondary Collector (4 lanes with 2-way left turn lane)	4	64/84	10,000	14,000	20,000	25,000	30,000
Secondary Collector (4 lanes without 2-way left-turn lane, with left turn pockets)	4	54/74, 60/80	9,000	13,000	18,000	22,000	25,000
Collector (commercial fronting, 2-lanes with 2-way left turn lane) [3]	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (residential streets in the Circulation Element or industrial fronting)	2	40/60, 50/70	4,000	5,500	7,500	9,000	10,000
Local Street (residential streets NOT in the Circulation Element)	2	36/56, 40/60	—	—	2,200	—	—

Notes:

1. Cross sections are listed as curb-to-curb width/total right-of-way width, in feet.
2. Vandegrift Boulevard is the only Circulation Element roadway designated as a 5-Lane Major Arterial. It is not intended that other roadways be built to 5-lane Major Arterial standards.
3. This capacity will also be assumed for a two-lane one-way collector.

INTERSECTIONS

Intersection Level of Service analysis should be conducted using the HCM Methodology. For signalized intersections, the methodology described in the HCM for signalized intersections is used. With this methodology, the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. The relationship between control delay per vehicle and LOS for signalized intersections is summarized in Table 2.

Table 2
HCM Level of Service Description for Signalized Intersections

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication.	≤ 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 20
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 20 – 35
D	Tolerable delays: drivers may wait through more than one red indication. Queues may develop but dissipate rapidly, without excessive delays.	> 35 – 55
E	Significant delays: volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2010.

For unsignalized intersections, the methodology described in the HCM for unsignalized intersections is used. With this methodology, LOS is related to the control delay for each stop-controlled movement. The relationship between control delay per vehicle and LOS for unsignalized intersections is summarized in Table 3.

Table 3
HCM Level of Service Description for Unsignalized Intersections

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	No delay for stop-controlled approaches.	≤ 10
B	Operations with minor delay.	> 10 – 15
C	Operations with moderate delays.	> 15 – 25
D	Operations with some delays.	> 25 – 35
E	Operations with high delays and long queues.	> 35 – 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2010.

FREEWAYS AND RAMPS

Freeways and their interchanges must be evaluated, since all freeways are on the Congestion Management Program system. All signalized intersections of freeway ramps with arterials should be evaluated using the Highway Capacity Manual signalized intersection operational method. For diamond interchanges, the timing and phasing of the two signals must be coordinated to ensure queue clearances. Signal timing sheets should be requested from Caltrans or the City of Oceanside.

Freeways impacted by a proposed project should be evaluated for significant impacts. A proposed project that adds more than 0.01 to the volume to capacity ratio or adds more than 1 mile per hour to a freeway has a significant impact. Level of service (generally used by Caltrans) for freeways are categorized in Table 4.

If ramp metering is present at a freeway interchange, the effects of the metering should be analyzed. Inputs to this analysis are peak hour demands, flow rates, and ramp geometrics. The flow rates and ramp configurations are usually available from Caltrans. The outputs should consist of excess demand, delay and queue length. Ramp meters that have a delay above 15 minutes and a proposed project adds more than an additional two minutes of delay is determined to have a significant impact.

Table 4
Level of Service Description for Freeways

LOS	Demand/ Capacity	Congestion/ Delay	Traffic Description
A	<0.41	None	Free flow.
B	0.42-0.62	None	Free to stable flow, light to moderate volumes.
C	0.63-0.79	None to minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
D	0.80-0.92	Minimal to substantial	Approaches unstable flow, heavy volumes, very lmited freedom to maneuver.
E	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
F	>1.00	Considerable	Forced or breakdown. Delay measured in average flow, travel speed (mph). Signalized segments experience delays >60.0 secs/vehicle.
F0	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestions, long queues form behind breakdown points, stop and go.
F1	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
F2	1.36-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
F3	>1.46	Extremely Severe 3+ hours of delay	Gridlock.

SMART GROWTH OPPORTUNITY AREAS

(Consultation with the City as to whether your project is in a Smart Growth Opportunity Areas should be done at the start of the project.)

Projects that are within a Smart Growth Opportunity Area as identified by SANDAG or the City, will utilize the following documents as appropriate:

- Designing for Smart Growth, Creating Great Places in the San Diego Region;
- Planning and Designing for Pedestrians, Model Guidelines for the San Diego Region;
- Trip Generation for Smart Growth; and
- Parking Strategies for Smart Growth.

The most recent version of these publications can be found at www.sandag.org/igr.

Appendix H

Future Transit Service Information

The following table and map were created based on information taken from the NCTD 2011 Mobility Plan.

Table 1
Proposed Transit Service in Oceanside

Route	Endpoints		Major Corridors Served	Weekday Frequency (peak/midday)	Proposed Changes
101	Oceanside Transit Center	UTC	Coast Hwy	30/30 mins	• Possible shortening of route terminate at the VA Medical Center rather than UTC.
302	Oceanside Transit Center	Vista Transit Center	Vista Way	30/30 mins	• Reroute bus at Plaza Camino Real for faster travel time. • No longer serves Vista Way between el Camino Real and Jefferson. • More frequent service running every 15 minutes in peak periods on weekdays.
303	Oceanside Transit Center	Vista Transit Center	Mission Ave. Douglas Dr. N. River Rd. N. Santa Fe Ave.	15/15 mins	• More frequent service running every 20 minutes on weekends. • Trips will service the new San Luis Rey Transit Center when it opens.
309	College Blvd Town Center North	Encinitas Station	El Camino Real Douglas Dr.	30/30 mins	• New, more direct routing to Towne Center North and new rerouting at Plaza Camino Real for faster travel time. • No longer serves Vista Way between El Camino Real and Jefferson.

Table 1
Proposed Transit Service in Oceanside

Route	Endpoints		Major Corridors Served	Weekday Frequency (peak/midday)	Proposed Changes
311	Town Center North Shopping Center	Rancho Del Oro SPRINTER Station	Rancho Del Oro Blvd., Douglas Dr., College Blvd.	30/NA mins	• New weekday peak period route serving Ocean Ranch Business Park, MLK Middle School, and El Camino High School. • Replaces portions of Routes 313 and 317. • Trips will service the new San Luis Rey Transit Center when it opens.
313	Oceanside Transit Center	College Blvd Town Center North	Mesa Dr Mission Ave Rancho Del Oro Rd	--	• Route discontinued and replaced by sections of Routes 309, 311, and 315.
315	College Blvd Town Center North	22 Area Camp Pendleton	Vandegrift Blvd.	30/60 mins	• Route extended to College Blvd. SPRINTER Station. • More frequent service running every 30 minutes during peak periods on weekdays.
316	Rancho Del Oro SPRINTER Station	Ocean Ranch, Ivey Ranch Rancho Del Oro	Rancho Del Oro Dr., Mesa Dr., Avenida Del Oro, Avenida De La Plata, Corporate Centre Dr., Oceanside Blvd.	30/30 mins	• New weekday service to Ocean Ranch and Ivey Ranch, including the V.A. Oceanside Clinic from Rancho Del Oro SPRINTER Station.
317	Vandegrift Blvd/Gold Dr	Rancho Del Oro Sprinter Station	Vandegrift Blvd. College Blvd.	--	• Route discontinued and replaced by Routes 311 and 315.
318	Oceanside Transit Center	El Camino Real Sprinter Station	Oceanside Blvd.	60/60 mins	• Route extended to Bobier, East Vista Way, and Vista Transit Center.

Table 1
Proposed Transit Service in Oceanside

Route	Endpoints		Major Corridors Served	Weekday Frequency (peak/midday)	Proposed Changes
319	El Corazon Senior Center	MiraCosta College	Rancho Del Oro Dr. Barnard Dr.	--	• Route discontinued. • Service to MiraCosta College to be provided by Routes 302 and 325.
320X	Oceanside Transit Center	Plaza Camino Real	I-5, Vista Way	30/30 mins (weekends only)	• New weekend only route providing express service between Plaza Camino Real and Oceanside Transit Center.
325	Carlsbad Village	College Blvd Town Center North	College Blvd. Vista Way	30/30 mins	• Route significantly changed. New segments and destinations include MiraCosta College, and Vista Way between Rancho Del Oro and Jefferson. • Eliminated segments replaced by Routes 315 and Quarry Creek flexible service. • More frequent service, every 30 minutes on weekdays.
332	Vista Transit Center SPRINTER Station	Buena Creek SPRINTER Station	Melrose Dr.	30/60 mins	• Route extended south end to serve Buena Creek SPRINTER Station, providing more direct service to Vista Business Park from Escondido. • Route now serves Vista Courthouse. • Service on Shadowridge discontinued.
333	College Blvd Town Center North	Vista Transit Center	Frazee Rd. Old Grove Rd. Oceanside Blvd.	--	• Route discontinued and replaced in sections by Routes 309, 318, 332, and 334.

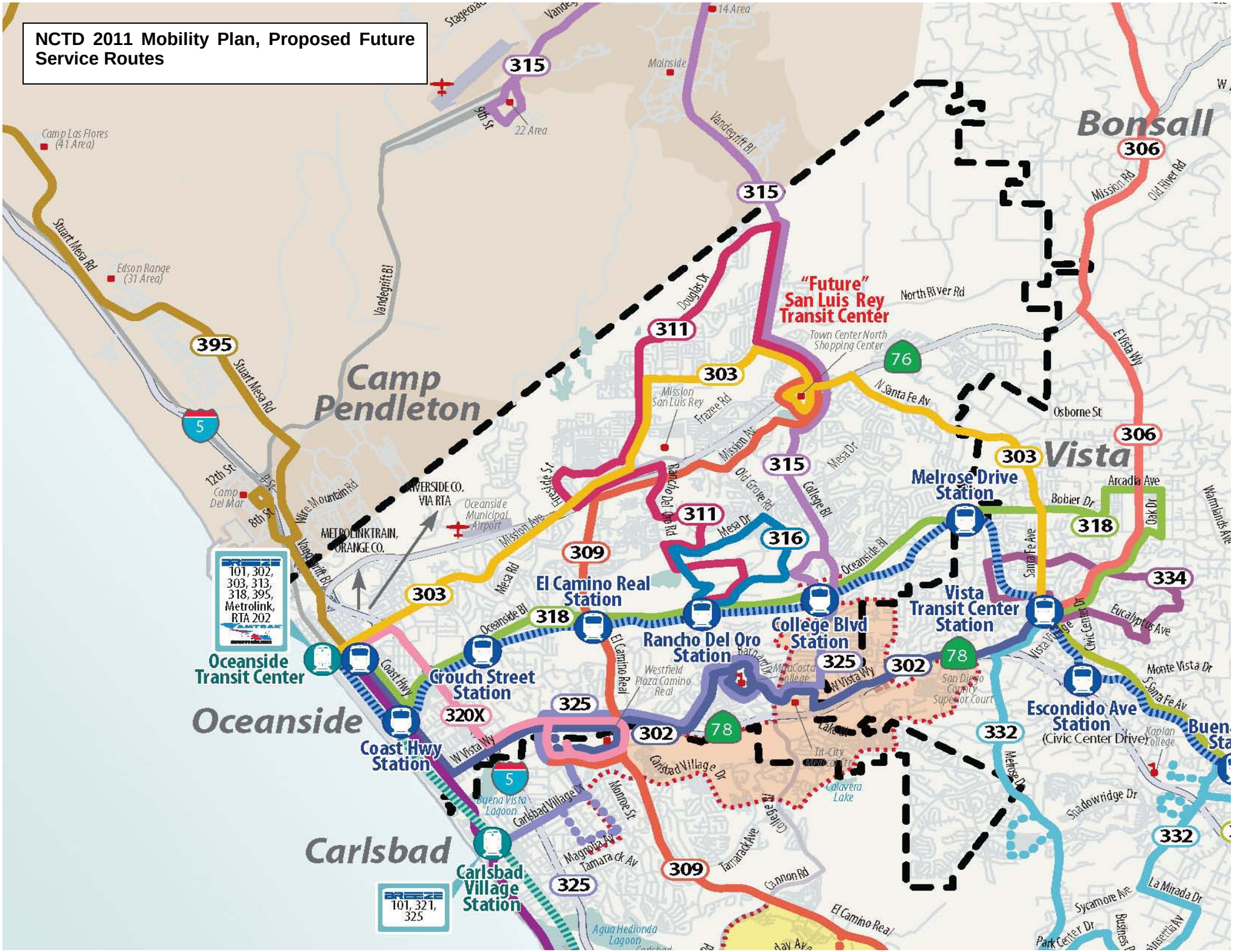
Table 1
Proposed Transit Service in Oceanside

Route	Endpoints		Major Corridors Served	Weekday Frequency (peak/midday)	Proposed Changes
395	Oceanside Transit Center	El Camino Real (Orange County)	Coast Hwy Camp Pendleton	180/180 mins	• No changes.
SPRINTER	Oceanside Transit Center	Escondido Transit Center	Oceanside Blvd.	30/30 mins	• Future increase in frequency as demand warrants and additional segments of double track are added.
COASTER	Oceanside Transit Center	Santa Fe Depot (San Diego)	Coast Hwy	35-45/90-230 mins	• Future increases in the number of daily trains as demand warrants and additional segments of double track are added.

New route

Discontinued route

Source: 2011 NCTD Mobility Plan


NCTD 2011 Mobility Plan, Proposed Future Service Routes
Camp Pendleton
Oceanside
Carlsbad
Bonsall
Vista
"Future" San Luis Rey Transit Center
Oceanside Transit Center
Coast Hwy Station
Crouch Street Station
El Camino Real Station
Rancho Del Oro Station
College Blvd Station
Melrose Drive Station
Vista Transit Center Station
Escondido Ave Station (Civic Center Drive)
Carlsbad Village Station
Oceanside Municipal Airport
METROLINK TRAIN, ORANGE CO.
RIVERSIDE CO. VIA RTA
BREEZE 101, 302, 303, 313, 318, 395, Metrolink, RTA 202
BREEZE 101, 321, 325
315
303
311
309
316
318
325
320X
302
78
76
306
334
332
395
5
Mainside
14 Area
22 Area
Camp Las Flores (41 Area)
Edson Range (31 Area)
Camp Del Mar
Mission San Luis Rey
Town Center North Shopping Center
Buena Vista Lagoon
Agua Hedionda Lagoon
Westfield Plaza Camino Real
San Diego County Superior Court
Tri-City Medical Ctr
Calavera Lake
MiraCosta College
Kaplan College
Vandegrift Bl
Douglas Dr
North River Rd
Stuart Mesa Rd
Wire Mountain Rd
12th St
8th St
Mission Ave
Oceanside Blvd
Coast Hwy
W Vista Way
Carlsbad Village Dr
Monroe St
Magnolia Av
Tamarack Ave
Cannon Rd
El Camino Real
Rancho del Oro Rd
Old Grove Rd
College Blvd
Mesa Dr
Mesa Rd
Frazee Rd
Osborne St
N Santa Fe Av
E Vista Way
Mission Rd
Old River Rd
Bobier Dr
Arcadia Ave
Oak Dr
Santa Fe Ave
Civic Center Dr
Eucalyptus Ave
Monte Vista Dr
S Santa Fe Av
Shadowridge Dr
La Mirada Dr
Sycamore Ave
Park Center Dr
Melrose Dr
Warmlands Ave

Appendix I

City of Oceanside's Neighborhood Traffic Calming Program

CITY OF OCEANSIDE NEIGHBORHOOD TRAFFIC CALMING PROGRAM

Development Services Department
Engineering Transportation Section
300 N. Coast Highway
Oceanside, CA 92054

February 2011

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Attachment A. Resident Request Form and Neighborhood Petition

Attachment B. Traffic Calming Criteria Worksheet

Attachment C. Sample Traffic Calming Survey

Attachment D. Petition for Removal of Traffic Calming Device(s)

1. INTRODUCTION

Traffic calming is the implementation of physical and visual devices along a road in order to reduce traffic speed and/or volume. According to the "U.S. Traffic Calming Manual" (Ewing and Brown, 2009), traffic calming is defined as follows:

> *"changes to the street alignment, installation of barriers, and other physical measures to reduce traffic speed and/or cut-through volumes, in the interest of street safety, livability and other public purposes"*

In 1997, the Oceanside Neighborhood Traffic Action Program (ONTAP) was established. The program was initiated to address common neighborhood traffic concerns, including excessive speeding, traffic accidents, unfriendly pedestrian and/or bicycling environments, and cut-through traffic. These concerns often cause frustration and affect the quality of life in residential neighborhoods. After implementing the program, the City found that applying traffic calming resulted in measurable benefits to the community and has resulted in improvements to the safety and livability on local streets.

Pacific Street

Over the past several years, the traffic calming program has been updated to incorporate more uniform methods of evaluating traffic calming. In addition, a growing number of residents have expressed concerns about excessive speeding, noise, and/or the risk of pedestrian-involved accidents throughout the City. In 2010, the Oceanside Neighborhood Traffic Calming Program was created to standardize the process by which City staff and residents can work together to find solutions to the unique traffic calming issues in each neighborhood.

The purpose of the traffic calming program is to identify the cause of neighborhood traffic concerns and determine feasible traffic calming solutions. In some cases, implementing traffic calming devices may not be the appropriate solution. Therefore, not all neighborhoods who request traffic calming will qualify for the program.

In general, this traffic calming program applies to local streets, as defined in the California Department of Transportation California Road System (CRS) maps. The CRS maps define the functional classification for each roadway in California and are updated annually. Typically most 25 mile per hour streets are defined as local streets in the CRS maps. CRS maps are available online at http://www.dot.ca.gov/hq/tsip/hseb/crs_maps/. Other streets not classified as local streets are evaluated on a case-by-case basis by City staff.

