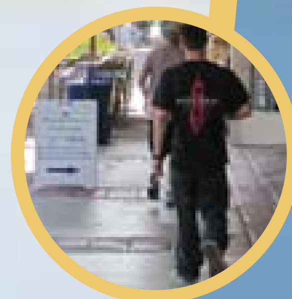
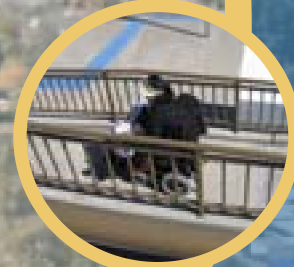
CITY OF
LA MESA
JEWEL of the HILLS

Bicycle Facilities and Alternative Transportation Plan

Final Report - February 2012





Prepared by: KTU+A Planning and Landscape Architecture

In Association with: IBI Group

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Bicycle Facilities and
Alternative Transportation Plan

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CITY OF
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1. Introduction

1.1 Project Scope

The City of La Mesa wants to promote a safe, convenient and efficient environment for bicycle and pedestrian travel that encourages the use of public streets, off-street facilities and public transit. During the development of this Bicycle Facilities Plan and Alternative Transportation Element, a comprehensive approach was used to identify bicycle and pedestrian needs throughout the City, review current conditions, examine optional improvements and prioritize implementation strategies with viable funding sources. The plan addresses opportunities to connect and integrate existing and proposed facilities. This plan is conceptual, since precise alignments and details will be determined through the implementation process of specific bicycle and pedestrian projects.

This resulting document should be responsive to any General Plan changes that will affect circulation patterns. The Bicycle Facilities Plan will provide a framework for the future development of the City's bicycle network and also makes the City eligible for local, State and Federal funding for bicycle and pedestrian projects.

Plan Objectives

Through discussions with City staff and the public, four overall issues needed to be considered during plan preparation.

a) The community desires a comprehensive bikeway system that provides a network of facilities serving destinations throughout the City.

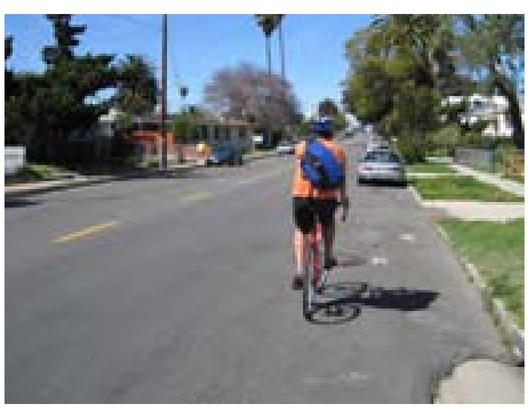
b) The community desires that sidewalk continuity and pedestrian safety are given importance during transportation facility improvements.

c) As the City continues to encourage active lifestyles, more programs are needed to educate residents about the health benefits of cycling and walking.

d) Overall enforcement and education of both motorists and cyclists is needed to improve safety and awareness throughout the City

e) Develop a Complete Streets framework that encourages all modes of transportation and reduces traffic congestion, increases alternative transportation options, connectivity and improves public health and safety

The planned system builds upon existing bicycle and pedestrian facilities throughout the City with enhancements to overall connectivity, support facilities, safety and education programs. This network, coupled with bicycle and pedestrian education, enforcement and promotional programs, will create a more bicycle friendly community. The anticipated result is an increase in the number of commuters choosing to ride a bicycle and walk to nearby destinations.



Cyclist on Palm Ave

1.2 The Cyclist's and Pedestrian's Perspective

This plan was developed with a "cyclist's and pedestrian's perspective" by planners who routinely commute by bicycle and/or walk and fully understand the implications of alternative travel. Potential bicycle 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' thorough analysis resulted in supportable recommendations portrayed in clear text and graphic format. Pedestrian needs were identified while on the bike and through existing documents and public input.

Benefits of Cycling and Walking

There are numerous health benefits to cycling and walking including health, environmental and economic. The following sections describe the benefits of each.

Health Benefits

- **Stress reduction:** Exercise in general has been shown to decrease anxiety and stress levels. Cycling, running and walking on a regular basis is a fun way to exercise.
- **Weight loss:** The general population of the United States is becoming increasingly obese. Outdoor activities that encourage cycling and walking are a great way to help lose weight since it burns fat, which helps the individual look and feel better.
- **Health benefits:** Studies have shown that regular exercise lowers the risk of high blood pressure, heart attacks and strokes. In addition to heart disease, regular exercise can also help to prevent other health problems such as non-insulin dependent diabetes, osteoarthritis and osteoporosis. Exercise also relieves symptoms of depression and improves mental health.
- **Improved cardiovascular fitness:** Exercise improves heart and lung fitness, as well as strength and stamina.

Environmental Benefits

Fewer people cycle per capita in the United States than in many other parts of the world and the nation is a leader in petroleum consumption. These high levels of consumption are leading to many negative effects on the environment, such as increased emissions of harmful greenhouse gases including carbon dioxide, carbon monoxide, methane, nitrous oxide and volatile organic compounds. These pollutants and irritants in the air can cause asthma, bronchitis, pneumonia and decreased resistance to respiratory infections. Increased cycling, walking and using public transportation helps reduce fossil fuel emissions and helps clean the air.

Individual Economic Benefit

Cycling is a low cost activity that is easy to incorporate into an individual's daily life such as cycling to work or running errands. In mild climate areas, such as La Mesa, cycling can occur year round. Cycling to and from work can also save money. Based on an hourly wage of $10.00, a motorist must work 300 hours per year to pay for his or her annual commute. A cyclist only has to work about 30 hours per year to operate his or her bike.

1.3 Field Work

Field work was conducted during the spring and summer of 2010 and 2011 under a mix of mostly sunny to partly cloudy skies and temperatures of between 65 and 90 degrees. Much of the fieldwork consisted of cycling these facilities to obtain first hand experience. The rest of the field work consisted of driving routes and examining areas about which public input had been given. Bicycle and pedestrian counts were conducted at five locations in a 12 hour span to get a sense of daily volumes at that particular intersection.

The Safe Routes to Transit Plan consisted of field work between June through September of 2011. Volunteers walked the transit study areas mostly in July to identify access and transit stop deficiencies. The consultant team followed up with field investigations in August and September.

1.4 Community Input

Community involvement consisted of three public workshops at the La Mesa Community Center and two online questionnaires. The first workshop conducted on April 15, 2010 solicited input on what local residents wanted to see and the problem areas. The second workshop conducted on Sept 23, 2010 solicited additional comments but also presented the recommended bicycle and pedestrian facilities and transit improvements. Additional materials such as the City's Street Classifications were also presented. Both workshops were a two-hour open forum for attendees to mark up maps and add comments, suggestions and recommendations. There were 15-20 informational boards on display and large 54" citywide plots were available for attendees to add additional comments. The 54" plots also solicited routes where the attendees tended to walk and ride throughout the City and where they would like to ride if facilities were available. Computers were available for attendees to fill out the online questionnaire. Other General Plan Elements were also part of the workshops.

The third workshop conducted on July 30th, 2011 coincided with the Parks Master Plan and other General Plan elements. This workshop focused on the on-going healthy initiatives and programs that the City is conducting as part of the General Plan update.

Two online questionnaires were created to solicit comments for people who could not attend the workshops or had additional comments after attending a workshop. The online questionnaire is valuable because it allows those who are uncomfortable addressing their comments in a public setting to do so privately. There were 250 people who filled out the online survey throughout the duration of the project for the bicycle, pedestrian and transit phase of the plan. An additional 103 people filled out the survey specific to the Safe Routes to Transit Plan.

Workshop #1

Large 54" table maps for public comments

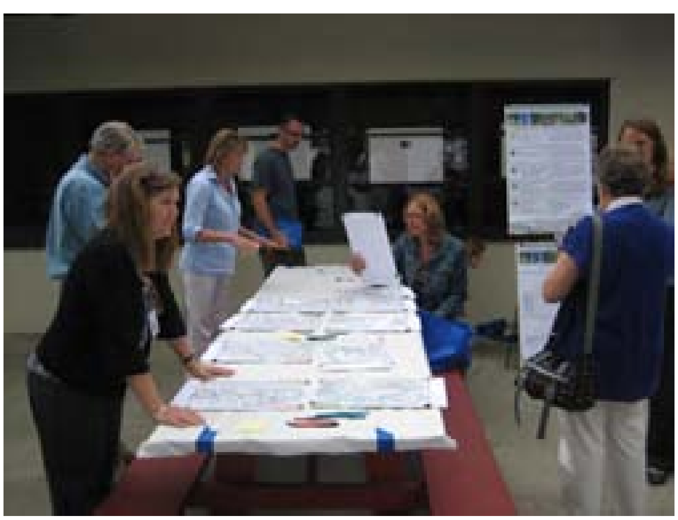
Informational boards

Workshop #2

Informational boards

Computer stations for the online survey

Workshop #3 Safe Routes to Transit and Parks Master Plan



2. Bicycle Infrastructure

La Mesa's Bicycle Facilities Plan establishes the City's goals and policies regarding the importance of providing bicycle facilities within the overall circulation network. This bicycle plan includes an implementation plan for existing and planned facilities.

The intent of the Bicycle Facilities Plan is to:

- Improve safety for bicycle riders through education, encouragement and enforcement programs;
- Encourage bicycle ridership as a viable transportation alternative to the car through education, encouragement and enforcement programs;
- Help make La Mesa a more livable place; and
- Help educate the public about the importance of sharing the street with cyclists;
- Identify funding sources for planning and constructing bicycle facilities

La Mesa's landform is a varied and interesting terrain, providing vistas which have helped to make the City such a desirable place to live and work. From the cyclist's perspective, this terrain with its steep streets and gaps in road connections, significantly limits the routes available for easy and direct access to key destinations and cross town routes. In La Mesa, this terrain has defined the primary road system to minimize overly steep grades on City streets. It is equally important for cyclists to find direct routes with the least challenging grades to get around La Mesa, as well as through the City to neighboring jurisdictions and regional destinations. Since there are not extensive opportunities for off-street shared-use bike paths because of La Mesa's built-out nature, available land and topography, this plan focuses primarily on the integration and coordination of bicycle facilities within the existing street network. When opportunities for land acquisition, road diets and redevelopment occur, off-street bike paths should be investigated as part of the process.

Because the City's roadway network is so well established, and not expected to change significantly during the planning period, implementation of the bicycle facilities plan will rely on two strategies. The first will be improvements to existing roadways to provide a network of safe and efficient bicycle lanes (Class 2) where roadway widening or lane narrowing is feasible. The second will be the use of signs designating streets (Class 3) which are the most appropriate secondary bicycle routes within the existing street system.