2. TRAFFIC CALMING STEERING COMMITTEE

To update the traffic calming program, a Steering Committee comprised of City staff; local business owners; Oceanside residents; representatives from the Transportation Commission, emergency services, and the Oceanside Police Department; and the City Traffic Engineer was developed in 2009. The Steering Committee met frequently to discuss and develop the goals and processes included in this traffic calming program. The Steering Committee reviewed the advantages and disadvantages of the existing traffic calming program and its effectiveness in solving speeding and/or safety issues in residential areas. In addition, the steering committee interviewed other jurisdictions with effective traffic calming programs to determine the successes and/or failures of each program and how to update the program to best suit the needs of Oceanside's residential neighborhoods.

3. ROLE OF CITY STAFF IN TRAFFIC CALMING PROGRAM

The City of Oceanside's Engineering Transportation Section receives and processes numerous traffic calming requests each year. As requests are received, they will be evaluated based on the qualifying criteria identified in this manual and prioritized in accordance with the ranking criteria described in Section 6.

There is no simple solution that will address all neighborhood concerns. Identifying the appropriate solution that will be accepted by a neighborhood takes a collaborative effort on the part of the residents and the City. Several steps must be taken to ensure that the traffic calming devices selected for a neighborhood will be supported by both the residents and City staff. City staff will work with the

residents in outlining the process and establishing a timeline. The traffic calming process can take up to six (6) months to a year to complete. However, implementing the devices can take longer due to funding and the number of qualified projects received each year. In addition, traffic calming devices can be very expensive to install depending on the complexity of the plan.

4. TRAFFIC CALMING GOALS AND OBJECTIVES

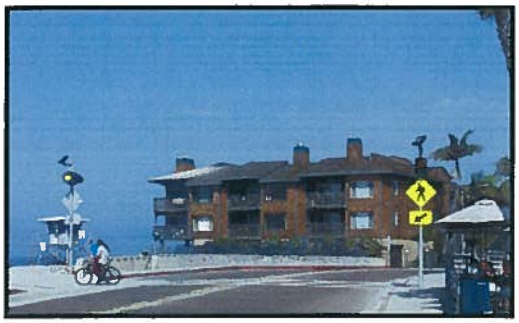
Collectively, the Steering Committee developed both the goals and objectives of the traffic calming program. Goals for the program identify the desired outcome of the traffic calming program. Objectives identify the method by which the goals of the traffic calming program will be achieved.

GOALS

- Improve street safety, promote community character, and enhance the quality of life in Oceanside neighborhoods.
- Educate residents on the traffic calming process and make available tools that would address their concerns.
- Actively involve the community in identifying solutions that achieve desired results for their neighborhood.

OBJECTIVES

- Provide a structure to clearly identify the traffic problems along a street or in a neighborhood.
- Provide a clear and concise list of tools that may be used to resolve traffic-related issues.
- Provide a structure for residents through the process of initiating traffic calming on their street or in their neighborhood.



Pacific Street near Buccaneer Beach

The goals and objectives of the traffic calming program are intended to aid in the development and implementation of a traffic calming plan.

5. GUIDING PRINCIPLES

In order to achieve the desired goals and objectives of the City of Oceanside Traffic Calming Program, the following guiding principles were established. These principles represent the cornerstone of the traffic calming program:

1. The traffic calming program is intended to be a collaborative process between City staff and the community. Community participation is vital to the success of a traffic calming plan and is required for all physical traffic calming installations.

2. The traffic calming program is intended to treat requests for traffic calming in a fair and orderly manner. Specific criteria must be met in order for a street and/or neighborhood to qualify for traffic calming.

3. In general, the traffic calming program is primarily for local streets as defined in the CRS maps.

4. The traffic calming program is intended to improve the quality of life for pedestrians, bicyclists, motorists, and residents. Traffic calming measures identified for each neighborhood or street will be selected based on the unique characteristics and traffic issues of that area.

5. Emergency response times may be affected by the implementation of traffic calming devices. However, a traffic calming plan should attempt to minimize impacts to emergency response times.

6. Traffic calming devices should be designed to minimize the diversion of substantial traffic to another street.

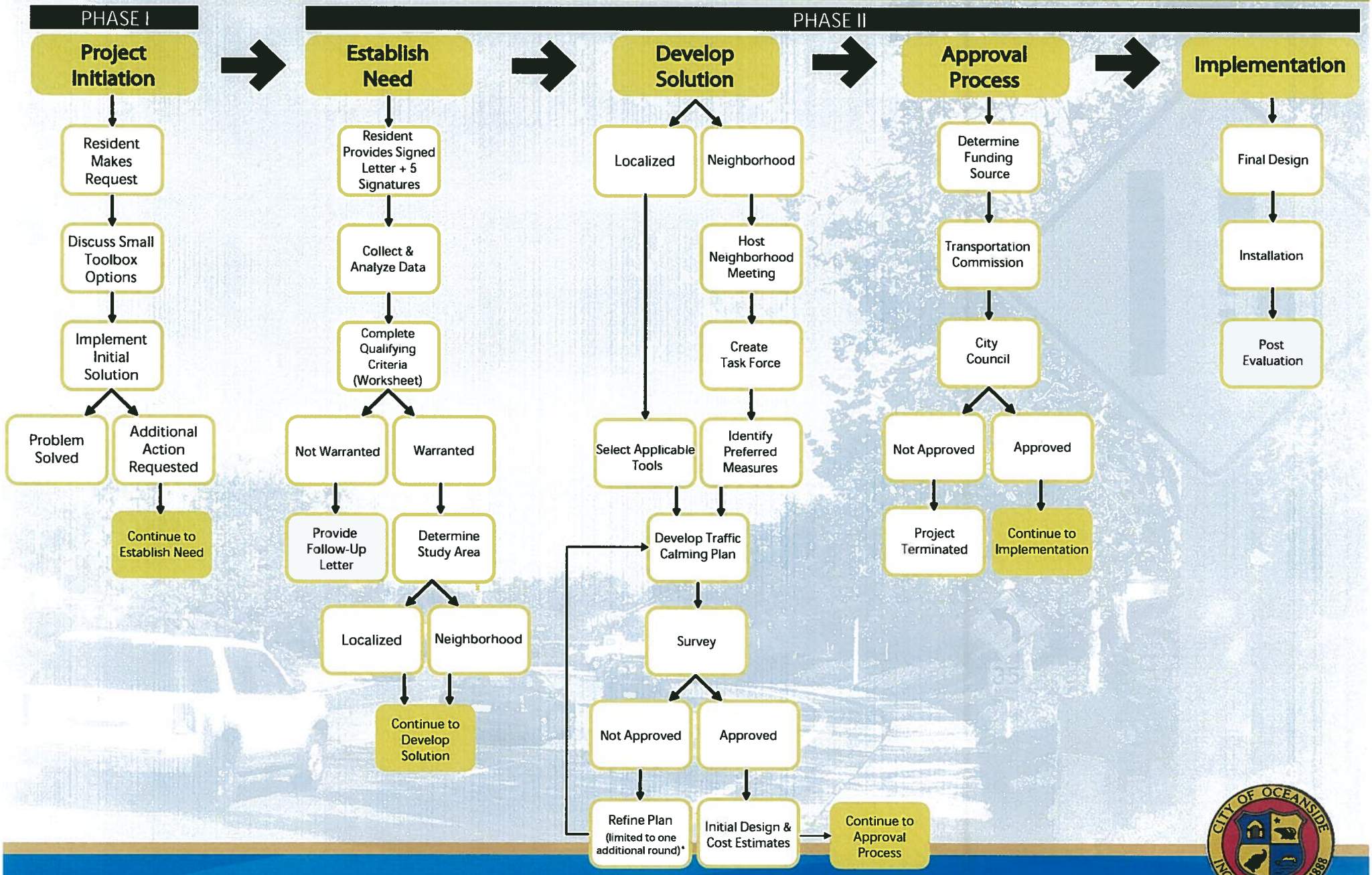
7. Traffic calming devices will be constructed within the existing available right-of-way. Removal of on-street parking may be necessary to install selected traffic calming measures. Impacts to on-street parking will be minimized and will be evaluated on a case-by-case basis.

6. TRAFFIC CALMING PROCESS FOR EXISTING STREETS AND ESTABLISHED NEIGHBORHOODS

For existing streets and neighborhoods, the traffic calming program consists of two phases. Phase I includes initiating the process and implementing smaller-scaled traffic calming measures. If the traffic issue persists, residents may proceed onto Phase II. In Phase II, a street or neighborhood must qualify for larger-scaled traffic calming measures based on qualifying criteria and neighborhood support. The process by which traffic calming requests are processed is summarized in Figure 1.

FIGURE 1

City of Oceanside Neighborhood Traffic Calming Program Flowchart



* Note: If refined plan is not approved, the project will be terminated.

6.1 PHASE I

PROJECT INITIATION

To initiate the traffic calming process, a resident must contact City staff to discuss their traffic related concerns. City staff will work with the resident and assess the situation. During the Phase I process, City staff will evaluate the degree of traffic-related issues on a local street or in a neighborhood, and identify basic solutions that resolve or minimize the traffic concerns.

Phase I traffic calming (small toolbox) options include:

Radar Speed Trailer

- **Community Education on Traffic Safety –** City staff will meet with residents to educate the community on traffic safety on local streets or in residential neighborhoods.
- **Radar Gun –** City staff will meet with the resident(s) and utilize a radar gun to determine if speeding is prevalent along the street. The radar gun is a helpful visual aid for residents to see how fast a motorist is actually traveling.
- **Posted Signage –** Appropriate signage may be posted on a street or for a neighborhood.
- **Radar Speed Trailer** – City staff will temporarily place a radar speed trailer on the street to educate and increase motorists' awareness of their traveling speed compared to the posted speed limit.
- **Police Enforcement –** City staff will request police enforcement to address vehicular speeding.

Phase I traffic calming options will be explored to determine which options best suit the resident's concerns. Once the determination is made for the Phase I tool that is most appropriate, City staff will initiate the chosen option(s). Implementation of the Phase I traffic calming option(s) signifies the completion of Phase I efforts.

In many cases these simple changes will solve basic traffic issues. Recognizing that the Phase I options may not be effective for all conditions, Phase II of the traffic calming program was developed to produce more in-depth solutions if necessary.

6.2 PHASE II

All projects must be processed through Phase I before they can be considered for the second phase of this traffic calming program. Phase II integrates the community in the process of identifying issues and selecting the appropriate tools for their neighborhood. This phase can take several months to complete and will rely on the support of the community.

6.2a ESTABLISH NEED

INITIATE PROCESS AND QUALIFYING CRITERIA

Requirements to initiate Phase II of the program are as follows:

- Written request with signature to City staff
- Petition with five (5) additional signatures from property owners or residents along the street in the vicinity of the identified area of concern. One signature per household will be accepted.

Downs Street

Once the written request and signed petition are received (see Attachment A), City staff will complete the Traffic Calming Criteria Worksheet (see Attachment B) to determine if the street meets the minimum criteria for larger-scaled traffic calming measures. At a minimum, the following criteria must be met to be considered:

- Street is classified as a local street in the California Road System (CRS) map
- Critical speed (85%) is 30 mph or higher
- Street width is 40 feet or less
- Street provides only one lane in each direction

Streets that meet these minimum requirements are eligible for Phase II of the traffic calming program.

LOCAL STREET AND NEIGHBORHOOD RANKING

In addition to qualifying a project for the traffic calming program, the Traffic Calming Criteria Sheet will be used to rank projects when multiple projects are considered for the program. The Ranking Criteria allocates points based on existing conditions, traffic volume, accident history, pedestrian facilities, and whether the street provides access to major pedestrian generators like schools, churches, and/or civic facilities. A total of 15 points are available in the Ranking Criteria section of the Traffic Calming Criteria Sheet (see Attachment B).

STAFF EVALUATION

City staff will analyze relevant data, such as traffic volumes, speed, and accident history to establish the extent of the study area and boundaries of the project. The study area is also determined based on access points, travel patterns, potential diversion to adjacent streets, and other factors in the surrounding neighborhood. The study area will be classified as either localized or neighborhood:

- **Localized** - A study area is considered localized if the issues and potential solutions affect only a minimal portion of an area, such as a span of a few blocks along one street. Implementation of traffic calming tools would not affect adjacent streets, such as diversion of traffic or other externalities, in a localized study area.

- **Neighborhood** - A study area is considered to be at the neighborhood level if the issues and potential solutions affect the surrounding area where traffic calming is needed, such as along a street that feeds into other local streets. Implementation of traffic calming devices can potentially affect adjacent streets, and the access for others who may not live on the street where traffic calming is needed, but travel along the roadway to get to or from their home.

6.2b DEVELOP SOLUTION

LOCALIZED STUDY AREA PROCESS

If the study area is determined to be localized, City staff will work with the resident who provided the request in determining and implementing applicable tools. Residents may choose to work with City staff directly or as part of a committee. Neighborhood meetings are not required in establishing a localized traffic calming plan. However, support for the traffic calming plan will be subject to the survey requirements, as described in this section.

NEIGHBORHOOD STUDY AREA PROCESS

If the study area is determined to be at a larger, neighborhood scale, the process by which traffic calming solutions are selected requires both a neighborhood meeting and formation of a Resident Task Force.

NEIGHBORHOOD MEETING

A neighborhood meeting will be conducted at which City staff will introduce residents of the neighborhood to the traffic calming program and identify the project study area. The goal of the meeting is to solicit input from the participants regarding their concerns and ideas, and to establish a Resident Task Force.

RESIDENT TASK FORCE

The Resident Task Force will be comprised of volunteers from the neighborhood who wish to be actively involved in establishing the traffic calming plan. The Resident Task Force is comprised of City staff and individuals who reside within the boundary of the study area and represent all areas of the neighborhood. Collectively this task force will be responsible for developing the traffic calming plan based on neighborhood concerns and ideas expressed at the neighborhood meeting. Resident Task Force meetings will be facilitated by City staff who will help identify the appropriate tools to address the traffic-related concerns of the neighborhood.

Once the Resident Task Force agrees on a traffic calming plan, it is their responsibility to communicate with their neighborhood regarding the proposed

plan. The Resident Task Force should inform and educate neighbors about the purpose of the project, existing concerns and issues, and the objective of the project to calm traffic. When requested, City staff will aid in the Resident Task Force's efforts to communicate with their neighbors by providing necessary materials for the traffic calming plan.

NEIGHBORHOOD SUPPORT

Neighborhood support of the traffic calming plan is essential to ensure community consensus and that the proposed solutions are supported by those who may be affected by the traffic calming measures. To establish neighborhood support of the traffic calming plan, a Traffic Calming Survey will be distributed to all residences in the project study area. For a neighborhood to successfully approve a traffic calming plan, the survey criteria must be met.

TRAFFIC CALMING SURVEY

Once a traffic calming plan is developed and prior requirements are met, City staff will distribute a Traffic Calming Survey (see Attachment C) to all residences in the project study area. The Traffic Calming Survey consists of an introduction to the project, a summary of issues and the traffic calming process, the traffic calming plan (including descriptions of each proposed), and a map that illustrates the location of each proposed device. One survey per residence will be distributed, and one signature per household will be accepted by the City.

For a traffic calming plan to be approved, the survey criteria listed below must be met for:

Localized Street

- 70% of households shall be in support of the traffic calming plan
- 100% of households immediately adjacent to the proposed devices must approve the plan

Neighborhood

- 40% of distributed surveys must be returned
- 55% of the returned surveys must be in favor of the traffic calming plan
- 100% of households immediately adjacent to the proposed devices must approve the plan

If the Traffic Calming Survey process meets all the criteria, City staff will advance the traffic calming plan and initiate conceptual design plans and cost estimates. If the neighborhood does not meet all the survey criteria, the task force is responsible for refining the traffic calming plan and City staff will redistribute the Traffic Calming Survey. The Resident Task Force may revise the traffic calming plan and reissue the Traffic Calming Survey **only once** following the initial attempt. If neighborhood consensus cannot be reached, the project will be terminated.

6.2c APPROVAL PROCESS

After the traffic calming plan (localized or neighborhood) demonstrates community support by meeting the survey criteria and a funding source is determined, the traffic calming plan will be sent to the Transportation Commission and City Council for approval and funding.

Skyhaven Lane and Zenith-Calavero Lane

APPROVED PROJECTS

Projects that are approved by City Council are permitted to move forward and will be implemented.

PROJECTS THAT ARE NOT APPROVED

If a traffic calming plan is not approved by City Council, the project will be terminated.

FUNDING

Projects may be funded from a variety of sources, such as the City's traffic management budget, Capital Improvement Plan (CIP) budget, Safe Route to School grants, and other grant programs. Whether large or small, the ability of the City to implement projects in any given year may be limited by the availability of City funds for such purposes. Depending on available funds, the project may be divided into phases or placed on a waiting list for future funding.

6.2d IMPLEMENTATION

FINAL DESIGN AND INSTALLATION

Final design plans will be prepared once the traffic calming plan is approved by City Council and funding is secured. Design of traffic calming devices shall reference the standards established in the Traffic Calming Toolbox and Design Elements of the Oceanside Traffic Calming Program. Modification to design standards shall require approval by the City Engineer and the City Traffic Engineer before final design plans are completed.