In the past, the City has competed for regional bicycle facility funds available through State and regional programs. These regional resources can provide the funds for right-of-way acquisition and construction of road improvements needed to make bicycle routes safe for both motorists and cyclists. The City has been effective in securing these funds because of the long-term commitment to implementation of a well defined Bicycle Facilities Plan.

With so many demands for limited transportation facility funds, the real value and need for bicycle facilities needs to be justified. The bicycle facilities goals and policies established in this Bicycle Facilities Plan and Alternative Transportation Element provide the justification for these important elements of the overall circulation plan. When well planned and properly integrated into the City's circulation network, the bicycle facilities are just as important as other auto-related safety and vehicular carrying capacity needs of the City's streets. The streets in La Mesa are the paths that must carry children to school, allow bicycle commuters to get to work, grant access to local colleges and give recreational cyclists a chance to access regional open space and parks.

From a regional perspective, La Mesa's central location within the network of major transportation facilities is discussed in other related sections of the Circulation Element of the City's General Plan. For cyclists though, access to much of the region is limited by lack of access to the freeway system. With this limitation, cyclists must rely heavily on the inter-connection of bicycle routes with surface streets. This Bicycle Facilities Plan emphasizes the importance of linking bike routes to regional transit routes. These routes are designated in the SANDAG Regional Bicycle Plan to ensure continued access to the use of the bus and light rail system.

This Bicycle Facilities Plan includes policies and standards for the effective development of a bicycle network serving La Mesa and the region. In addition, it defines the importance of insuring proper availability of bicycle facilities in private development when found to be consistent with the goals and policies of the Bicycle Facilities Plan and Alternative Transportation Element.

Implementation of the bicycle facilities plan will focus on completing the key missing routes on the plan. The priority will be to complete the links to regional routes that are within La Mesa. Section 2.1 illustrates the types of bicycle facilities planned in La Mesa. This will include work with regional planning groups and other agencies to insure that La Mesa receives funding that is equitable with the City's commitment to providing safe and efficient bicycle facilities.

2.1 Existing Bicycle Infrastructure

The existing bikeway system mapping was derived from the San Diego Association of Governments' (SANDAG) regional bikeway GIS data, field analysis and input from City staff. The following recommended facilities represent all three types of proposed bikeways.

Cyclist on El Paso Street

Class 1 Bike Path Facilities

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

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 encroachment between the bike path and 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 compared to streets, especially for utility trips such as commuting. Other reasons that Class 1 routes immediately adjacent to a street are not recommended are that 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. On relatively flat routes, this is 25 MPH.

The opportunity often 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. Any proposed Class 1 routes would be designed for multipurpose use. The paths should be wide enough (Caltrans requirements call for eight feet minimum with two feet of clear space on each side) to accommodate multiple user types and should include an unpaved side path (two to four feet) for users who prefer a softer surface. Also, adding two feet of additional pavement width to these facilities to make them 10 feet wide helps prevent edge damage from maintenance or patrol vehicles. Currently, there are no Class 1 facilities within La Mesa.

Class 2 Bike Lane Facilities

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 promote 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 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" of 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 or park in them.

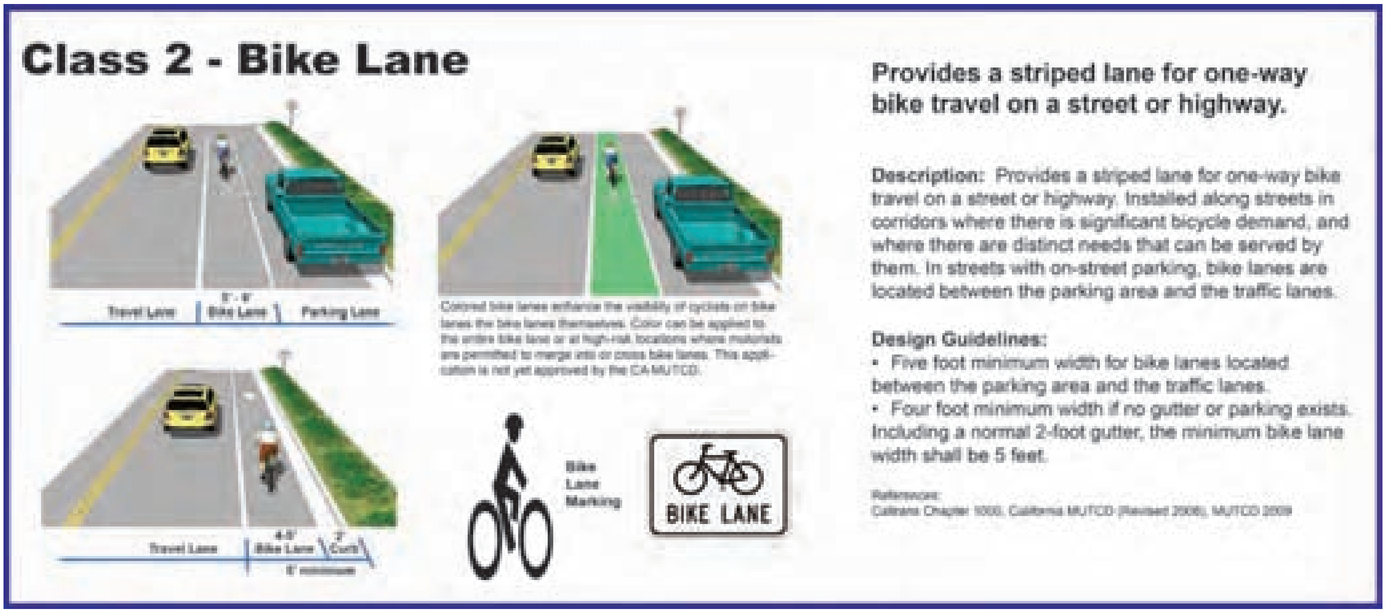
If parking volume is substantial or turnover is high, an additional one or two feet of width, or buffer, is desirable for safe bicycle operation. Bicycle lanes should always be placed between the parking lane and the motor vehicle lanes. Bicycle lanes between the curb and the parking lane can create obstacles for cyclists and eliminate a cyclist's ability to avoid a car door as it is opened. Newer facilities called Cycle Tracks, are designed as bike lanes between parked cars and the curb. Essentially, they are protected bike lanes. They can be both one way and two way. These facilities can be found in cities such as Portland, OR and Montreal, Canada. Just like any other facility, they have their drawbacks. Cycle Tracks are not supported by Caltrans and the City must use other funding sources to develop these facilities if desired. For more detailed information regarding Cycle Tracks and Bike Lanes, please refer to Appendix D: Bicycle Facility Design Guidelines.

La Mesa, as with many built out cities, can turn to techniques to provide space for bike lanes and wider sidewalks. A road diet, sometimes called a lane reduction, is a technique where the number of travel lanes and/or effective width is reduced in order to achieve non-vehicular improvements. For example, a four-lane road can be reduced to two lanes and one center turn lane. The extra space can be allocated for bike lanes and/or wider sidewalks. This also shortens the length that pedestrian have to cross. If other traffic calming features such as pedestrian pop-outs or median refuges were constructed, pedestrians would have better amenities and safety features to use.

Under most average daily traffic (ADT) conditions tested, road diets have minimal effects on vehicle capacity, because left-turning vehicles are moved into a common two-way left-turn lane. However, for road diets with ADTs above approximately 20,000 vehicles, there is a greater likelihood that traffic congestion will increase to the point of diverting traffic to alternate routes.[1]

Road diets can offer potential benefits to both vehicles and pedestrians. On a four-lane street, drivers change lanes to pass slower vehicles (such as vehicles stopped in the left lane waiting to make a left turn). In contrast, drivers' speeds on two-lane streets are limited by the speed of the lead vehicle. Thus, road diets may reduce vehicle speeds and vehicle interactions during lane changes, which potentially could reduce the number and severity of vehicle-to-vehicle crashes.

1. Federal Highway Administration, *Highway Safety Information System: Evaluation of Lane Reduction "Road Diet" Measures and Their Effects on Crashes and Injuries*, March 2004



Class 3 Bike Route Facilities

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. They are recommended where traffic volumes and roadway speeds are fairly low (35 MPH or less). 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, and restrooms may be of interest.

According to the California 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 cyclists of bicycle route direction changes and confirmation signs for route direction, distance and destination. These signs should be repeated at regular intervals so that cyclists 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 cyclist guidance.

Shared Roadway Bicycle Marking symbols or "Sharrows" are an optional signage method for roadways where maximum posted speed limits are 40 MPH to alert motorists to the expected presence of cyclists, as well as to direct cyclists to the proper distance out from the curb to avoid car doors. Innovative Class 3 facilties can found in Appendix D: Bicycle Facility Design Guidelines.

2.2 Bicycle Facilities Objectives and Policies

The following are objectives and policies for the La Mesa Bicycle Facilities Master Plan.

Objective 1.0 - Provide Safe and Viable Regional and City-wide Bicycle Facilities

Policy 1.1

The determination of the appropriate type of bicycle facility should primarily be based upon safety requirements. There are three classifications:

1. Bicycle paths (Class 1) should be utilized as much as possible for regional and community trails, but not for those designated on small local streets where traffic volume is minimal.

2. Bicycle lanes (Class 2) should be utilized as necessary links to bicycle paths or local routes where paths are not feasible.

3. Bicycle routes (Class 3) should be utilized for necessary links or as interim links prior to the implementation of bicycle lanes or paths. Implementation includes signage.

Policy 1.2

Bicycle facilities should be designed to facilitate cycling by incorporating Caltrans Chapter 1000 standards to reduce slopes, sharp curves and interference with vegetation, pedestrians and traffic.

Policy 1.3

Bicycle paths should be incorporated into the design of community land use plans, capital improvement projects, and in parks and open space as specified in the General Plan.

Policy 1.4

Regional and/or community routes within the City should link up with existing or proposed routes within neighboring jurisdictions consistent with SANDAG Regional Bicycle Plan.

Policy 1.5

The City should coordinate regional trail and bicycle planning, acquisition and development efforts with adjacent jurisdictions.

Policy 1.6

Consider every street in La Mesa as a street that cyclists will use.

Policy 1.7

Consider bicycle friendly design using new technologies and innovative treatments on roads and bikeways.

Actions:

1.1 Clear bike route information shall be provided to cyclists by installing adequate signs or markings along bikeways.

1.2 New bicycle paths on separate right of ways shall be sought when it will be safe, cost effective and convenient for cyclists.