If construction of all devices of the traffic calming plan cannot be funded in one phase, the traffic calming plan for a neighborhood or street could be divided into a phased plan. Phasing the traffic calming devices may help residential neighborhoods install devices in the areas of greatest need first when resources to fund the improvements are limited. By implementing the traffic calming devices in phases, improvements in traffic conditions can be monitored to determine the benefits associated with the implementation. Results of the monitoring can also be used to determine when the other devices of the plan should be installed to further improve the conditions.

POST EVALUATION OF TRAFFIC CALMING DEVICE INSTALLATION

A component of a successful plan is the evaluation and monitoring of prior traffic conditions versus the results of post traffic calming device installation. Follow-up studies will be conducted to evaluate the measures of a project's success. This information can be used to determine whether the neighborhood's desired outcome has been achieved and to what degree. Follow-up studies will also be used to determine if the traffic problem has shifted to other neighborhood streets.

When applicable, methods by which follow up studies should be conducted include:

- Speed Surveys
- Traffic Volume Study
- Diversion Study

City staff will present the results of the before and after studies to the Transportation Commission and/or the City Council as deemed necessary. This process will help ensure effectiveness towards improving and maintaining the traffic calming program for future use.

7. TRAFFIC CALMING IN NEW DEVELOPMENTS

In most cases traffic calming is implemented to address traffic problems that arise due to the design and operations of an existing road or roadway network. If traffic calming is integrated into the planning of new developments, potential issues such as excessive vehicular speeding, and/or pedestrian conflicts can be mitigated in the early stages of design and planning. This can also lead to cost savings to the broader community and the City as a whole. Also integrating traffic calming into the design of new developments can provide opportunities to integrate landscape, storm water management, and other features into the design for the neighborhoods.

Various factors can be reviewed in determining whether traffic calming should be integrated into the design of a new development such as the local street's anticipated vehicular volume, vehicular speeds, street layout, existing conditions surrounding the new development, and engineering judgment. In considering on whether traffic calming should be integrated into a new development will mainly be at the discretion of the Planning and Engineering Divisions.

Guidelines that staff may use in determining if there is a necessity for traffic calming on local streets is as follows:

- Traffic Speeds – Identify street design features that could lead to potential excessive vehicular speeding and may need traffic calming integrated into design of new development:

    - Street with unimpeded block lengths greater than 600 feet
    - Roadway grade
    - Potential pedestrian and vehicle conflicts due to pedestrian generators such as schools, parks, and community centers

- Width of street such as:
  - 36 - 40 feet curb to curb with parking on both sides
  - 32 feet curb to curb with parking on one side
  - 28 feet curb to curb when no on-street parking is provided
- Bike activity
- Contiguous vs. noncontiguous sidewalks

- Street Layout: Review layout of new development (and surrounding existing neighborhoods) to determine if there is potential for cut-through traffic.

- Existing Adjacent Neighborhoods:
  - Review surrounding neighborhoods for existing traffic calming devices and how that might affect the new development
  - Review surrounding neighborhoods to determine if existing neighborhoods need traffic calming

Where feasible, traffic calming features should integrate storm water best management practices (BMP) to reduce urban run-off. Bio retention, drainage swales and other BMP features should be used to reclaim storm water for purposes of irrigating landscape in traffic calming features. Where feasible these features should be integrated into all new development design.

When deemed appropriate, City staff and the developer will meet to identify a mutually acceptable neighborhood traffic calming plan which can then be incorporated into the design of the new development. This is an opportunity for City staff to be proactive in addressing potential neighborhood traffic concerns.

8. STOP SIGNS

Stop signs are defined in the California Manual for Uniform Traffic Control Devices (CA MUTCD) as a traffic control device. As such, the purpose of a stop sign is to clearly identify the right-of-way at an intersection. Therefore, stop signs are not appropriate as a traffic calming measure. Stop signs are ineffective in reducing mid-block vehicular speeds. Also, increased noise and air pollution emissions occur at the stop sign location due to vehicle braking and acceleration patterns.

9. LANDSCAPING

Although it may be possible to integrate landscape in some traffic calming devices, landscaping will not be funded through the Oceanside Traffic Calming Program. Providing landscaping within an approved traffic calming device, such as a median or choker, may be considered on a case-by-case basis. However, in most installations, traffic calming will be installed without landscape. Neighborhoods interested in landscape will need to demonstrate the ability to provide funding for planting, irrigation, and maintenance. Landscaping for traffic calming devices must abide by the guidelines outlined in the City of Oceanside's Landscape Development Manual and other applicable design standards.

10. REMOVAL PROCESS FOR TRAFFIC CALMING DEVICE(S)

For new installations, requests for device removal will not be considered until 12 months following the installation of the device. This will allow City staff and residents to adequately evaluate the effectiveness of the devices.

Individuals in a neighborhood or on a street may determine that traffic calming devices should be removed or modified. If this occurs, the resident must submit a written request to initiate the removal process.

Once a request for removal of traffic calming devices has been submitted to City staff, a petition will be provided to the resident by staff which the resident will be required to circulate (see Attachment D). To demonstrate support for the removal of the device(s), 80% of the residences that live on the street with the device(s) must sign the petition. One signature per household will be accepted and all signatures will be verified by City staff.

When the petition requirements have been fulfilled, City staff has evaluated the circumstances, and funding has been allocated, then the request to remove the traffic calming device(s) will be sent to the Transportation Commission and City Council for consideration and approval.

Once the traffic calming devices are removed, it is possible that traffic speeds or volumes may increase. Consideration for future traffic calming along such streets will be subject to engineering judgment and will be determined on a case-by-case basis. If a traffic calming device is to be reinstalled on the street, it will be the residents' responsibility to fund the future devices.

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TRAFFIC CALMING TOOLBOX – FAST FACTS

	Applicable on...			Applicable for...		Impacts to...							
	Local Street	Collector Street	Arterial Street	Reducing Traffic Speed	Reducing Traffic Volume	Noise	Access	Bicycles	Transit	Parking	Emergency Response	Cost Range[1]	Page
Initial Tools (Phase I) Tools not shown													
Education	●	●	●	●								$	N/A
Radar Gun	●	●	●									$	N/A
Signage	●	●	●	●								$	N/A
Radar Speed Trailer	●	●	●	●						P		$	N/A
Enforcement	●	●	●	●								$	N/A
Speed Control Measures (Phase II)													
Signing & Striping	●	●	●	●				P				$	22
Diagonal Parking		●	P	●				●		●		$	24
Speed Humps	●	P		●	P	●					●	$	26
Speed Lumps	●	P		●	P	●						$	28
Bulb Outs/Curb Extensions	●	●	●	●				P	●	P		$$	30
Center Island/Median	●	●	●	●			P			P		$$	32
Radar Feedback Sign	●	●	●	●								$$$	34
Choker	●	●		●				P	P	●		$$$	36
Chicane	●	●		●				P	●	●		$$$	38
Traffic Circle	●	●		●				P	P	P		$$$	40
Lateral Shift	●	●		●				P		●		$$$	42
Raised Crosswalk	●	●		●	P	●				P	●	$$$	44
Raised Intersection	●	●		●	P	●					●	$$$$	46
Roundabout	●	●	●	●				P	P	●		$$$$	48
Volume Control Measures (Phase II)													
Turn Restrictions	●	●	●		●		●	P	●			$	50
Forced Turn Island	●	●			●		●	P	●	P		$	52
Half Street Closure	●	P			●		●		●			$$$	54
Full Street Closure	●				●		●	P	●		●	$$$	56
Median Barricade	●	●	●		●		●	P	●		P	$$$	58
Diagonal Diverter	●	P		P	●		●	P	●		●	$$$$	60

P = Possible

[1]Cost Range: ($) Less than $5,000
($$) $5,000 - $10,000
($$$) $10,000 - $50,000
($$$$) Greater than $50,000

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Traffic Calming Toolbox and Design Elements (Phase II)

Signing & Striping

($1.50 per linear foot)

Description & Purpose

Signage, which may include regulatory and/or warning signs, can aid in increasing drivers' awareness of existing street conditions.

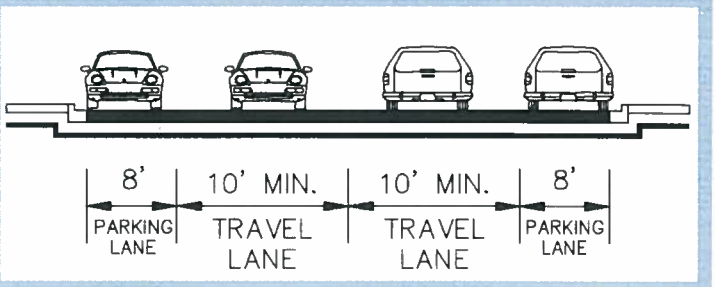
Striping a roadway helps define the travel lane for motorists and sometimes provides designated bike lanes or parking lanes. Striping a roadway can also visually narrow the width of the street.

Via Rancho Road, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	No
Parking Impact	No
Emergency Response Impact	No

Local Street



* Lane widths may vary

Advantages

- Increases motorist awareness of street conditions
- Can be easily modified
- Low cost
- No affect on emergency vehicles

Disadvantages

- Temporary reduction in speeds
- Increases regular maintenance

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Diagonal Parking

($8 per stall)

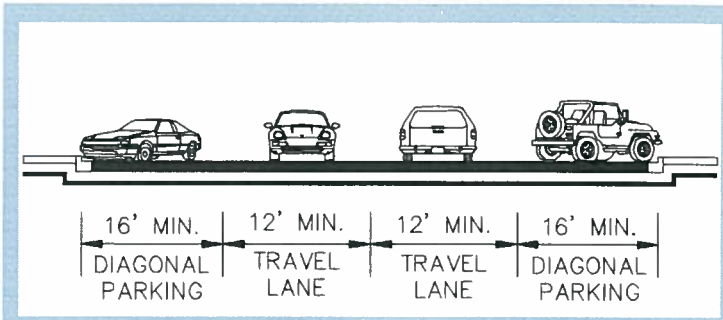
Description & Purpose

Diagonal parking is used to increase the supply of available on-street parking spaces. Installing angle parking requires the travel lanes to be narrowed, which generally results in slower speeds as motorists anticipate vehicles pulling out of the parking spaces.

Tremont Street, Oceanside

Fast Facts:

Can be used on Local Street	No
Can be used on Collector	Yes
Can be used on Arterial	Possible
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Yes
Transit Impact	No
Parking Impact	Yes
Emergency Response Impact	No



* Parking stall depths vary depending on the angle of parking

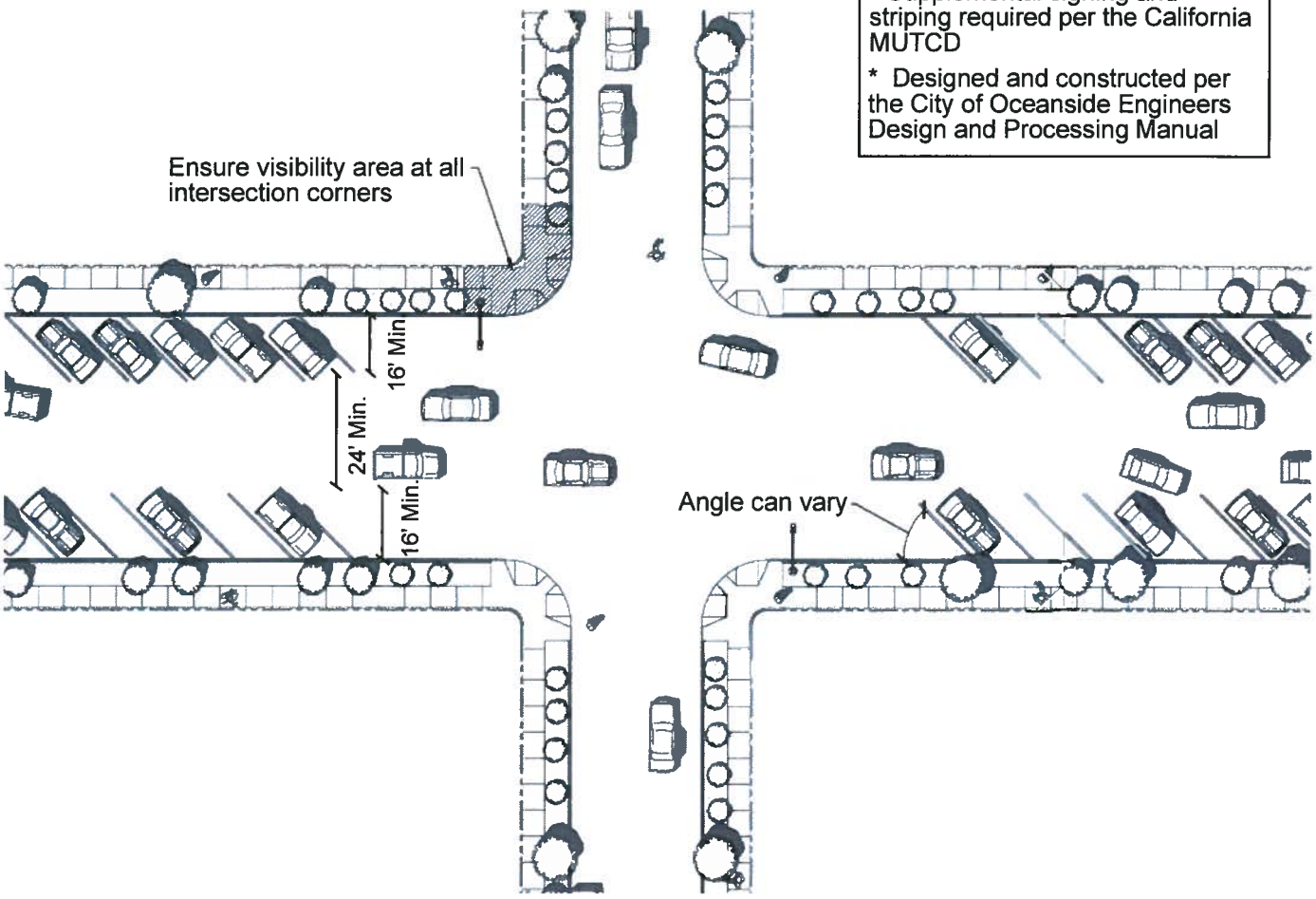
Advantages

- Effective in reducing speeds
- No impact to emergency response times
- Provides additional parking spaces

Disadvantages

- Increases regular maintenance
- Must meet street width requirements
- Impact to bicyclists

Diagonal Parking



Speed Humps

($3,000 to $5,000)

Description & Purpose

Speed humps are rounded, tapered raised areas placed across a roadway to reduce speeds. Speed humps are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.

Via Clemente, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Possible
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	Yes

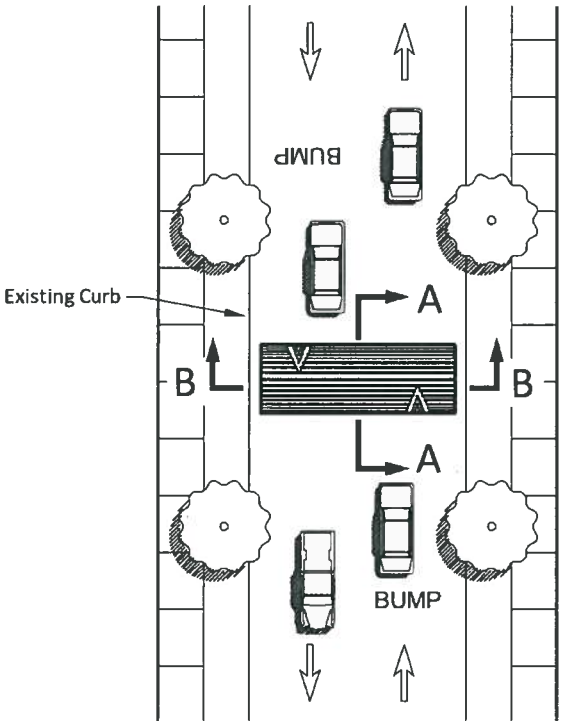
Advantages

- Effective in reducing speeds

Disadvantages

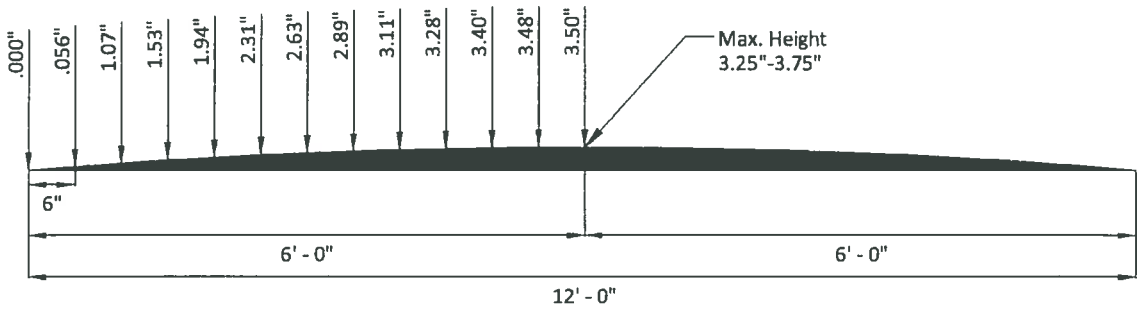
- Impacts emergency response times
- Increases regular maintenance

Speed Humps

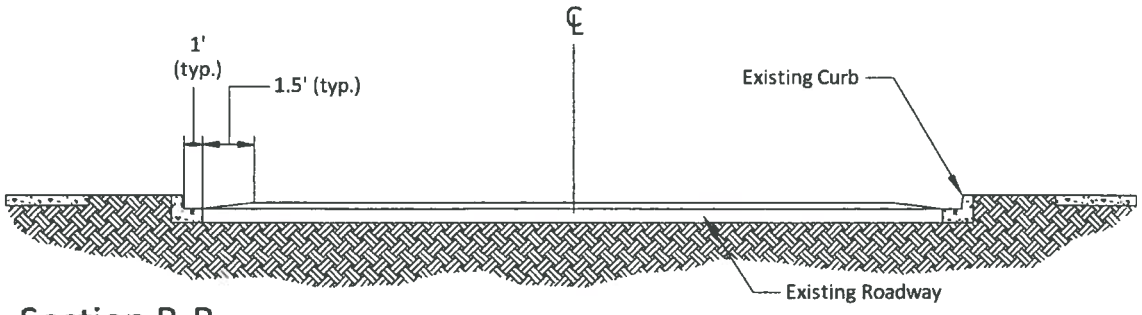


Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Drainage requirements must be evaluated and addressed
* Begin speed humps at the edge of the gutter; if no gutter exists begin the speed humps 1' from the curb face



Section A-A



Section B-B

Speed Lumps

($4,000 to $6,000)

Description & Purpose

Speed lumps are similar to speed humps in that they are rounded, tapered raised areas placed across a roadway to reduce speeds. However, speed lumps are designed to allow emergency vehicles to travel along a roadway with minimal impact to response times. Speed lumps are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.