1.3 Integrate bicycle facilities into the roadway and maintenance planning process.

1.4 Designated Class 2 lanes can be added where there is enough width.

1.5 When any road work repairs are done by the City or other agencies such as utilities, the road shall be restored to satisfactory quality, with particular attention to surface smoothness and restriping suitable for bicycling.

1.6 Consider new bike lanes or wide curb lanes in new and redeveloped areas.

1.7 Where feasible, design bikeways beyond the minimum required widths but within Caltrans Chapter 1000 standards.

1.8 Whenever capital improvement projects are done at signalized intersections, vehicle actuation should detect bicycles.

1.9 Install bicycle detector pavement markings at traffic signals as appropriate using guidelines from the California Manual on Uniform Traffic Control Devices (CA MUTCD).

1.10 Every effort should be made to retain existing bikeways when a roadway is reconstructed, reconfigured or improved. When designated bikeways are removed, they should be replaced on nearby parallel routes.

1.11 Auto travel lanes may be replaced by bike lanes where peak hour congestion levels are anticipated to maintain acceptable levels of service.

1.12 Continue to seek opportunities to implement bicycle projects and/or bicycle friendly improvements as part of other capital improvement projects. For example, stripe new bike lanes when streets are resurfaced, reconfigured or reconstructed.

1.13 Consider the construction of new bicycle facilities and/or bicycle friendly improvements in conjunction with new development.

1.14 Continue to expand the bicycle network by having facilities that will accommodate bicycle travel as well as pedestrian and motorists.

1.15 Integrate development of the cycling network into larger land use planning and development projects.

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

Objective 2.0 - Provide Accommodations for the Bicycle User Wherever Possible

Policy 2.1

Large non-residential developments should be encouraged to provide showers and lockers, flexible work schedules and other means to encourage and facilitate use of alternative modes of transportation by employees.

Policy 2.2

Bicycle racks should be made available at existing, new or rehabilitated nonresidential developments.

Policy 2.3

Signage should be utilized to identify bicycle routes.

Policy 2.4

The City shall strive to ensure that bicycle support facilities are provided at appropriate locations in the City.

Policy 2.5

Encourage and support using bicycles in conjunction with other forms of transportation.

Actions:

2.1 Provide convenient and secure bicycle parking at public buildings, commercial areas, multifamily development, schools and parks.

2.2 Require the use of high quality bicycle racks that support bicycles well and are easy to use.

2.3 Add bicycle lockers and racks at park and ride facilities for cyclists to transfer to transit, carpools and vanpools.

2.4 Near commuter rail stations, provide access paths to these transit centers to encourage walking and cycling.

2.5 Include bicycle parking, showers and lockers in all new business developments, as appropriate.

Objective 3.0: Bicycle Enforcement and Education

Policy 3.1

The City will encourage and support the creation of comprehensive safety awareness programs for cyclists and motorists.

Actions:

3.1 Work with local schools and the police department to implement and institutionalize a comprehensive bicycle awareness program that teaches all children to follow the rules of the road.

3.2 Assist employers in implementing a comprehensive bicycle awareness program for their employees, where appropriate.

3.3 Encourage bicycle awareness programs for the general public.

3.4 Support a public relations campaign to make cyclists aware of the importance of proper riding behavior, wearing helmets, using lights and other bicycle safety issues.

3.5 Expand motorist education efforts on cycling.

3.6 Expand the Safe Route to School program and encourage all schools to get involved.

3.7 Encourage the police department to use targeted enforcement to encourage motorists and cyclists to share the road.

3.8 Designate a police department liaison for the cycling community.

3.9 Collaborate with the San Diego County Bicycle Coalition and other local bicycle clubs to start bicycle education programs such as the League of American's Bicyclists' Traffic Skills 101 course to La Mesa.

Objective 4.0: Bicycle Encouragement

Policy 4.1

Actively encourage City staff, employees, residents and visitors to use bicycles as often as possible.

Actions:

4.1 Develop a City-wide bicycle map.

4.2 Improve bicycle route way finding markers and signage.

4.3 Coordinate with bike shops and local agencies to distribute bicycle safety and promotional materials.

4.4 Encourage City officials and employees as well as other employers to participate in "Bike to Work Month" and "Bike to Work Week" every May.

4.5 Improve access to public lands for cyclists.

4.6 Work with the local mountain biking community to develop a plan for off-road facilities.

4.7 Establish a bicycle friendly business program to encourage and facilitate use of alternative modes of transportation by employees and customers.

Objective 5.0 Maintenance and Monitoring

Policy 5.1

Ensure ongoing efforts that support the Bicycle Facilities Plan in relation to maintenance and monitoring.

Actions:

5.1 Capital improvement projects that are related to bicycle and pedestrian facilities should be consistent with the Bicycle Facilities and Alternative Transportation Plan.

5.2 Continue to implement a surface management system to maintain a smooth riding surface. Surfaces should be maintained at least as close to the curb as one foot which may require the use of alternative materials.

5.3 Continue the maintenance program to sweep streets and designated bikeways on a regular basis.

5.4 Continue the maintenance program to keep bikeway signage and pavement markings in good condition.

5.5 Continue to monitor bicycle crashes and their locations.

2.3 Summary of Existing Plans

The following are verbatim excerpts from the referenced documents as they relate to the City of La Mesa's bikeway planning efforts.

SANDAG Mobility 2030, April 2003

A goal of SANDAG's Mobility 2030 is to improve the transportation component of a much larger vision to sustain and improve our region's quality of life. The premises of Mobility 2030 lies in better connecting our freeway, transit, and road networks, to our homes, schools, work, shopping, and other activities. The ultimate success of this Plan will be measured by how well smart growth is implemented as our communities are developed and redeveloped over time. This helps strengthen the land use – transportation connection and offers regional transportation funding incentives to support smarter, more sustainable land use.

The plan emphasizes alternative transportation needs through planning for pedestrians and cyclists. 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. Emphasis areas include: making bicycle and pedestrian friendly communities, designing and planning for pedestrians and access to public transit and bicycle facilities.

The importance of adequate bike parking and other support facilities along with ongoing education and promotional programs is emphasized as a key component to a successful bicycle mode of transportation. Amenities that are discussed in detail include; bike parking, on-demand bike lockers, support facilities and bicycle education. The City of La Mesa's Bicycle Facilities Plan contains policies and that will be consistent with the goals and action items of SANDAG's Mobility 2030.

SANDAG San Diego Regional Bicycle Plan, 2010

The development of the City of La Mesa's Bicycle Facilities Plan must be consistent with the development of SANDAG's San Diego Regional Bicycle Plan. Regional corridors within the City must be consistent in both plans to reflect the best possible route through the City. This following excerpt describes the San Diego Regional Bicycle Plan in verbatim:

"This plan outlines a range of recommendations to facilitate accomplishing the regional goals of increasing the number of people who bike and frequency of bicycle trips for all purposes, encouraging the development of Complete Streets1, improving safety for bicyclists, and increasing public awareness and support for bicycling in the San Diego region. The recommendations include bicycle infrastructure improvements, bicycle-related programs, implementation strategies, and policy and design guidelines." – San Diego Regional Bicycle Plan, Preliminary Draft, 2010

SANDAG policy No. 031, Accommodating Bicyclists and Pedestrians

"Section 4(E)(3) of the TransNet Ordinance reads:

All new projects, or major reconstruction projects, funded by revenues provided under this Ordinance shall accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the cost of including bikeways and walkways would be excessively disproportionate to the need or probable use. Such facilities for pedestrian and bicycle use shall be designed to the best currently available standards and guidelines."

This amendment to the TransNet Ordinance utilizes existing bicycle and pedestrian design standards from the California Highway Design Manual, Chapter 1000 regarding bicycle facilities and the American Association of State Highway Transportation Officials (AASHTO) publishes the Guide for the Planning, Design, and Operation of Pedestrian Facilities. This document provides reasonable and widely recognized designs standards that are proposed as the standard under this amendment.

The table within the new policy, *Appropriate Bicycle and Pedestrian Accommodation Measures* simplifies the bicycle and pedestrian measures for each type of roadway.

City of San Diego Bicycle Master Plan Update, Draft 2010

The development of the City of La Mesa's Bicycle Facilities Plan will analyze bicycle connections between the City of San Diego and the City of La Mesa. This following excerpt describes the City of San Diego's Bicycle Master Plan Update:

"The San Diego Bicycle Master Plan (Plan) serves as a policy document to guide the development and maintenance of San Diego's bicycle network, including all roadways that bicyclists have the legal right to use, support facilities, and non-infrastructure programs over the next 20 years.

This updated Plan seeks to build upon the foundation established by the first San Diego Bicycle Master Plan adopted in 2002. The updated Plan provides direction for expanding the existing bikeway network, connecting gaps, addressing constrained areas, improving intersections, providing for greater local and regional connectivity, and encouraging more residents to bicycle more often." – City of San Diego Bicycle Master Plan Update, March 2010 Draft

County of San Diego Bicycle Transportation Plan

The development of the City of La Mesa's Bicycle Facilities Plan will analyze bicycle connections between the San Diego County and the City of La Mesa. The County communities which this plan will coordinate its bicycle facilities with are Valle De Oro and Spring Valley. This following excerpt describes the County of San Diego Bicycle Transportation Plan:

"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." – County of San Diego Bicycle Transportation Plan, 2003

City of El Cajon Bicycle Master Plan 2010

The City's first Bicycle Master Plan was first developed in 1981 and the City has just recently updated their Bicycle Master Plan. Connections with the City of La Mesa include Garfield Drive and Murray Drive. This following excerpt describes the El Cajon Bicycle Master Plan:

"This plan is a comprehensive update of the 1981 Bicycle Master Plan and the 2000 General Plan. The overall goal of the Bicycle Master Plan is to maximize the connections between mass transit, employment and residential sectors and activity centers with bikeways to promote a viable alternative to automobile travel in a climate particularly conducive to bicycle transportation. The plan is also intended to help provide a more convenient bikeway system for cyclists who do not have ready access to motor vehicles." – City of El Cajon Bicycle Master Plan

Lemon Grove Bicycle Facilities Sub-Element (1996) and Bikeway Master Plan (2006)

The City of Lemon Grove borders the southern boundary of the City of La Mesa. These documents propose facilities that connect into the City of La Mesa such as Massachusetts Avenue. Connections between these two cities have been looked at to complete all possible connections. This following excerpt describes the Lemon Grove Bicycle Facilities Sub-Element in verbatim:

"The Lemon Grove Bikeway Plan has been developed as a sub-element of the Lemon Grove Mobility Element. The Bicycle Facilities Sub-Element is a policy-level document which contains a planning-level analysis of how the Bikeway Plan was developed, as well as strategies and tools to implement the blueprint for future bikeways in the City of Lemon Grove.