Carey Road, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Possible
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	No

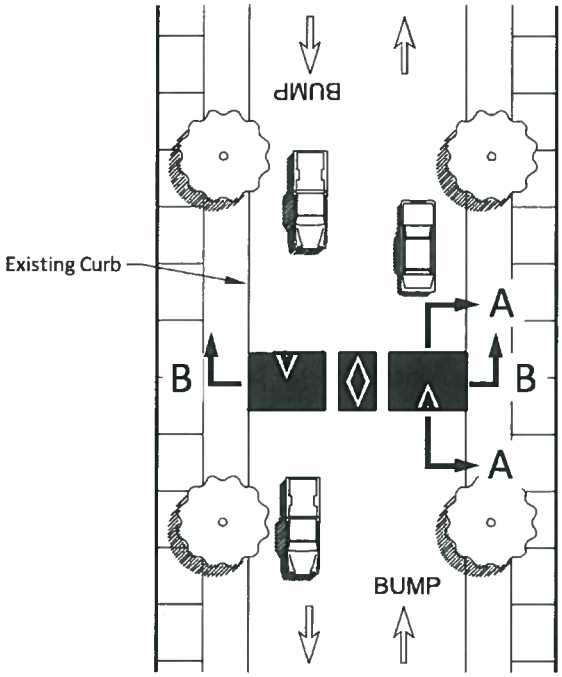
Advantages

- Effective in reducing speeds
- Minimal impact to emergency response times

Disadvantages

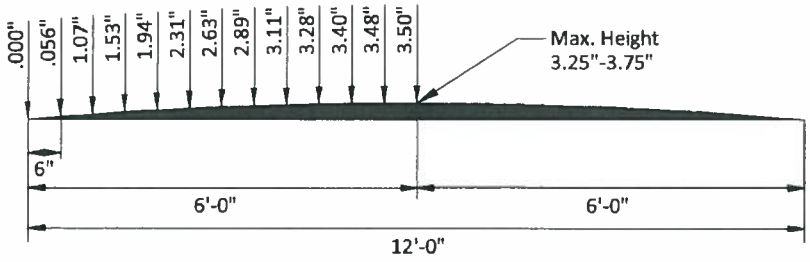
- Increases regular maintenance

Speed Lumps

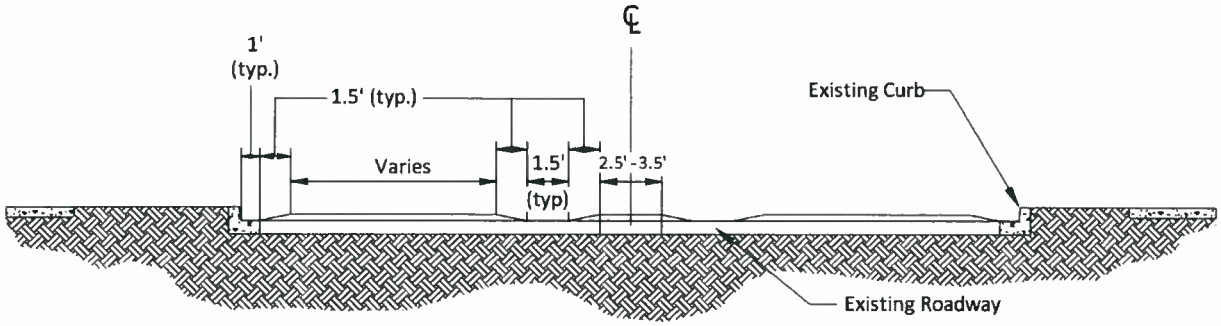


Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Drainage requirements must be evaluated and addressed
* Begin speed lumps at the edge of the gutter; if no gutter exists begin the speed lumps 1' from the curb face



Section A-A



Section B-B

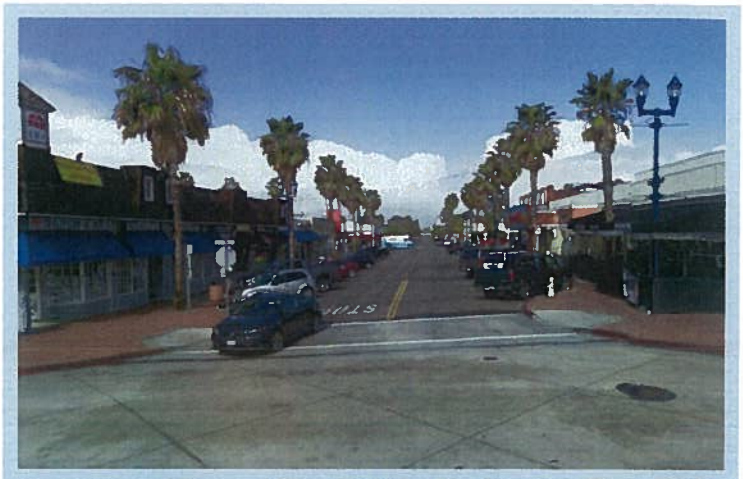
City of Oceanside Neighborhood Traffic Calming Program

Bulb Outs/ Curb Extensions

($5,000 to $15,000 per corner)

Description & Purpose

Bulb outs, also referred to as curb extensions, narrow the roadway at the corners of an intersection by extending the curb into the parking lane or shoulder. Bulb outs narrow the width of the road which can reduce motorists' speeds as they travel through the intersection, particularly when turning. These devices reduce the pedestrian crossing distance and improve motorists' visibility of pedestrians. Bulb outs may be installed at an intersection or mid-block. Bulb outs placed mid-block are also known as Chokers.



Tremont Street at Mission Avenue, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	Possible
Emergency Response Impact	No

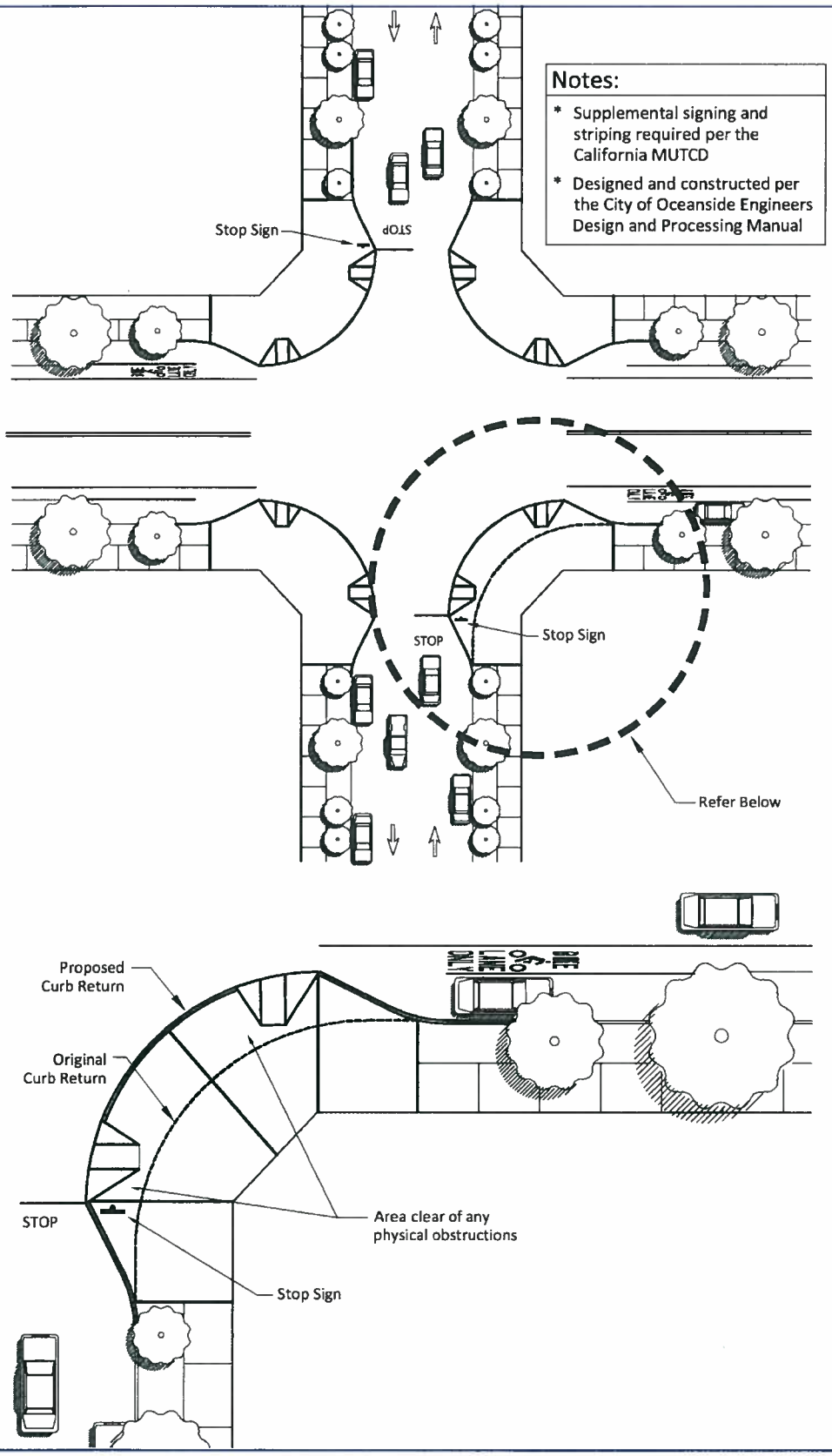
Advantages

- Effective in reducing turning speeds
- Shortens pedestrian crossing distance
- Improves visibility of pedestrians

Disadvantages

- Increases regular maintenance
- May affect larger vehicle turning radius

Bulb Outs/ Curb Extensions



City of Oceanside Neighborhood Traffic Calming Program

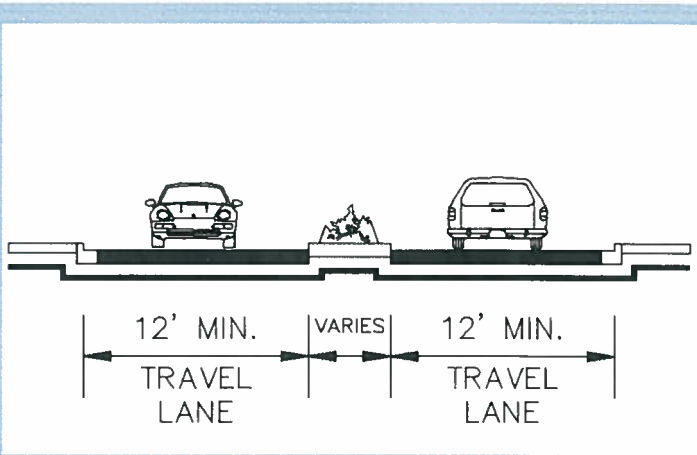
Center Island/Median

($5,000 to $7,000)

Description & Purpose

Center islands are raised medians placed between two directions of traffic, often within a center turn lane. Center islands are installed to narrow the width of the road which can reduce motorists' speeds as they travel through the area. Center islands are useful in reducing potential conflicting turning movements.

Los Arbolitos Boulevard, Oceanside



Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	Possible
Bicyclist Impact	No
Transit Impact	No
Parking Impact	Possible
Emergency Response Impact	No

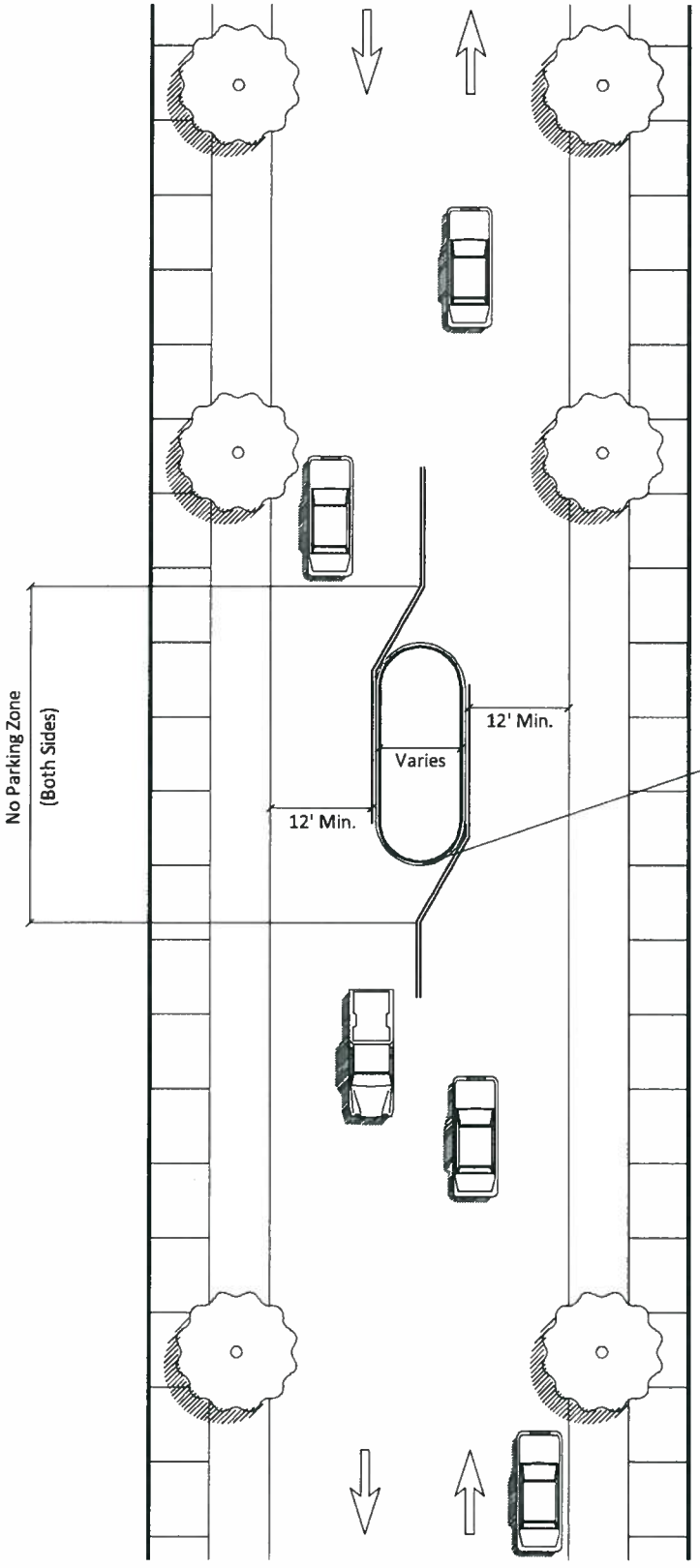
Advantages

- Eliminates turning or passing conflicts
- Narrows road
- Provides buffer between opposing traffic

Disadvantages

- Increases regular maintenance
- May require loss of parking spaces

Center Island/Median



Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Transition and horizontal deflection determined per the California MUTCD
* Center island/median length varies depending on parking, driveways, and other existing conditions

Radar Feedback Sign

($10,000 to $15,000)

Description & Purpose

Radar feedback signs display the speed of oncoming vehicles, thereby increasing drivers' awareness of the speed they are traveling at versus the posted speed limit. Speed limit signs are posted as a supplement to the radar feedback sign.

Pacific Street, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	No

Advantages

- Increases driver awareness of the posted speed limit
- Can be installed on an existing street light pole

Disadvantages

- May lose effectiveness over time

Radar Feedback Sign

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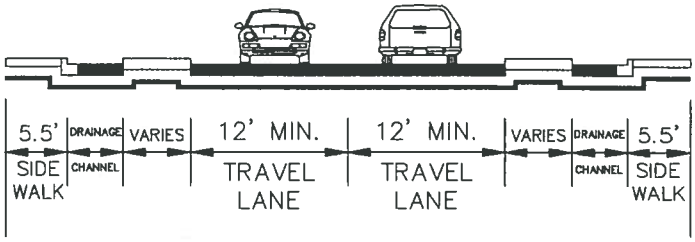
Choker

($12,000 - $15,000)

Description & Purpose

A choker is a pair of mid-block curb extensions that narrow the width of the travel way, thereby reducing motorists' speed.



Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Yes
Emergency Response Impact	No

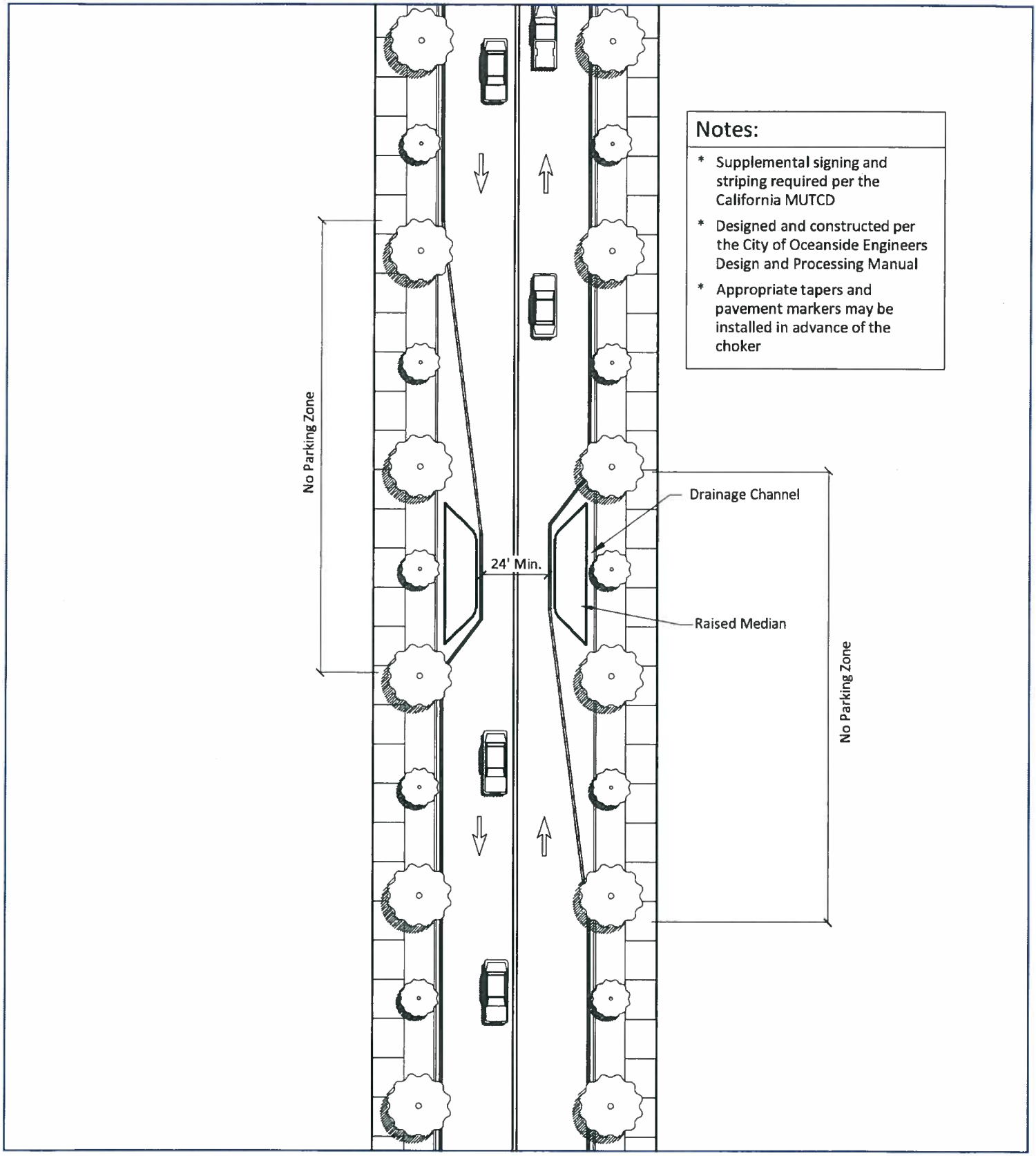
Advantages

- Effective in reducing speeds
- Minimal affect on drainage
- Buffer for parked vehicles

Disadvantages

- Eliminates parking spaces

Choker


Notes:
* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Appropriate tapers and pavement markers may be installed in advance of the choker
No Parking Zone
24' Min.
Drainage Channel
Raised Median
No Parking Zone

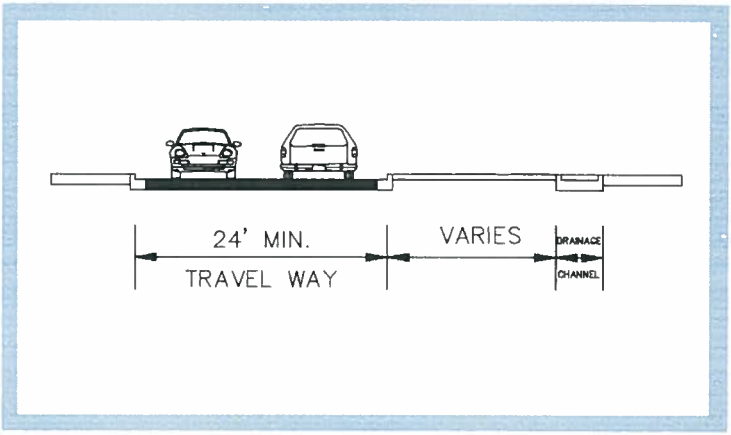
Chicane

($30,000 to $40,000)

Description & Purpose

Chicanes narrow the roadway with alternating curb extensions to create an S-shaped curve. Chicanes alter the road alignment and narrow the width of the travel lane in order to reduce motorists' speed as they travel through the road segment.

Foussat Road, Oceanside



Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	Yes
Emergency Response Impact	No

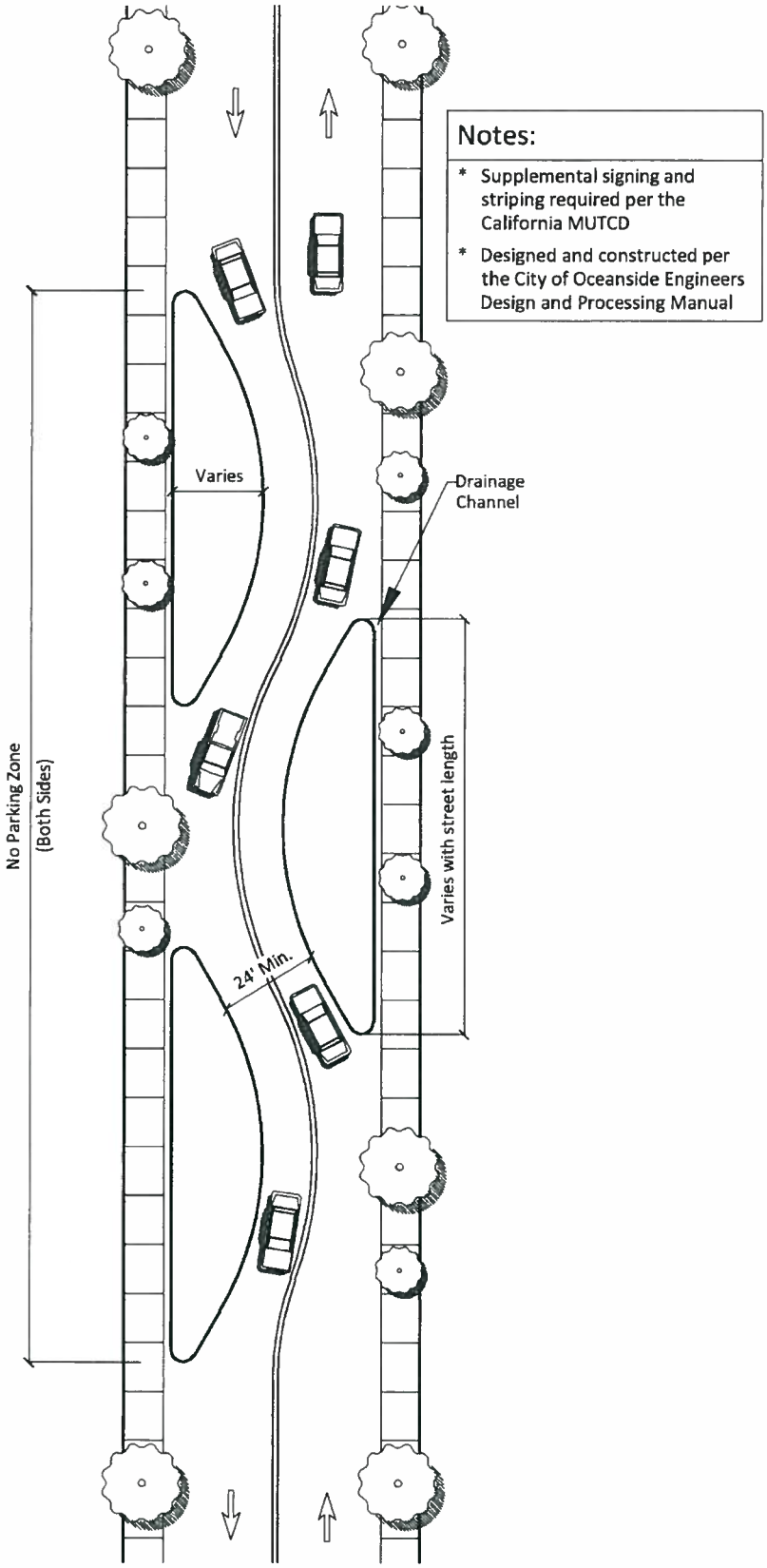
Advantages

- Effective in reducing speeds

Disadvantages

- Increases regular maintenance
- Loss of parking spaces

Chicane


Notes:
* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
Varies
Drainage Channel
No Parking Zone
(Both Sides)
Varies with street length
24' Min.

Traffic Circle

($10,000 to $25,000 excluding landscaping)

Description & Purpose

Traffic circles are raised circular islands constructed in the middle of an intersection. Traffic circles require motorists to maneuver around the circle to proceed through the intersection, which will result in motorist speed reduction.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Possible
Emergency Response Impact	No

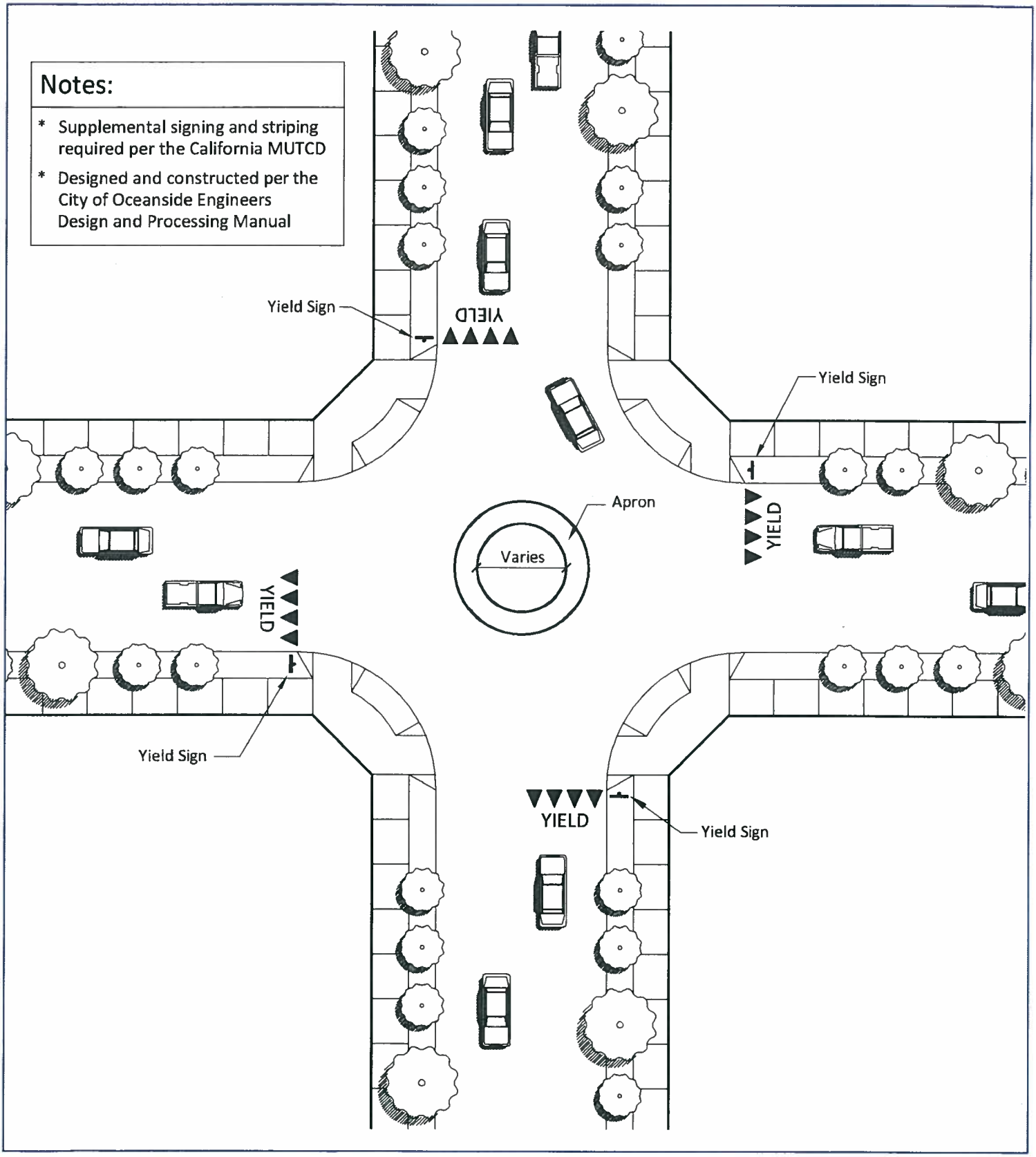
Advantages

- Reduces speed through an intersection

Disadvantages

- Increases regular maintenance
- Wrong-way left-turns could occur

Traffic Circle



Lateral Shift

($15,000 to $20,000)

Description & Purpose

A lateral shift is two intermittent curb extensions and a median constructed in the roadway. The curb extensions and median create curves in the roadway that motorists' have to maneuver through, which results in speed reduction.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	No
Parking Impact	Yes
Emergency Response Impact	No

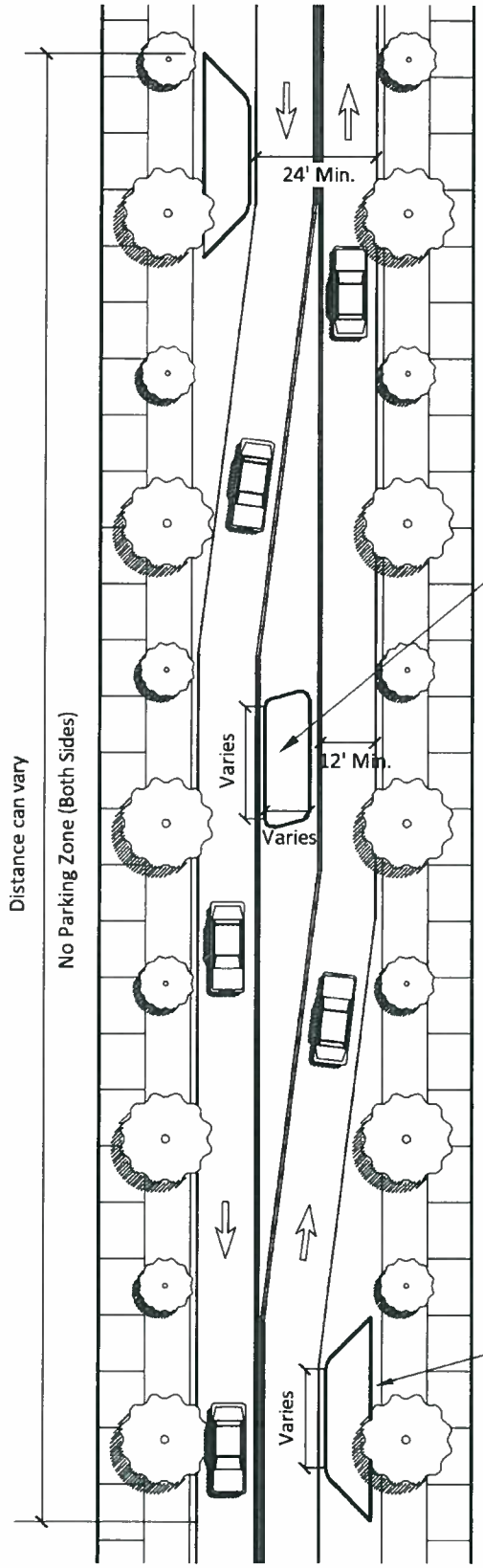
Advantages

- Effective in reducing speeds

Disadvantages

- Increases in regular maintenance
- Loss of parking

Lateral Shift



Notes:

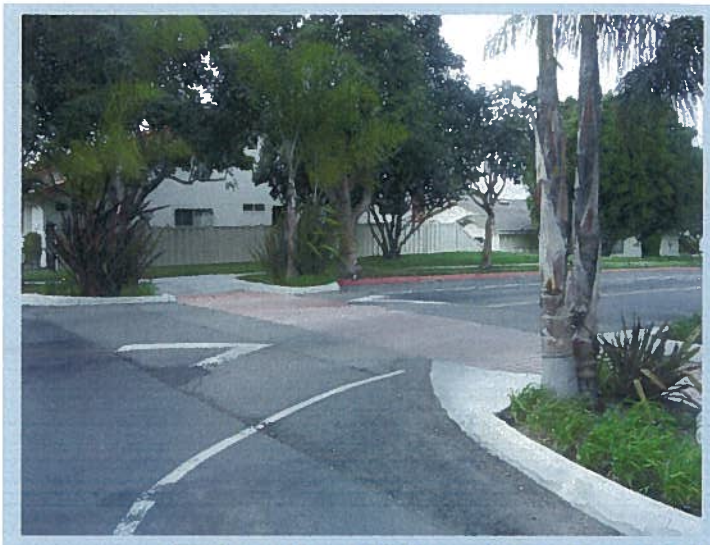
* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Appropriate tapers and pavement markers may be installed in advance of the lateral shift

Raised Crosswalk

($10,000 to $15,000)

Description & Purpose

A raised crosswalk is a flat-topped speed hump that requires motorists to reduce speeds as they proceed through the elevated section of the road.