This sub-element is intended to provide the City of Lemon Grove with a comprehensive Bikeway Plan designed to meet commuter and recreational user needs. The Bikeway Plan is based on a review of existing local and regional conditions, bicycle facility policies and standards, and is directly related to the objectives and policies for bicycle facilities." – Lemon Grove Bicycle Facilities Sub-Element 1996

2.4 Mapping of Existing Conditions

The following maps are a collection of GIS data gathered and created for use in analysis throughout the Bicycle Master Plan project. For the criteria used to develop Figure 2.5 Bicycle and Pedestrian Model, see Appendix B: Bicycle and Pedestrian Model Criteria.

Table 2.1 Existing Class 2 Facilities

Existing Class 2 Bike Lanes*			
Road Segment	**Miles**	**Limits**	**Notes**
70th Street	0.86	University Avenue and City limits	Connects to Rolando Elementary School
Amaya Drive	0.62	Fletcher Parkway and Lakeview Drive	Bike lane gap between Severin Dr. and Howell Dr.
Baltimore Drive	1.71	I-8 and northern City limit	Short segment travels through City of San Diego. Bike lane gap on southbound lanes between Tanglerod Ln.e and Lake Park Wy.
Bancroft Drive	1.56	Grossmont Boulevard and City limits	Bike lane gap between Grossmont Blvd. and Severin Dr.
Fletcher Parkway	2.28	Baltimore Drive and City limits	Wide intersections at major streets
Grossmont Boulevard	0.25	Jackson Drive and Wilson Street	Bike lane gap between between the shopping center and La Mesa Blvd.
Jackson Drive	1.44	Murray Drive and La Mesa Boulevard	North/West bound bike lanes only between I-8 and Hayes St. Bike lane gap between I-8 on-ramp and Fletcher Pkwy.
Lake Murray Boulevard	1.99	Wisconsin Avenue and City limits	Bike lane gap over I-8
Massachusetts Avenue	0.67	University Avenue and Waite Drive	Short steep section southbound between Boulevard Dr. and Hoffman Ave.
Murray Hill Road	0.29	Orien Avenue and Waite Drive	Road changes to Yale Ave. where there is a bike lane gap between Orien Ave. and University Ave.
Severin Drive	0.37	Campina Drive and Murray Drive	Southbound bike lane ends short of the intersection. Bike lane gap over I-8 and between Amaya Dr. and City limit
University Avenue	0.48	Baltimore Drive and La Mesa Boulevard	Bike lane gap between Baltimore Dr. and Spring St.
Water Street	0.24	Milden Street and City limits	Connects to Grossmont High School. Bike lane gap between Milden St. and Amaya Dr.
Total Mileage	**12.8**		
* Facilities that meet Caltrans Chapter 1000 requirements			

Table 2.2 Existing Class 3 Facilities

Existing Class 3 Bike Routes*			
Road Segment	**Miles**	**Limits**	**Notes**
El Paso Street	0.92	Baltimore Drive and Dallas Street	Only one bike route sign at Baltimore Drive
Total Mileage	**0.92**		
* Facilities that meet Caltrans Chapter 1000 requirements			