Skyhaven Lane / Calavero Lane, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	Possible
Emergency Response Impact	Yes

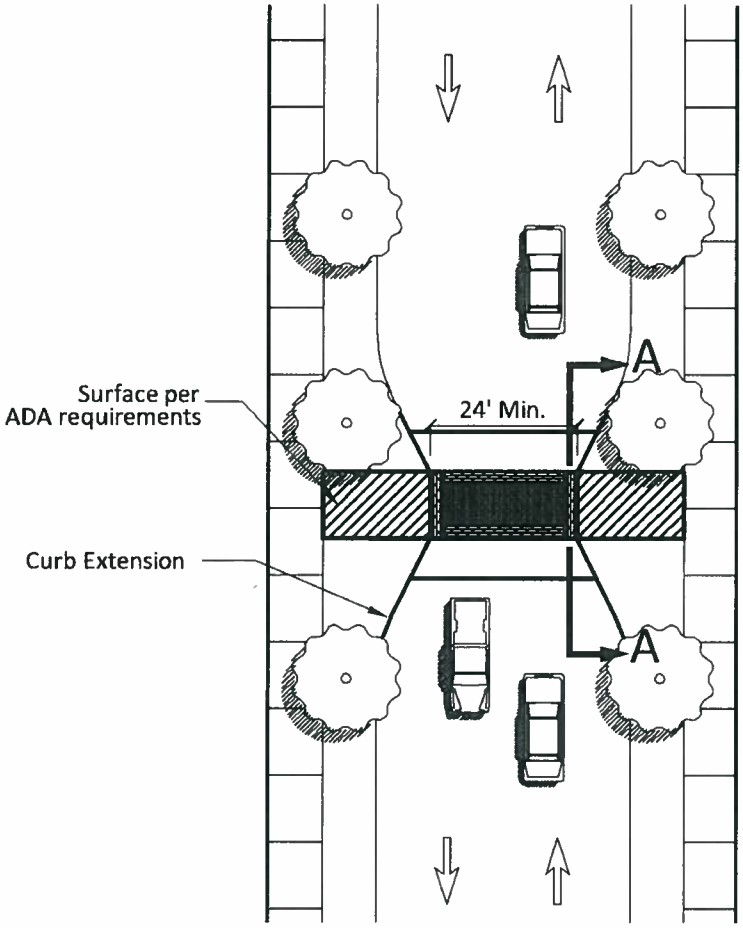
Advantages

- Reduces speed
- Improves motorist visibility of pedestrians

Disadvantages

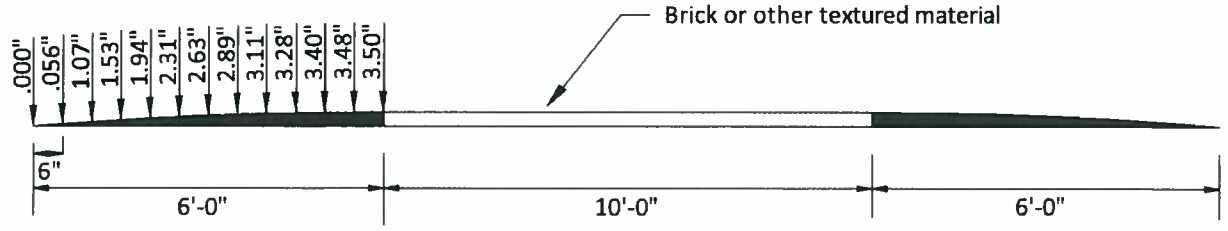
- Increases regular maintenance
- May require modifications to drainage
- May require loss of parking

Raised Crosswalk



Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* Drainage requirements must be evaluated and addressed
* Crosswalks must meet traffic engineering requirements



Section A-A

City of Oceanside Neighborhood Traffic Calming Program

Raised Intersection

($125,000 to $150,000)

Description & Purpose

A raised intersection requires motorists to reduce speeds as they proceed through an elevated intersection. Raised intersections are typically constructed to be six inches in height. Raised intersections are supplemented with appropriate striping and signage to adequately inform motorists of the traffic calming device.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	**Yes**
Reduces Volume	Possible
Noise Impact	Yes
Restricts Access	No
Bicyclist Impact	No
Transit Impact	No
Parking Impact	No
Emergency Response Impact	Yes

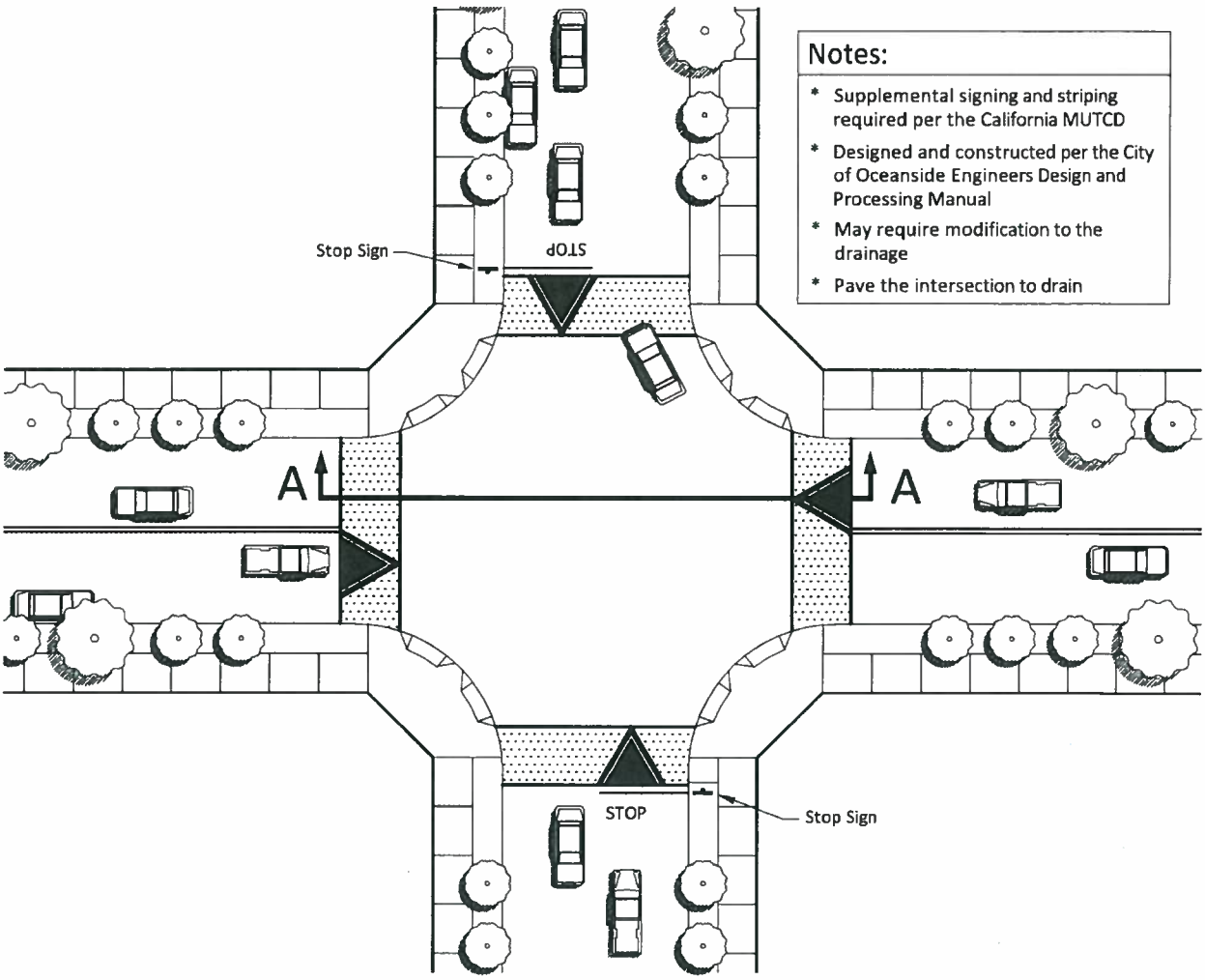
Advantages

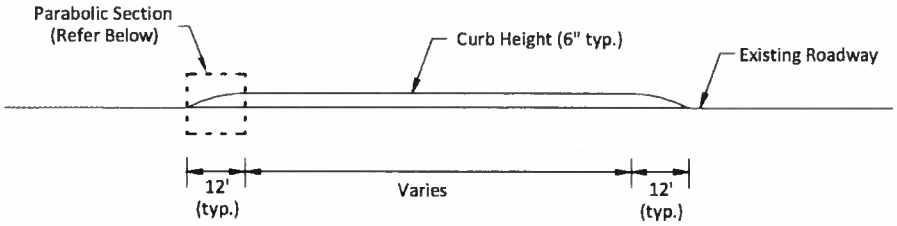
- Reduces speed through an intersection
- May improve pedestrian safety

Disadvantages

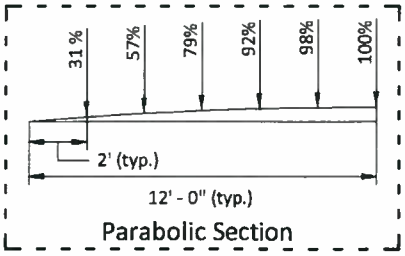
- Expensive
- Increases regular maintenance

Raised Intersection





Section A-A



Roundabout

($250,000 to $500,000)

Description & Purpose

Roundabouts are large raised circular islands placed in the middle of an intersection with channelized approaches. The purpose of roundabouts is to slow motorist speeds as they maneuver around the circle to proceed through the intersection. Motorists entering the intersection must yield to circulating traffic. The dimensions of the roundabout can vary depending on the volume and types of vehicle usage.

Santa Fe Drive & Rubenstein Street, Encinitas

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	**Yes**
Reduces Volume	No
Noise Impact	No
Restricts Access	No
Bicyclist Impact	Possible
Transit Impact	Possible
Parking Impact	Yes
Emergency Response Impact	No

Advantages

- Reduces speed through an intersection
- Increases intersection capacity
- Reduces vehicle delay and queues
- Improves access

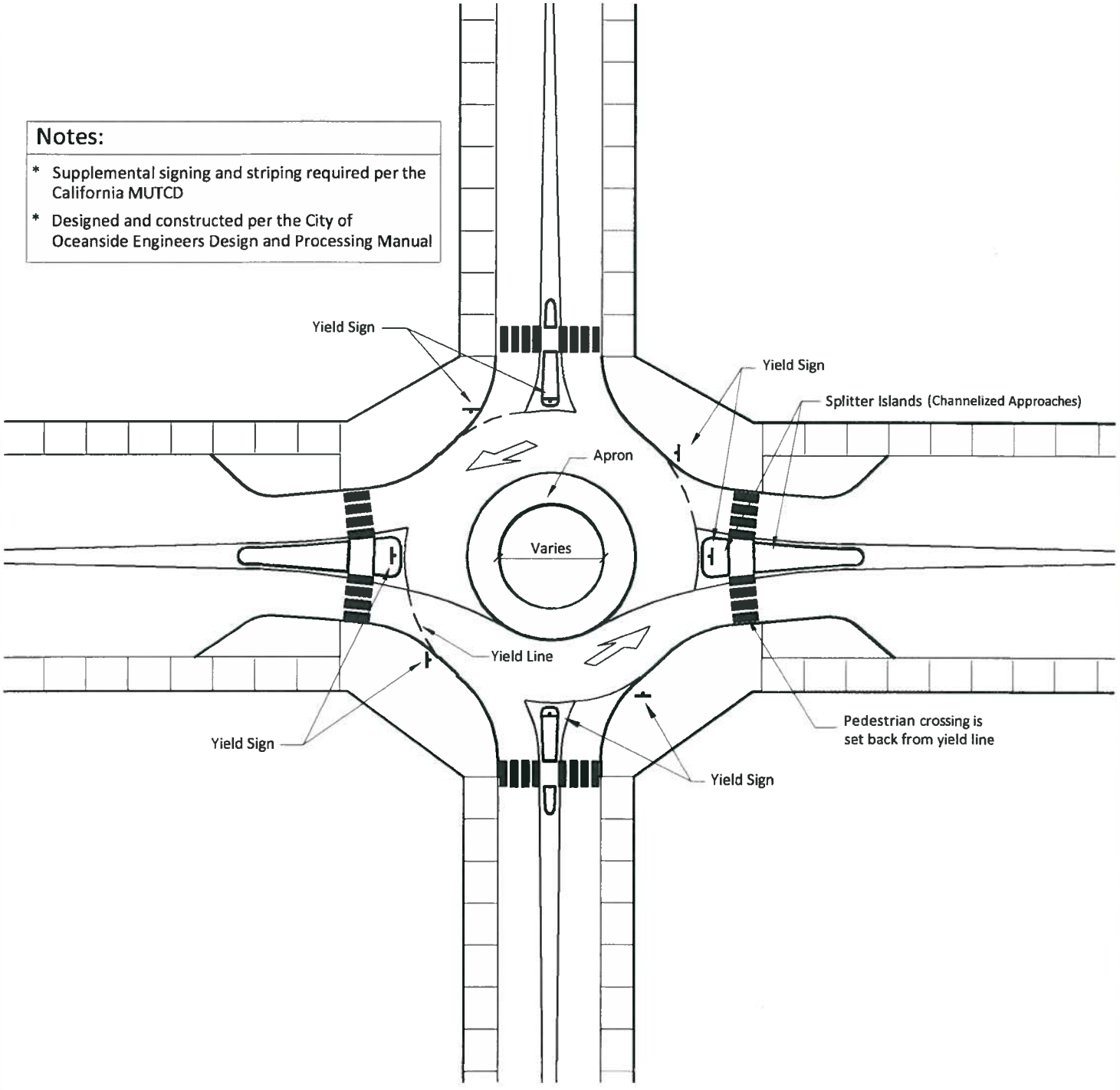
Disadvantages

- Increases regular maintenance
- May require loss of parking
- May require additional right-of-way

Roundabout

Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual



Turn Restrictions

($100 to $250 per sign)

Description & Purpose

Turn restrictions may be implemented by posting signage and/or striping. The purpose of turn restrictions is to prevent cut-through traffic or undesired turning movements from entering or exiting a street. Turn restrictions can be permanent or time specific.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	No
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	No

Capistrano Drive at
San Rafael Drive, Oceanside

Advantages

- Reduces cut-through traffic
- Low cost

Disadvantages

- Diverts traffic to adjacent streets
- Effectiveness is subject to driver compliance; may require intermittent enforcement to remain effective

Turn Restrictions

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Forced Turn Island

($1,000 to $15,000)

Description & Purpose

Forced turn islands are striped or raised medians that channelize traffic at an intersection. Their purpose is to prevent cut-through traffic or undesired turning movements from entering or exiting a street.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	No
Reduces Speed	No
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	Possible
Emergency Response Impact	No

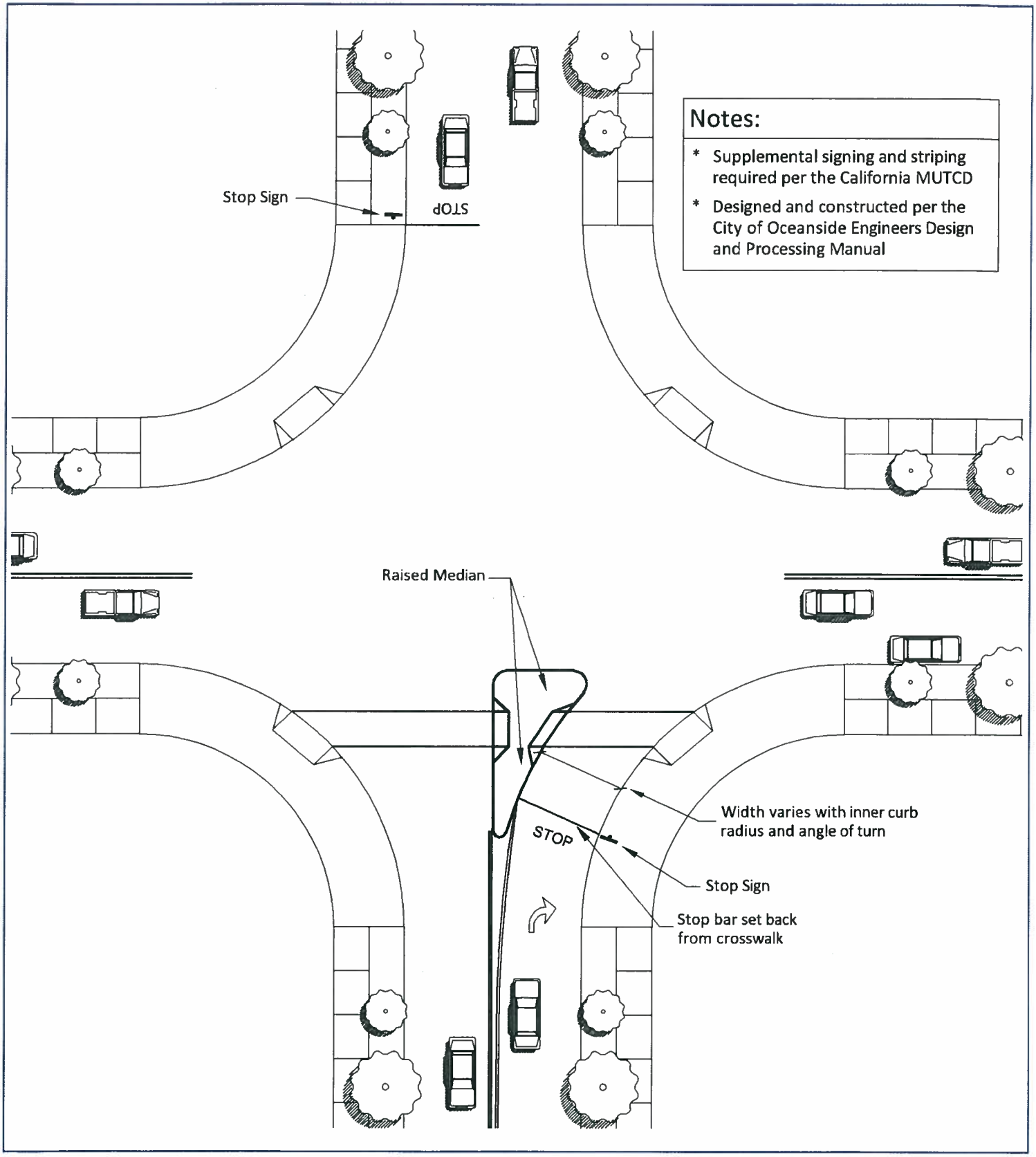
Advantages

- Reduces cut-through traffic

Disadvantages

- May divert traffic to adjacent streets

Forced Turn Island



City of Oceanside Neighborhood Traffic Calming Program

Half Street Closure

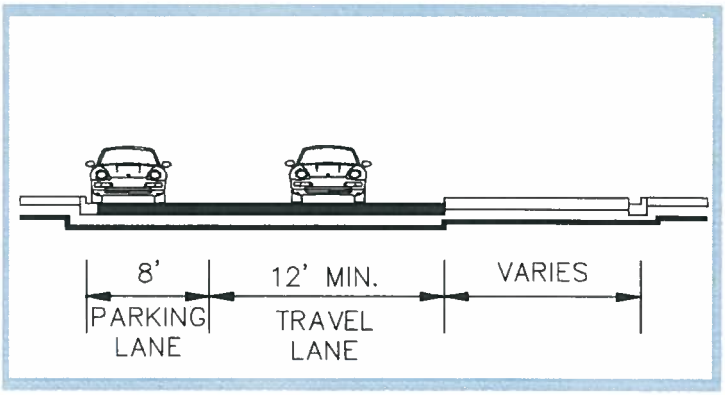
($10,000 to $25,000)

Description & Purpose

Half street closures restrict motorists from entering or exiting a street in one direction with curb extensions, bollards, or other treatments. The purpose of a half street closure is to prevent cut-through traffic or undesired turning movements.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Possible
Can be used on Arterial	No
Reduces Speed	No
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	No
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	No



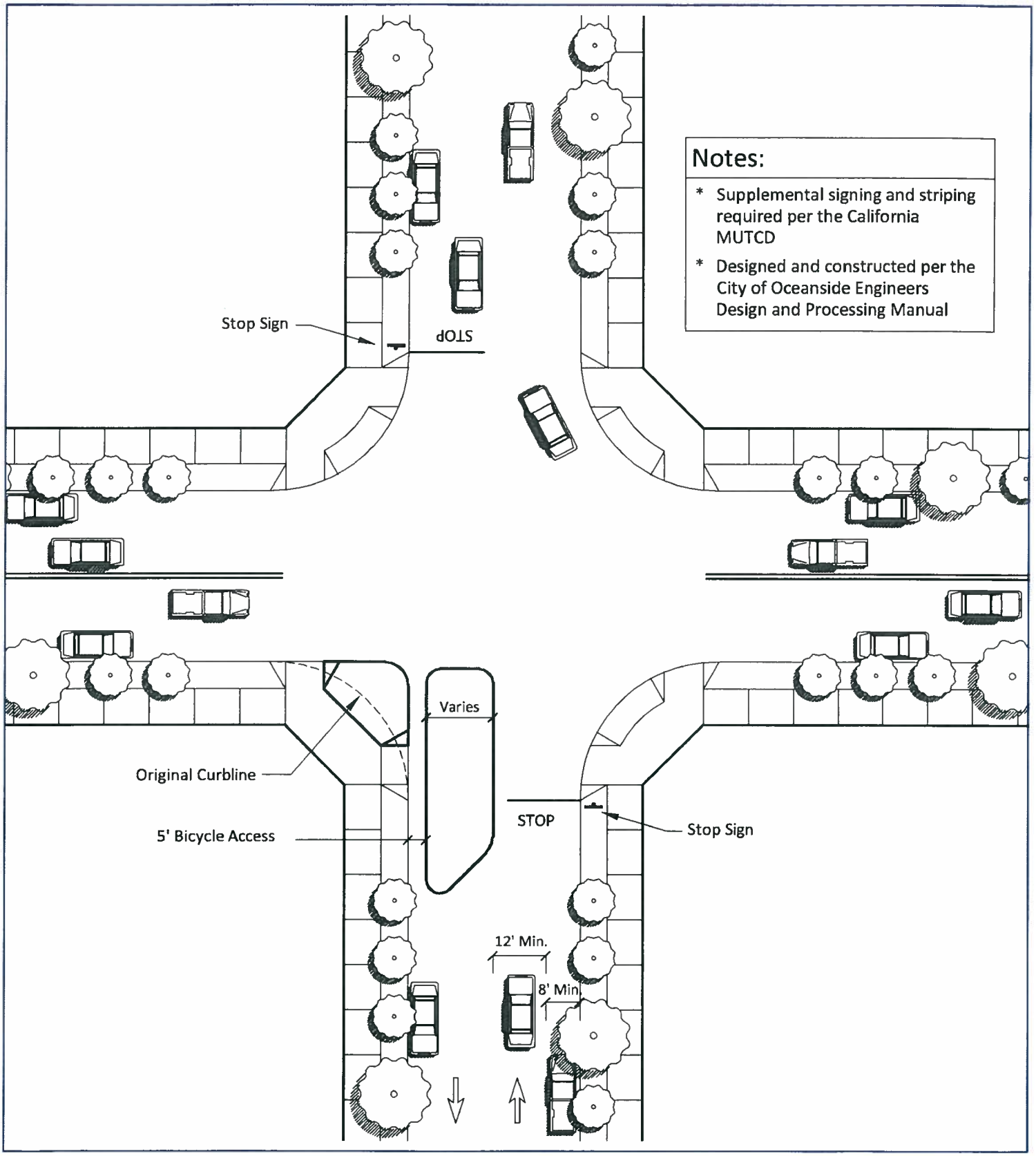
Advantages

- Reduces cut-through traffic in one direction
- Allows two-way traffic along the remainder of a street
- Bicycle and pedestrian routes can be maintained

Disadvantages

- Diverts traffic to adjacent streets
- Increases trip lengths
- Impacts access

Half Street Closure



City of Oceanside Neighborhood Traffic Calming Program

Full Street Closure

($25,000 to $50,000)

Description & Purpose

Full street closures create cul-de-sacs which restricts all vehicle access into and out of the street at that location. The purpose of full street closures is to eliminate cut-through or undesired traffic from entering or exiting a street.

Mira Monte Drive, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	No
Can be used on Arterial	No
Reduces Speed	No
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	Yes

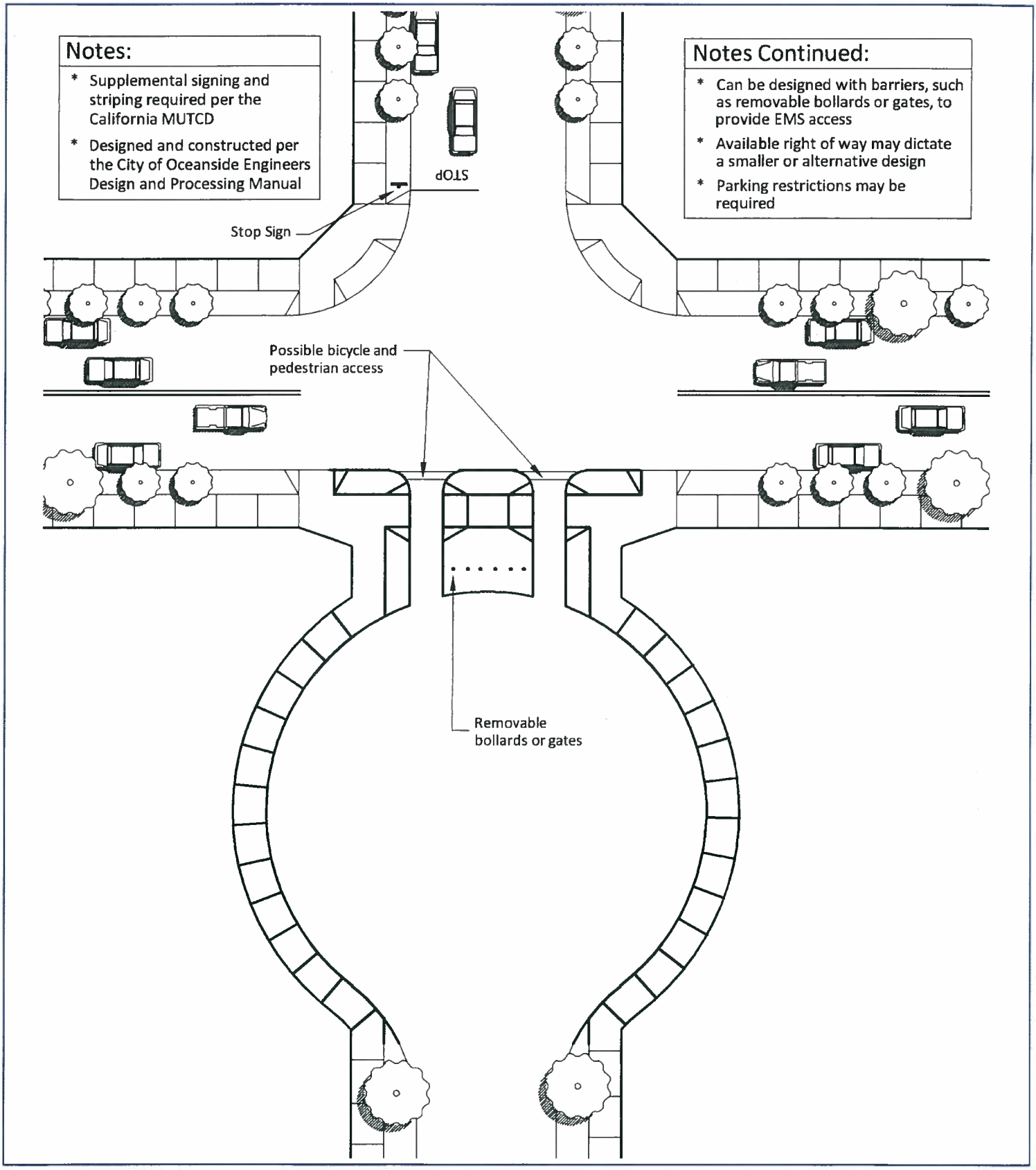
Advantages

- Reduces cut-through traffic
- Pedestrian routes can be maintained
- Bicycle routes may be maintained

Disadvantages

- Impacts access
- Diverts traffic to adjacent streets
- Increases trip lengths

Full Street Closure



City of Oceanside Neighborhood Traffic Calming Program

Median Barricade

($250 per square foot)

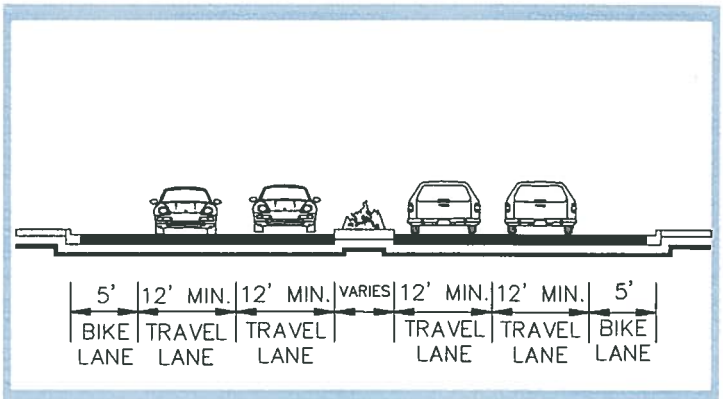
Description & Purpose

A median barricade is a raised island placed in the center of a roadway to restrict left-turn or through traffic access from a side street. Median barricades typically replace a two-way left turn lane or are placed in the middle of a wide roadway. Emergency access and access to intermittent side streets may be maintained by providing breaks in the median. The purpose of a median barricade is to reduce traffic volumes across a major street or reduce conflicts at an intersection.

Vista Way, Oceanside

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Yes
Can be used on Arterial	Yes
Reduces Speed	No
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	Possible



* Cross Sections can vary depending on street widths

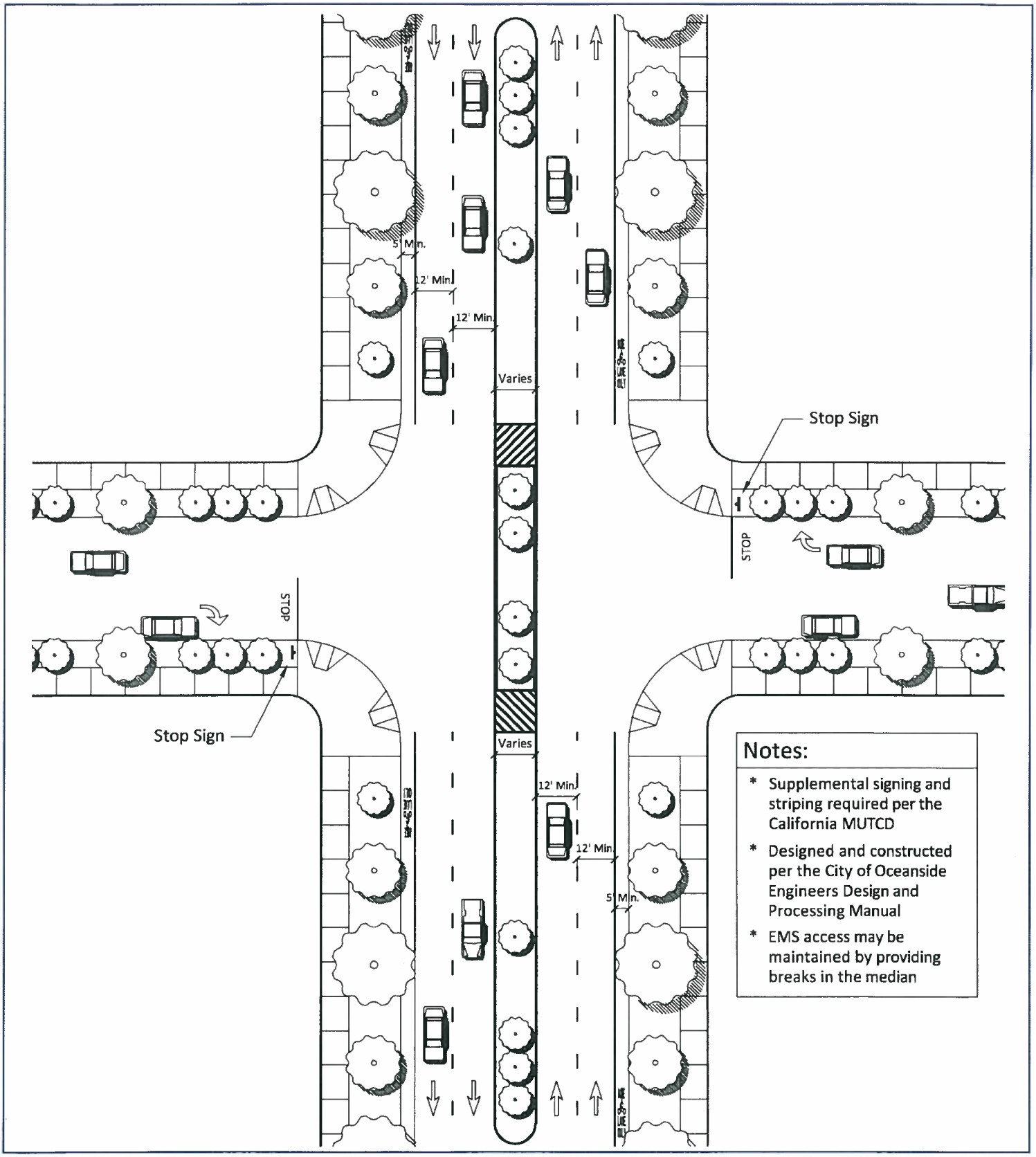
Advantages

- Reduces traffic volumes along a roadway
- Reduces conflicts at intersections

Disadvantages

- Impacts access
- Increases trip lengths
- Only applicable on wide roads

Median Barricade



Notes:

* Supplemental signing and striping required per the California MUTCD
* Designed and constructed per the City of Oceanside Engineers Design and Processing Manual
* EMS access may be maintained by providing breaks in the median

Diagonal Diverter

($50,000 to $75,000)

Description & Purpose

A diagonal diverter is either a raised median, bollards, and/or another type of treatment placed diagonally across an intersection to restrict through traffic movements. Diagonal diverters split a four-way intersection into two L-shaped turns. Bicycle and pedestrian access may be maintained by providing breaks in the treatment. The purpose of a diagonal diverter is to reduce traffic volumes along a roadway and divert traffic to adjacent streets.