Figure 2.1 Existing Bicycle Facilities

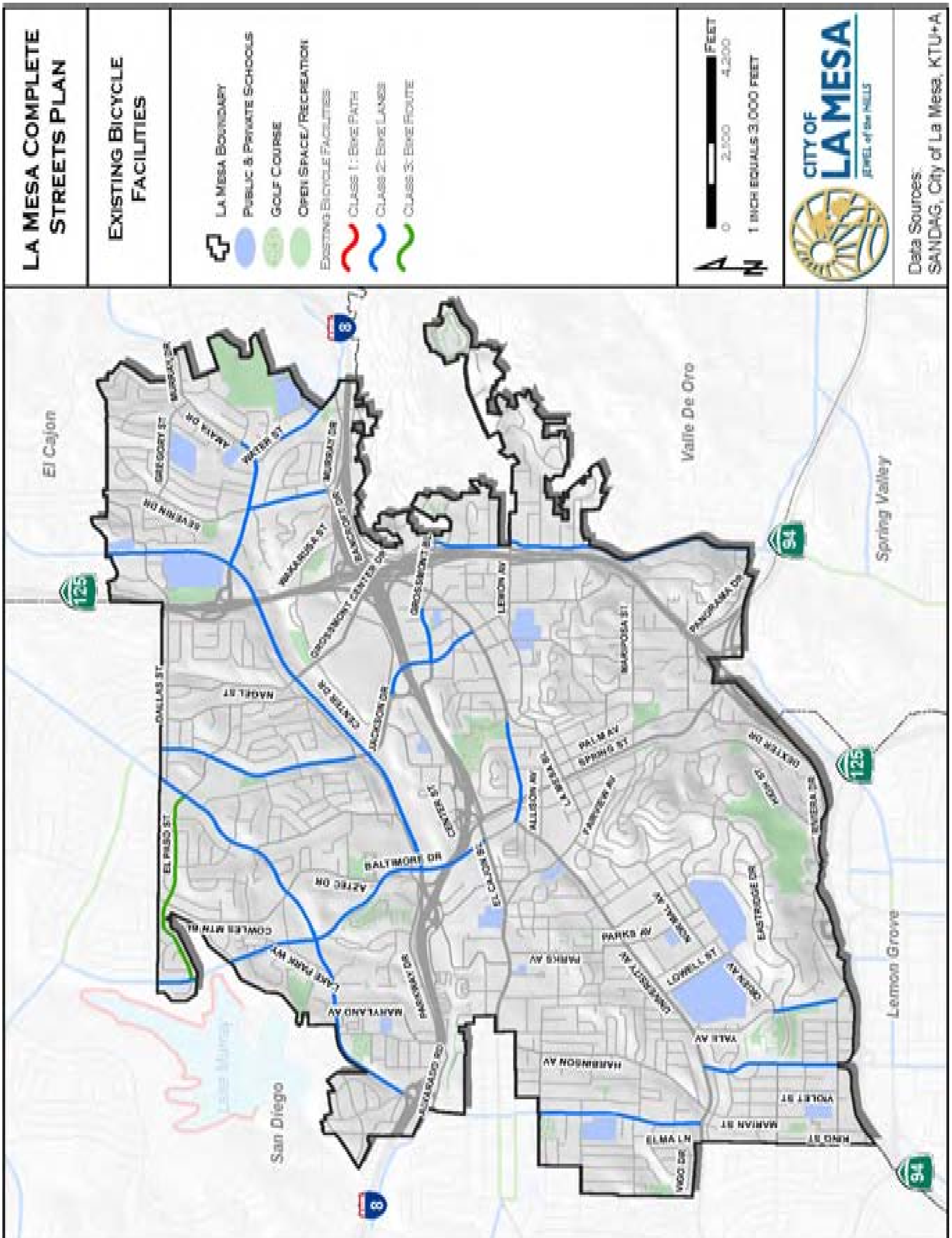


Figure 2.2 Activity Centers

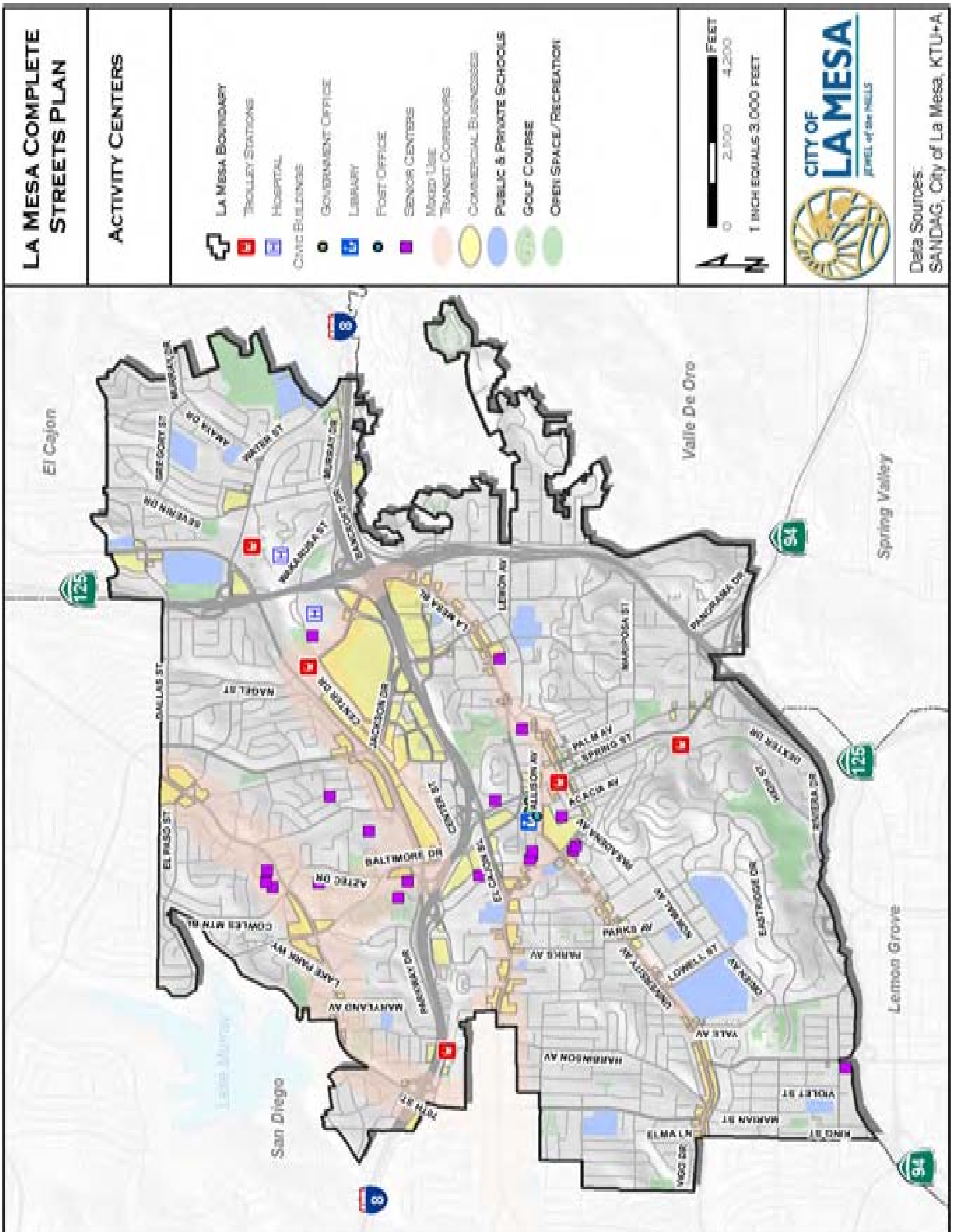


Figure 2.3 Existing Land Use

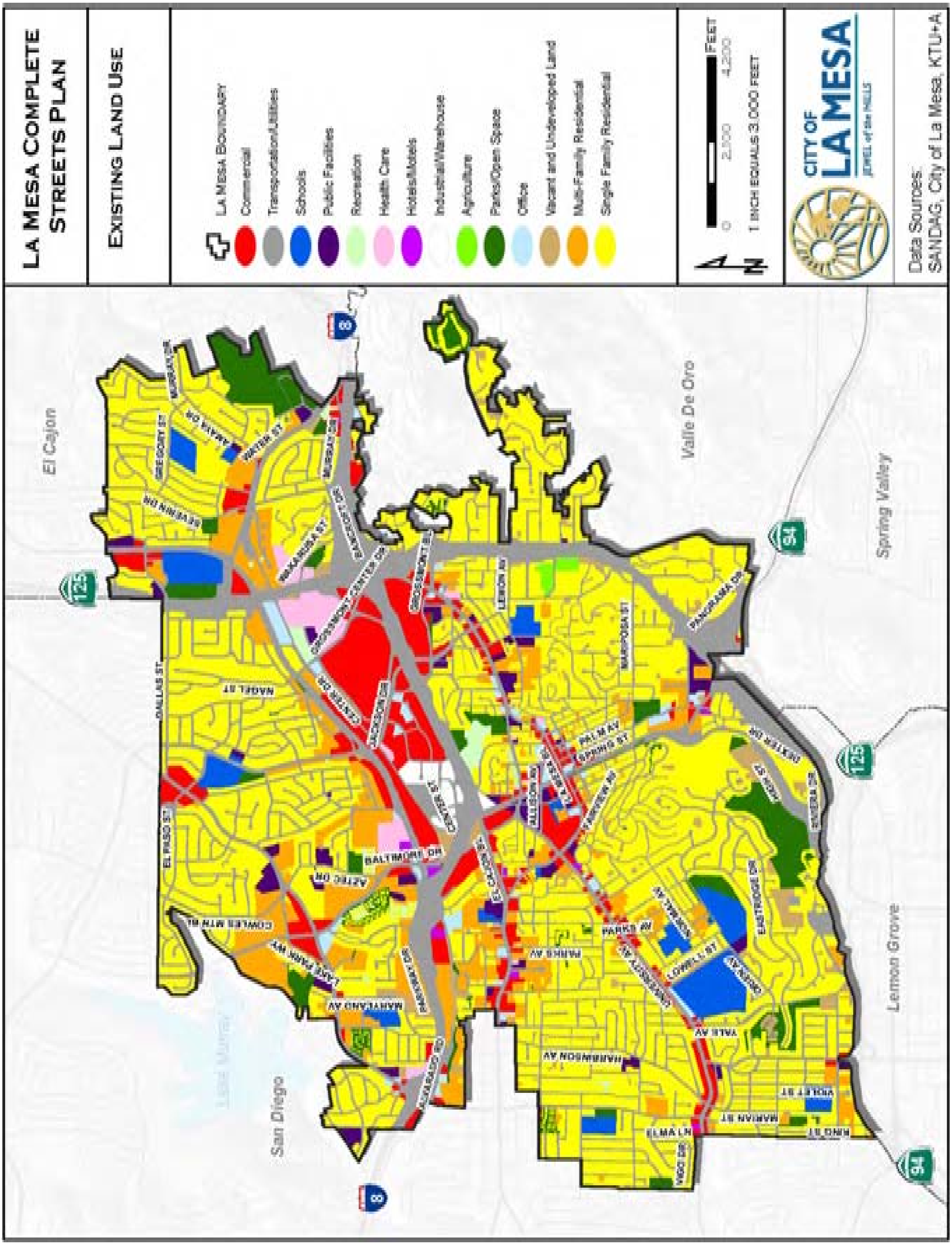


Figure 2.4 Planned Land Use

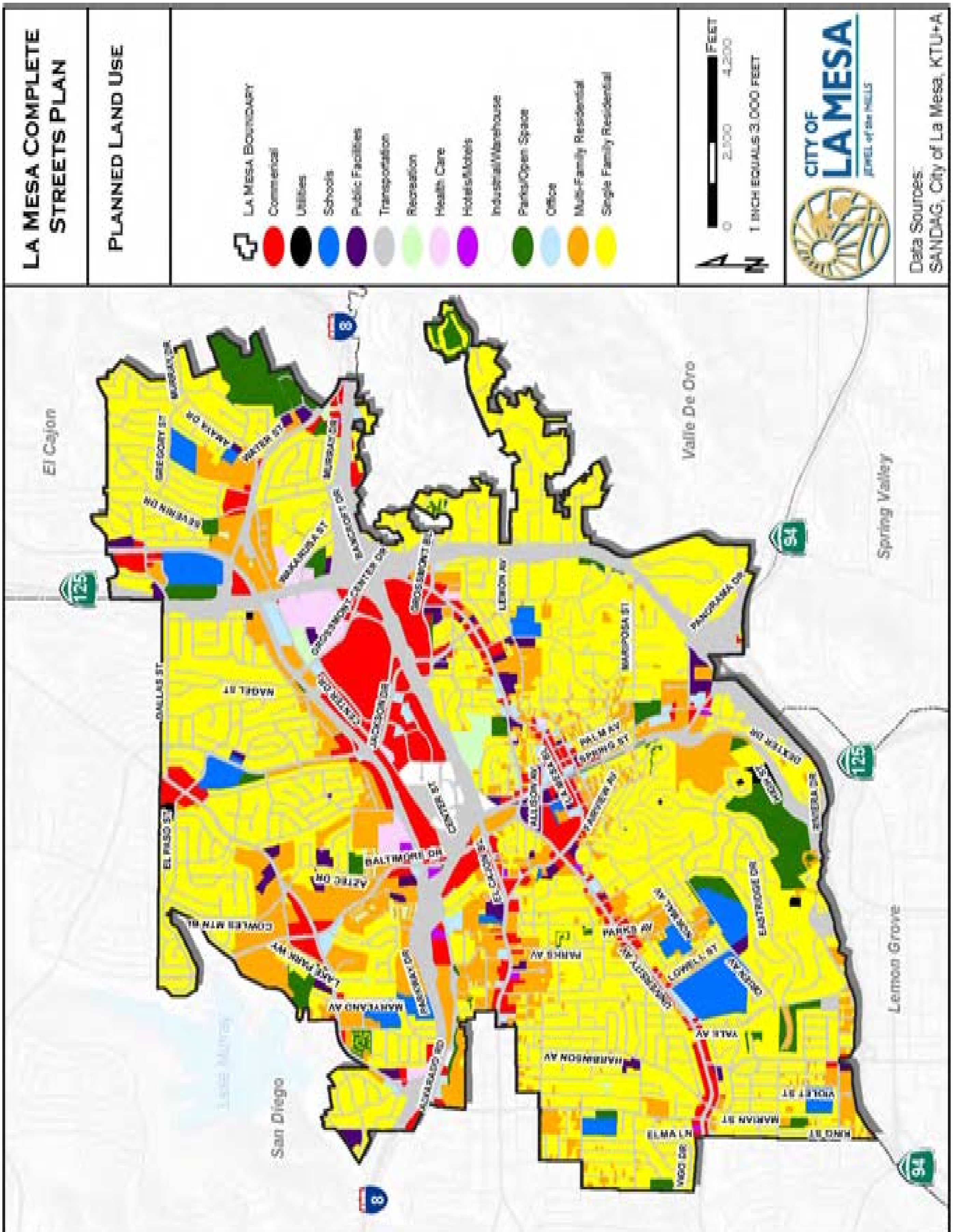


Figure 2.5 Speed Limits

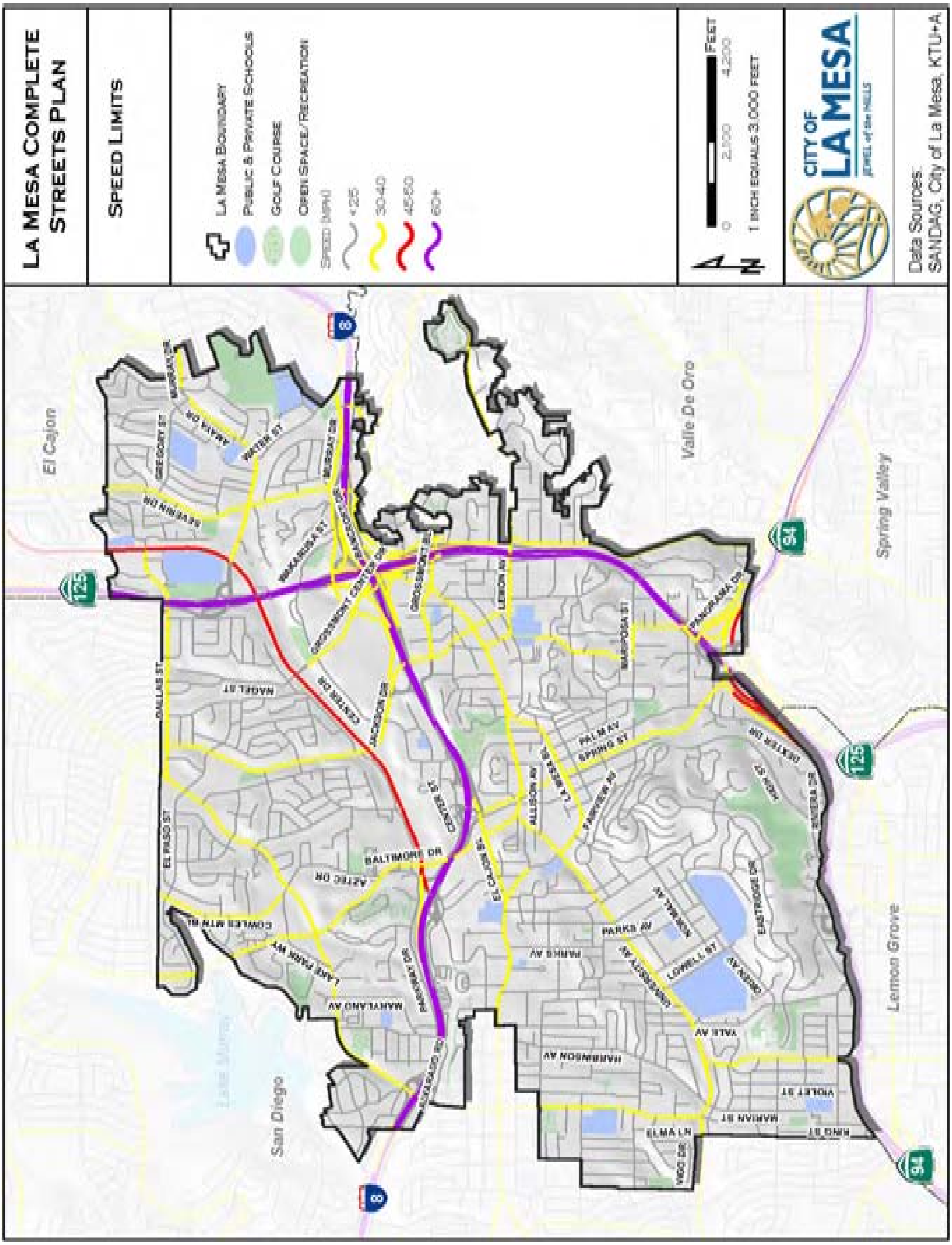


Figure 2.6 Average Daily Trips (ADTs)

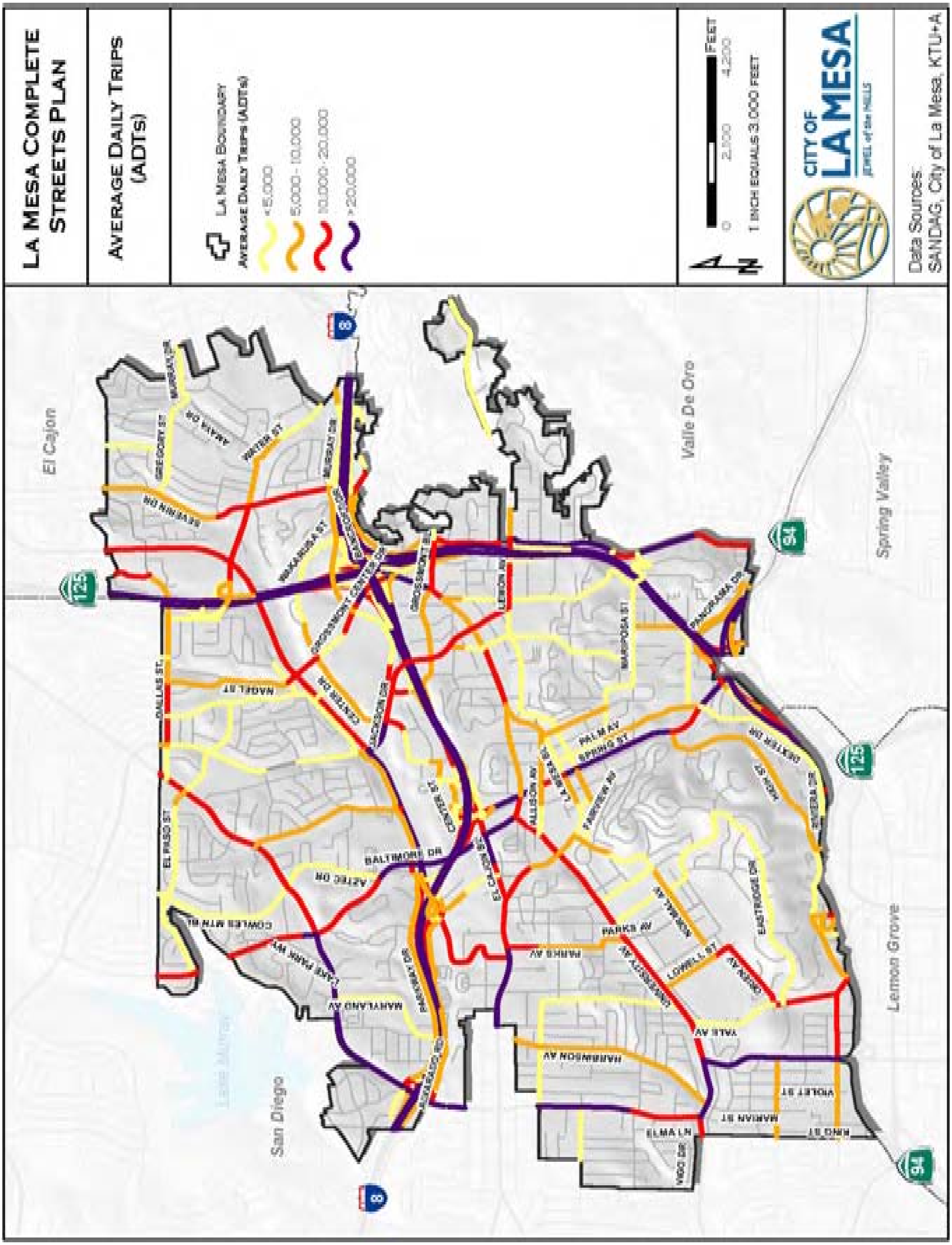


Figure 2.7 Bicycle and Pedestrian Suitability Model

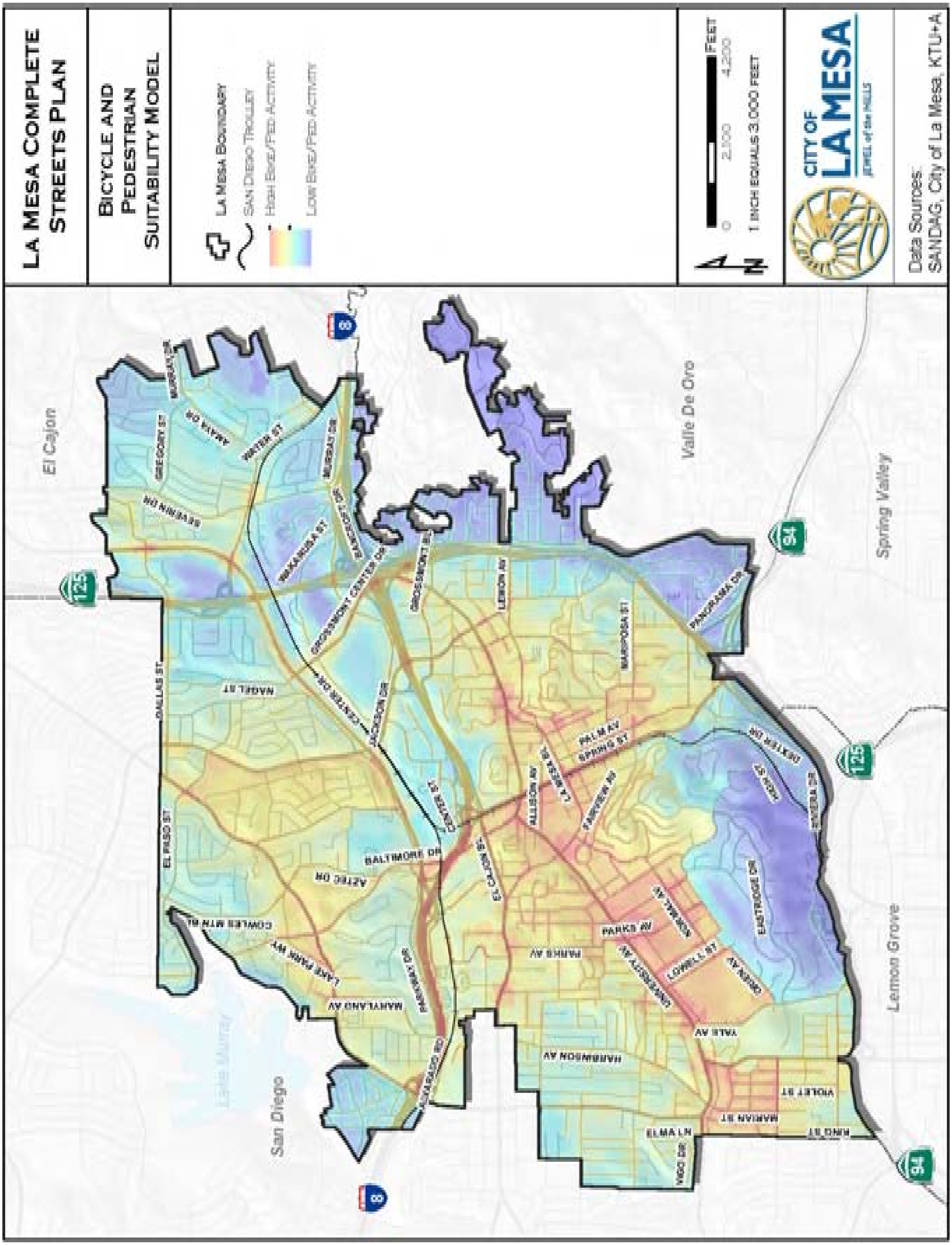


Figure 2.8 Bicycle Commuters

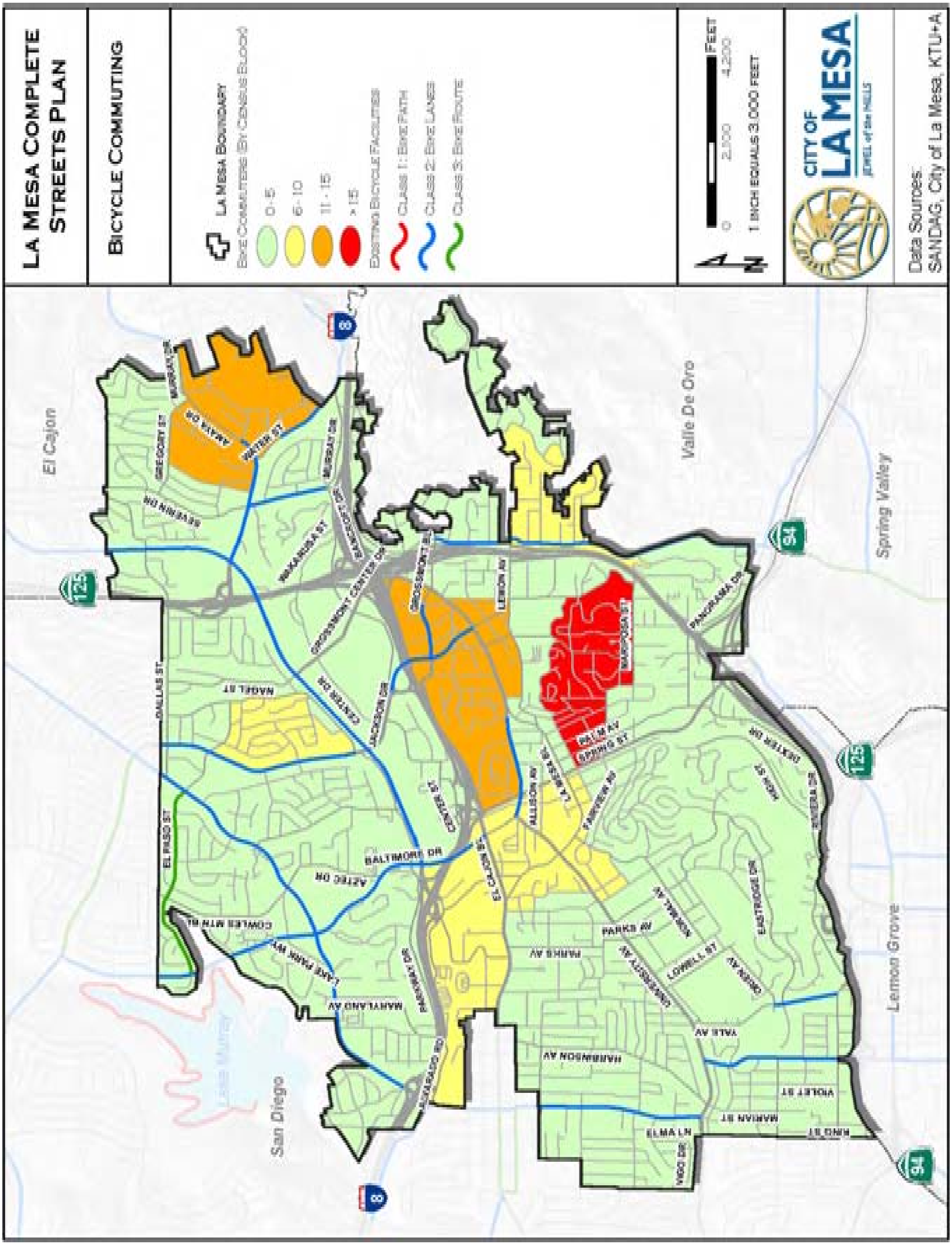
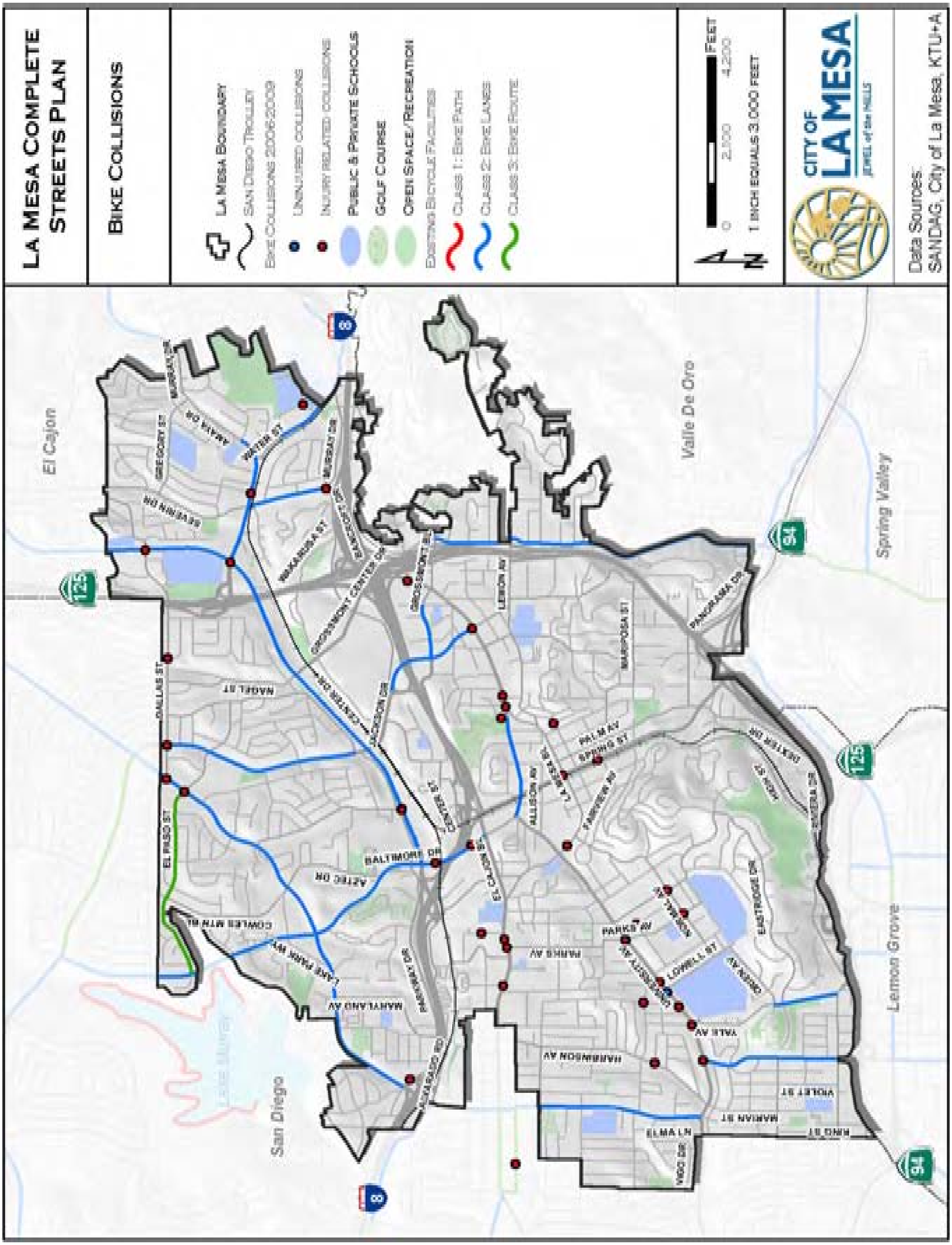


Figure 2.9 Bicycle Related Collisions



2.5 Bicycle Collisions

Within four years of reviewed collision data, there have been a total of 40 bicycle related collisions with 39 injuries and no fatalities. A majority of the bicycle collisions mostly occurred on major arterials and collector streets such as University Avenue (8 collisions), La Mesa Boulevard (6 collisions) while El Cajon Boulevard and La Mesa Boulevard each had five. Grossmont Center Drive did not report any collisions since 2006 even though this segment is highly problematic for bicycle and pedestrian access. The lack of collisions may be due to low ridership which was verified by a bicycle count at Grossmont Center Drive and Murray Drive. This intersection had the lowest bicycle traffic among the locations where bicycle and pedestrian counts were conducted. Correlation between bicycle collision rates and high ridership is validated further on University Avenue and La Mesa Boulevard which saw some of the highest bicycle volumes per day.