Fast Facts:

Can be used on Local Street	Yes
Can be used on Collector	Possible
Can be used on Arterial	No
Reduces Speed	Possible
Reduces Volume	**Yes**
Noise Impact	No
Restricts Access	Yes
Bicyclist Impact	Possible
Transit Impact	Yes
Parking Impact	No
Emergency Response Impact	Yes

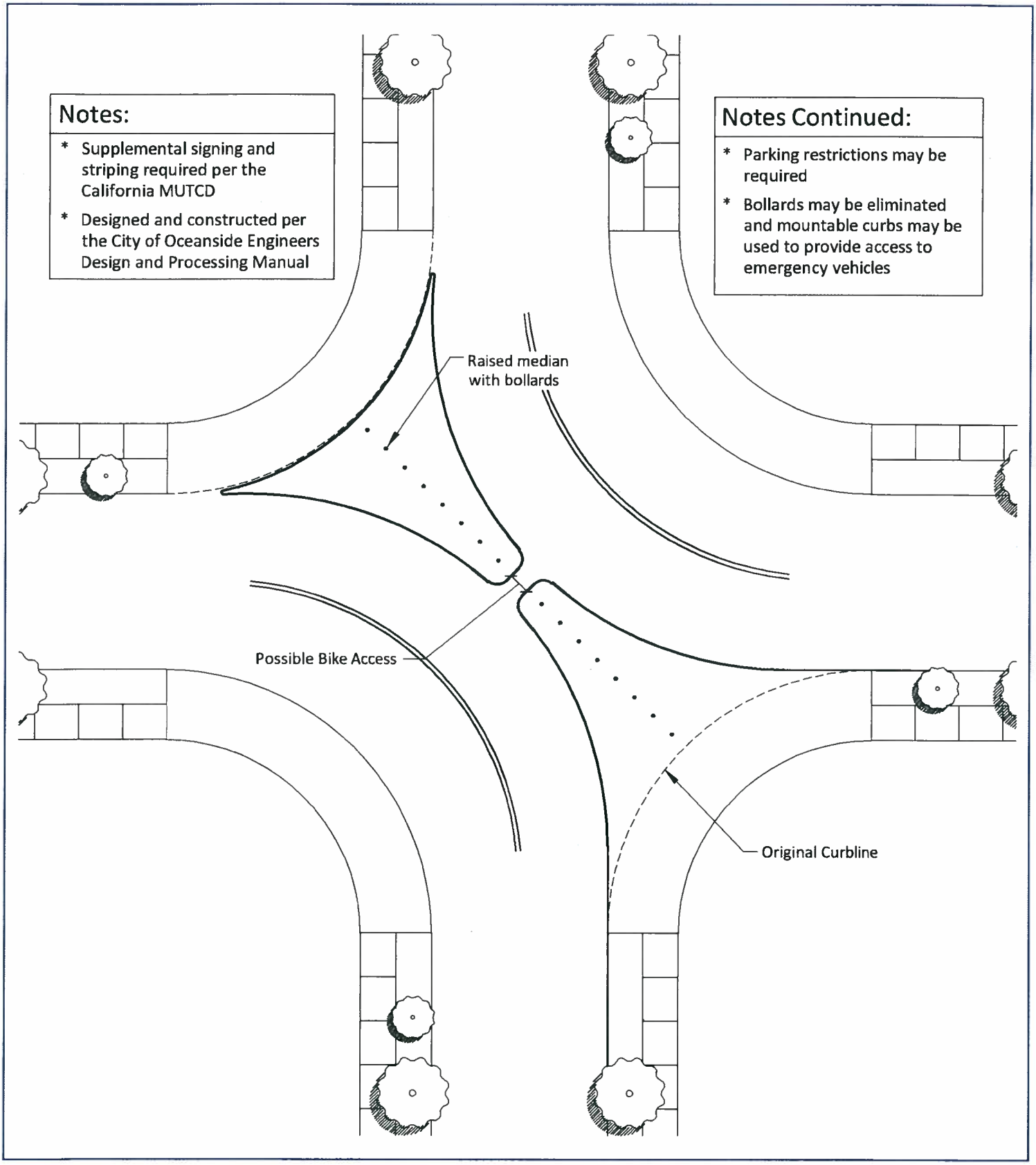
Advantages

- Reduces cut-through traffic
- Bicycle and pedestrian access may be maintained

Disadvantages

- Impacts access
- Increases trip lengths
- Increases traffic to adjacent streets

Diagonal Diverter



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ATTACHMENT A:

Resident Request Form and Neighborhood Petition

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City of Oceanside Neighborhood Traffic Calming Program

RESIDENT REQUEST FORM AND NEIGHBORHOOD PETITION

We, the undersigned, request the City of Oceanside to undertake a traffic engineering study to develop preliminary recommendations to mitigate existing traffic problems occurring on (enter street name) _____ between _____ and _____.

Existing traffic problems include the following:

_____ Excessive travel speeds

_____ High volumes of non-local traffic

_____ Demonstrated accident history

_____ Other: _____

_____ Vehicle noise

_____ Pedestrian Safety

_____ Bicycle Safety

Name (please print)	Address (please print)	Telephone	Date	Signature

Petition Spokesperson: _____ Telephone Number: _____

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ATTACHMENT B:

Traffic Calming Criteria Worksheet

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TRAFFIC CALMING CRITERIA SHEET
(Local Streets)

Street Name: _____

Street Limits: **From:** _____

To: _____

A. *Complete this section to determine if street is eligible for Traffic Calming Program. All criteria must be met to be eligible.*

Primary Criteria	Yes	No
Is there a signed petition? (Signature and letter from the originator of the traffic request in addition to 5 other residents signatures?)		
Street is classified as a local street in the California Road Systems (CRS) maps?		
Is the critical speed (85th percentile) 30 mph or more?		
Is the curb to curb width 40 feet or less?		
Is there one lane in each direction?		

Does this segment of roadway meet the minimum traffic calming requirements?		

If Section A is satisfied as meeting the minmum traffic calming requirements then proceed to Section B.

Traffic Engineering: _____ *Date:* _____

B. *Complete this section to determine if there is a likeliness of traffic diversion. (If there is then this is no longer a localized situation but a neighborhood situation)*

Supplemental Criteria	Yes	No
Is there a likeliness of traffic diversion?		

C. *Complete this section when street is determined to meet all traffic calming minimum criteria. Use the following criteria for ranking projects and in understanding the operational characteristics of the road segment.*

Traffic Calming Ranking Criteria		Points
Daily Traffic Volume		
	less than 200 vehicles per day	0 points
	200 - 500 vehicles per day	1 point
	500 - 1,000 vehicles per day	2 points
	1,000 - 1,500 vehicles per day	3 points
	more than 1,500 vehicles per day	4 points
Street Segment Length (Uninterrupted)		
	less than 600 feet	0 points
	greater than 600 feet	1 point
Cul-de-Sac (800 feet or less)		
	On a cul-de-sac	0 points
	Not on a cul-de-sac	1 point
Accident History		
	I point for each accident (within 3 years)	up to 5 pts
Near High Pedestrian Generator		
	street fronts or provides access to school	3 points
	street is in CBD	1 point
	street has high transit activity, near church or other civic facility	1 point
Sidewalk		
	No sidewalk or on one-side of street only	1 point
TOTAL POINTS		

D. *To be completed by the Fire Marshall.*

Emergency Response	Yes	No
Is this street a designated emergency response route?		

Comments: _____

_____

_____

Fire Marshall Signature: _____ *Date:* _____

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ATTACHMENT C:

Sample Traffic Calming Survey

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(Street Name) Traffic Calming Plan

City of Oceanside Neighborhood Traffic Calming Program

DEAR NEIGHBORS,

This letter is from the (Street Name) Traffic Calming Committee. We are a group of volunteer residents that have been working with City staff over the past few months to improve the traffic conditions on our street by addressing speeding (or volume) issues along (Street Name). We are seeking your support for the (Street Name) Traffic Calming Plan.

The City of Oceanside Traffic Calming Program

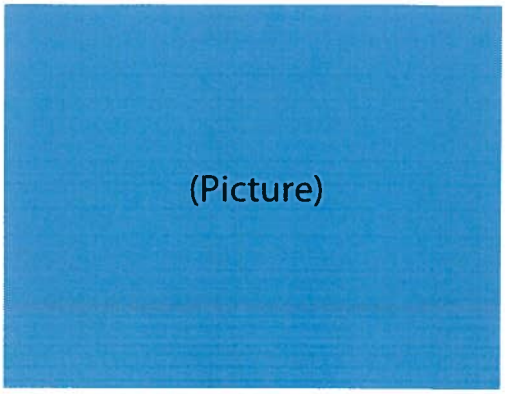
The City of Oceanside Neighborhood Traffic Calming Program is a resource for residents to refer to when there is an inquiry on how to have traffic calming installed on a street. The program explains the process of how to aquire traffic calming on a street or within a neighborhood if the necessary steps are taken and criteria is met. For more detailed information on the program, you can view the program document on the City's website: www.oceanside.ca.us.

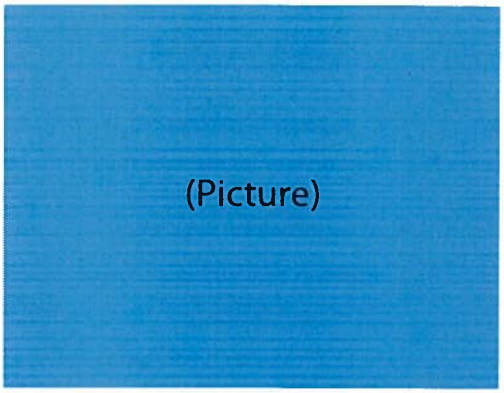
What is the Process?

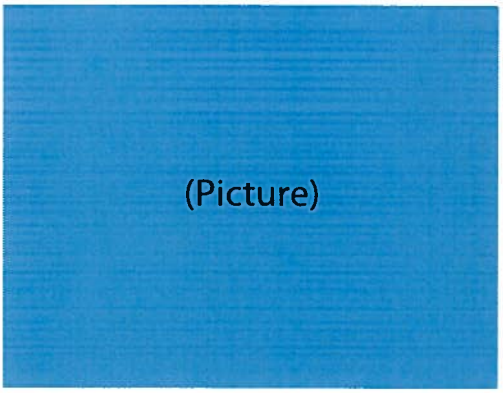
Residents were notified by mail and invited to a neighborhood workshop in (Date). At the workshop, participants discussed the areas of concern in the neighborhood. Participants learned about traffic calming tools and were provided with an opportunity to suggest improvements along (Street Name). The Resident Task Force was established at the first workshop. The task force then worked with City staff to discuss potential solutions to concerns. Ultimately, (state number of devices) traffic calming features were developed that collectively represent the Traffic Calming Plan for (Street Name). With your support, we now have the opportunity to take the Traffic Calming Plan forward to the City Council and initiate its implementation. It is envisioned that this plan will be implemented in stages with the most cost efficient and effective elements installed first. Alternate traffic calming devices may need to be installed on an intermediate basis until sufficient funds are available.

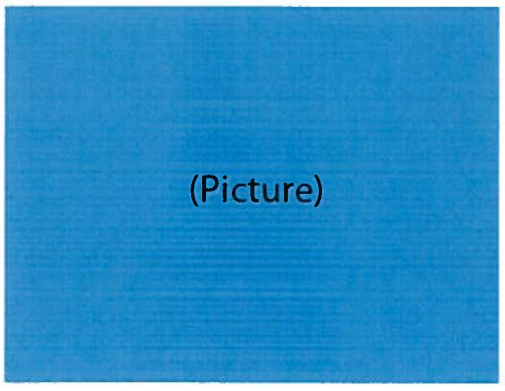
How Do I Participate?

The proposed traffic calming plan must be approved by a majority of the residents along (Street Name) before it can be brought to City Council for approval. Therefore, your input is critical to this effort. Please fill out the enclosed survey form and indicate whether or not you support the proposed Traffic Calming Plan. The pre-paid, pre-addressed survey forms must be mailed in by **(DUE DATE)**.





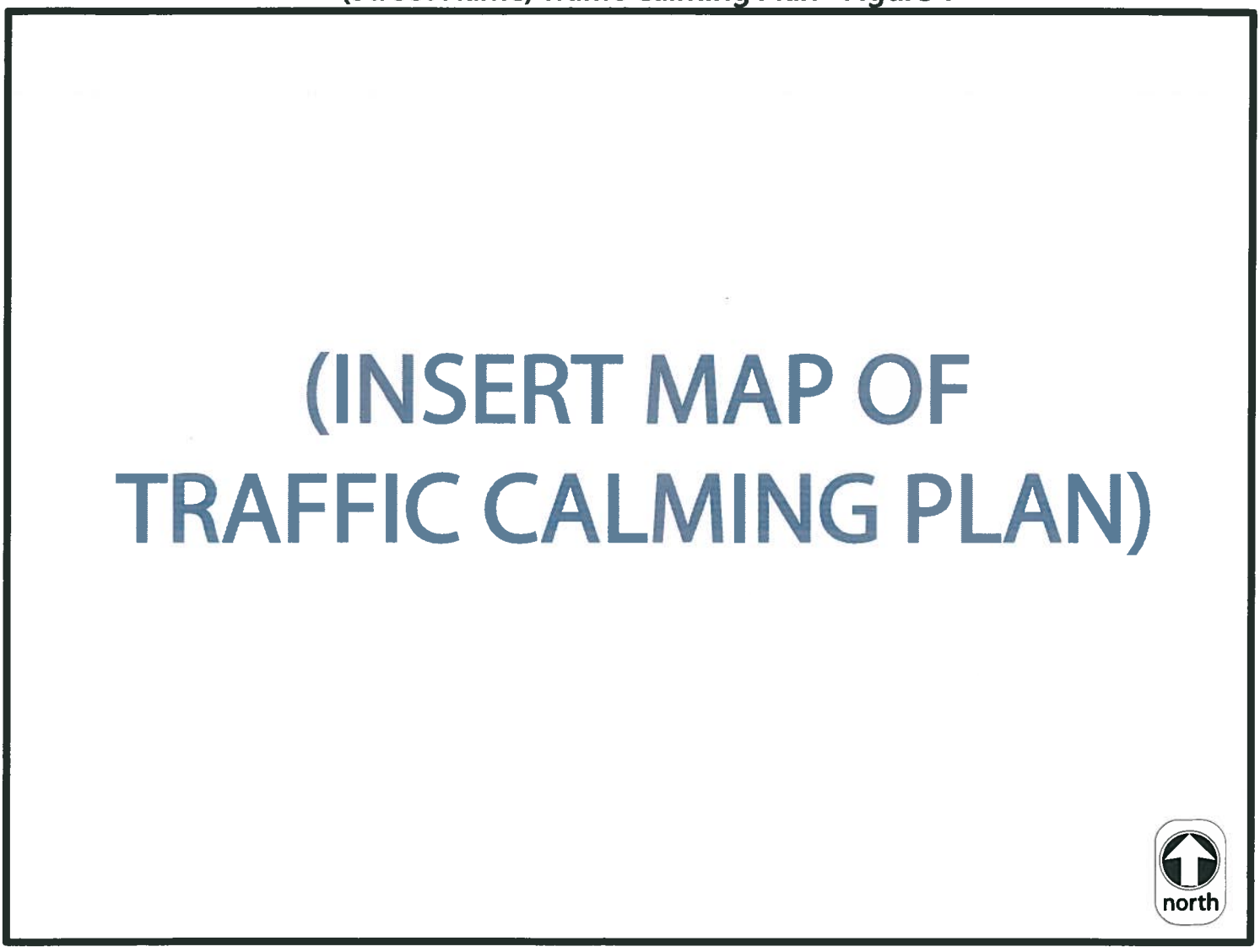




What is the Traffic Calming Plan?

(Summary of each element and proposed locations in the traffic calming plan)

(Street Name) Traffic Calming Plan - Figure 1



If you would like more information regarding any particular feature and its potential impact on adjacent properties, contact (Project Manager's name and phone number).

CITY OF OCEANSIDE
NEIGHBORHOOD TRAFFIC CALMING
RESIDENT SURVEY FORM

As a resident of this neighborhood, whether you are a property owner or tenant, indicate your support or opposition to the traffic calming plan by checking a box below and signing here. Please use the comment line to express any opinion you have of specific concepts. Please mail this pre-paid, pre-addressed survey form in by _____.

I, _____, live at _____

(PRINT NAME) (PRINT ADDRESS)

CHECK ONE: ☐ Support the Plan
☐ Oppose the Plan

Comments: _____

_____

_____

_____

Sign Here_____

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ATTACHMENT D:

Petition for Removal of Traffic Calming Device(s)

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City of Oceanside Neighborhood Traffic Calming Program

PETITION FOR REMOVAL OF TRAFFIC CALMING DEVICE(S)

We, the undersigned, request the City of Oceanside remove the (enter device) _____ traffic calming device(s) on (enter street name) _____ between _____and _____.

Please specify the reason for the request for removal:

_____

_____

_____

_____

80% of the residences must support the removal of the traffic calming device(s)

Name (please print)	Address (please print)	Telephone	Date	Signature

Petition Spokesperson: _____ Telephone Number: _____