About 42 percent of the bicycle related collisions were caused by improper turning of a vehicle and not obeying traffic signals. Thirty-two percent were caused by cyclist riding on the wrong side of the road and violating a vehicles right-of-way. Enforcement and education becomes key components in reducing these violations and reducing collisions.

The following tables summarize the bicycle related collisions:

Table 2.3 Collision Summary (Time of Day)

Lighting	Dark - No Street Lights	Dark - Street Lights	Daylight	Dusk/Dawn	Totals
Number of collisions	3	4	31	2	40
Number of injuries	3	4	30	2	39
Number of fatalities	0	0	0	0	0
Source: City of La Mesa Bicycle Collisions Data (2006-2009)					

Table 2.4 Collision Summary (Collisions per Year)

Year	Total collisions	Number of injuries	Number of fatalities
2006	1	1	0
2007	9	9	0
2008	16	15	0
2009	13	13	0
2010	1	1	0
Totals	40	39	0
Source: City of La Mesa Bicycle Collisions Data (2006-2009)			

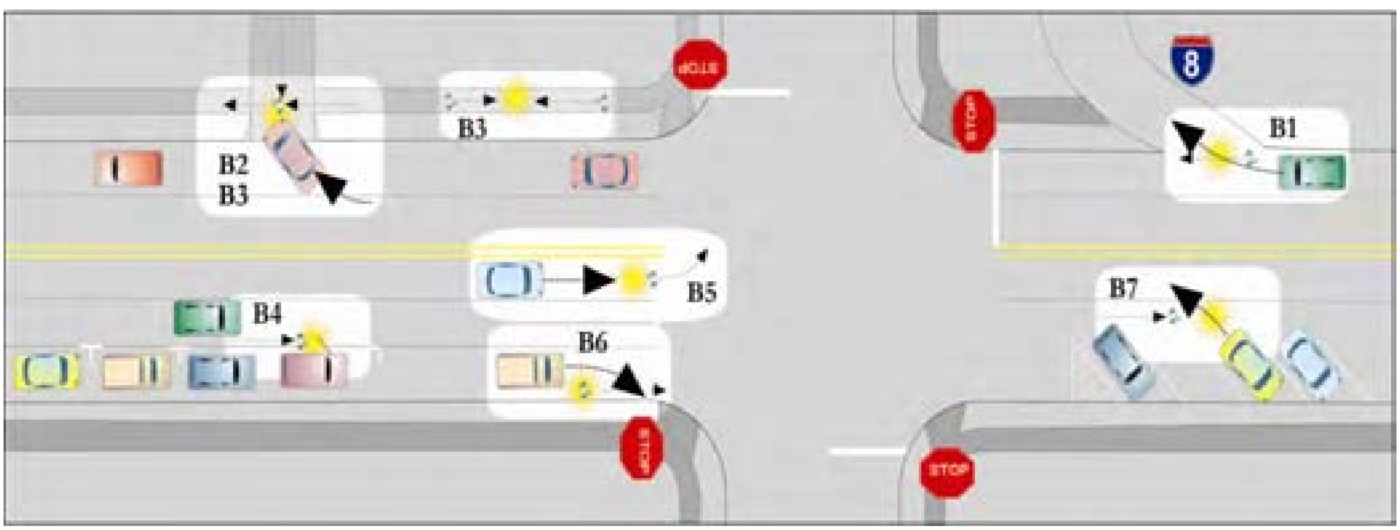
Table 2.5 Collision Summary (Bicycle Collision Causes)

Bicycle Collision Causes	Collisions
Bicyclist Violating Automobile Right-of-Way	7
Driving Under Influence	1
Improper Turning	10
Not Stated	1
Other Hazardous Movement	3
Automobile Violating Bicyclist Right-of-Way	1
Traffic Signals and Signs	7
Unknown	4
Bicycling on the Wrong Side of Road	6
Totals	**40**
Source: City of La Mesa Bicycle Collisions Data (2006-2009)	

2.6 Bicycle Issues

The following section shows the typical bicycle safety issues, briefly discusses them and provides possible solutions. These issues are common to the every day cyclist.

Figure 2.10 Typical Bicycle Issues



These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design

Table 2.6 Common Bicycle Issues

Bicycle Issues	Possible Solutions
B1 - Crossing Freeway on-ramps. Bicycle facilities that cross freeway on-ramps put the cyclist in a conflict point with crossing traffic that is accelerating to highway speeds.	**1B, 8B, 9B**
B2 - Alley Conflicts. Cyclists that use alleys for travel must be aware of visibility problems for motorists, pedestrians and other cyclists.	**1B, 2B**
B3 - Sidewalk Conflicts. Cyclists riding on the sidewalk not operating at pedestrian speeds must yield to pedestrians and use caution at every driveway, intersection, alley and business entrance.	**1B, 2B, 3B**
B4 - Door Zone. Cyclists riding adjacent to parallel parked cars cannot be expected to ride closer than three feet to the parked cars. They are at risk for being hit or running into an opening car door. This type of collision between a parked car and bicyclist is often referred to as "dooring".	**4B**
B5 - Left Turning Conflicts. Cyclists needing to turn left must navigate their way to the left turn lane (or left lane) are at risk for being hit as they are no longer in an area where they are more likely to be seen.	**7B, 8B**
B6 - Right Turning Vehicles. Cyclists proceeding straight through an intersection are at risk for being hit by a right turning vehicle. This type of collision is often referred to as a "right hook".	**9B, 10B**
B7 - Angled Parking. Cyclists riding behind angled parking are vulnerable to being backed into due to impeded visibility from adjacent vehicles.	**10B**

Table 2.7 Possible Bicycle Solutions

Possible Bicycle Solutions
1B) Use caution, yield to slower users
2B) Ride in designated bike lanes, routes or streets
3B) Ride bicycle at pedestrian speed
4B) Mark proper lane placement with Shared Lane Markings or "sharrows"
5B) Add a bike lane
6B) If space is available, install a 2' striped buffer between the bike lanes and parking lane edge
7B) Install a bike box
8B) Increase signage
9B) Add color to the bike lane at conflict point
10B) Install reverse angled parking for improved sight lines and increased safety

4B) Shared lane markings or “sharrows” remind motorists bicycles can be expected in the roadway and to help cyclists place themselves within the roadway. Photo credit: Joe Punsalan

6B) A buffer removes extra space from a travel lane and increases the distance between vehicular and motor traffic. If the extra space is added to the bike lane and not diagonally striped, the bike lane can appear wide enough to be confused with a travel lane. Photo credit: APBP

7B) A bike box creates an advanced stop bar for cyclists. This extra room provides an area for cyclists to cue up in front of cars waiting at red light. While this treatment is still considered experimental by the MUTCD, it is thought that the treatment increases a bicyclist’s visibility and therefore safety. Photo credit: Michael Singleton

9B) Color in the bike lane is a visible reminder to a motorist to expect cyclists in the bike lane. Photo credit: Michael Singleton

8B) Additional signage reminds motorists of the bicycle traffic on the street. Photo credit: Joe Punsalan

10B) Reversed angled parking allows greater visibility when motorists are exiting a parking stall. Photo credit: Michael Johnston

2.7 Prioritized Bicycle Projects

The projects in this chapter are a combination of planned and recommended bicycle facilities. Planned projects are projects that are present in existing City plans and documents but have yet to be implemented. Since these projects have yet to be implemented, prioritizing them along with the recommended projects subjects all of them to the same priority and implementation criteria. These projects were then itemized into Prioritized Projects, which are those that will have a significant impact on the existing bikeway system, such as closing major gaps and extending or developing bike paths, lanes or routes along major transportation corridors. The prioritization criteria used to identify which routes are likely to provide the most benefit to the City's bikeway system can be found in Appendix C: Project Scoring Criteria.

The numbering used to identify projects within each bikeway facility class in the following sections does not necessarily imply order of implementation. Bikeway facility implementation has no specific time line, since the availability of funds for implementation is variable and tied to the priorities of the City's capital projects. Tables 2.8 and 2.10 list the recommended projects and Figure 2.11 and 2.12 shows their locations.

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. Currently, no Class 1 facilities are recommended at this time due to right-of-way constraints and available right-of-way. Some projects do recommend the further investigation of implementing Class 1 facilities when opportunities present themselves.

Class 2 Bike Lane Facilities

Class 2 facility costs are approximately $30,000 to $44,000 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 list is approximately $44,000 per mile because most of the facilities will need to re-stripe vehicular centerlines, parking lanes, bike lanes, pavement markings, adding additional signage and in some cases painting bike lanes at conflict points.

Class 3 Bike Route Facilities

Class 3 routes costs are the lowest of all facility types because the only physical improvement required 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 $2,200 per mile.

On Class 3 routes, Shared Roadway Bicycle Markings or "Sharrows" are recommended where roadway speeds and ADTs are fairly low (40 MPH or less), and where route directness and the number of users is not likely to be significant. It is estimated that Shared Lane Markings cost $80-$200 per symbol to paint onto the roadway. Markings are to be painted on the street at no more than 250 foot intervals along the length of the route. The Class 3 priority table includes the cost of these markings.

Figure 2.11 Recommended Class 2 Bike Lanes

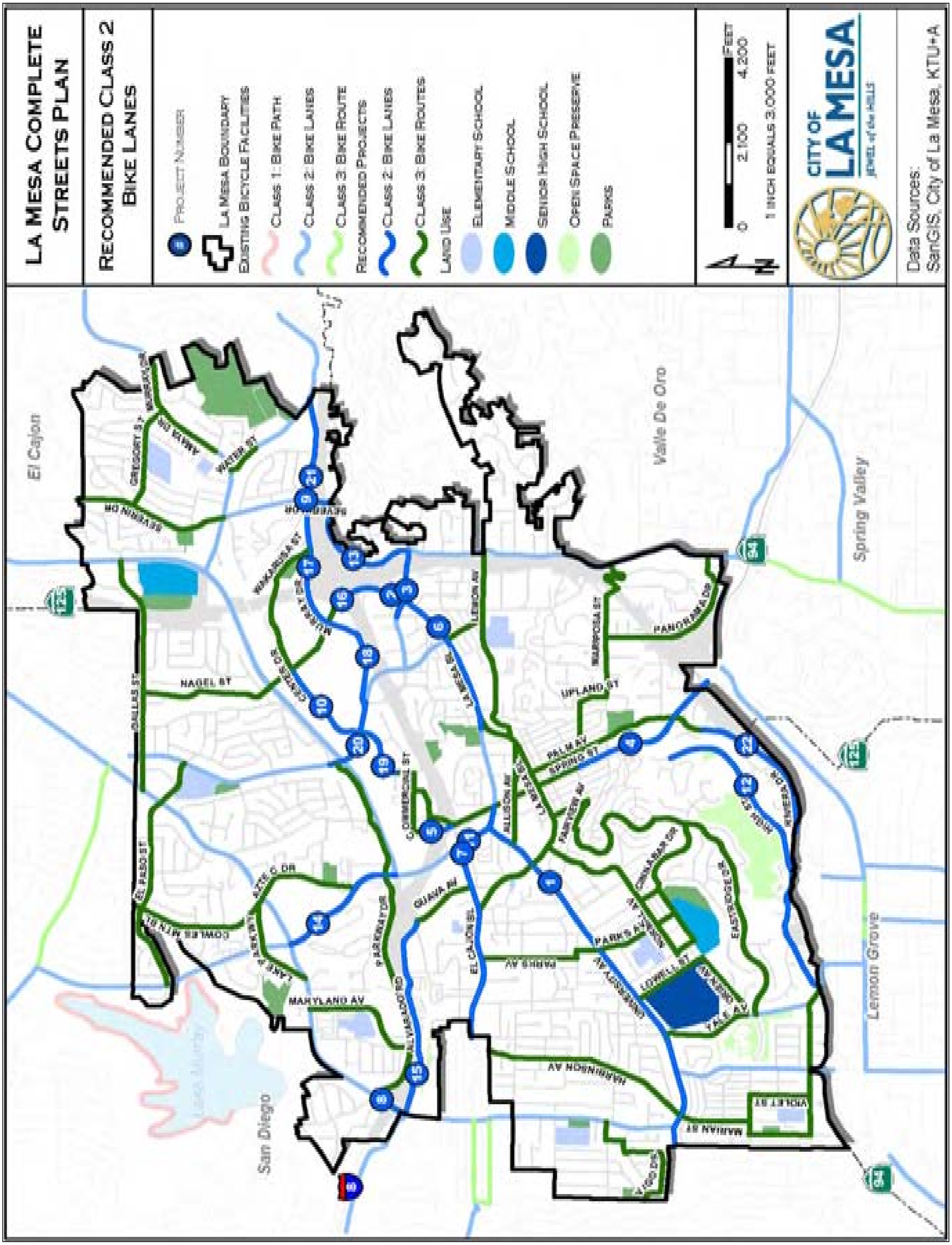


Table 2.8 Prioritized Class 2 Bicycle Facilities

Rank	Miles	Bike Lanes	Limits	Benefits	Technical Notes	Total Cost*
1	1.9	University Avenue	City limit and Spring Street	Adds a separate bicycle facility on a high volume arterial	- Proposed alignment: two 7' on-street parking lanes, two 5' bike lane and four 10' motor vehicle lanes - Coincides with the La Mesa Walkability Plan	**$110,370**
2	0.2	La Mesa Boulevard	Grossmont Boulevard and Grossmont Center Drive	Adds a separate bicycle facility on a high volume arterial	- Existing: 80' curb-to-curb, Caltrans partner -Proposed alignment: two 7' on-street parking lanes, two 5' bike lanes and four 11' motor vehicle lanes with a 12' TWLT. Painted bike lanes recommended at the I-8 on/off ramps - Coincides with the La Mesa Freeway Crossing Plan - Alternative #2: On-street parking can be removed to accommodate 6' bike lanes with 2' buffers, 12' TWLT, and 12' motor vehicle lanes and widen sidewalks 2' on each direction. Painted bike lanes recommended at the I-8 on/off ramps	**$13,650**
3	0.3	Grossmont Boulevard	Lake Murray Blvd and Bancroft Drive	Connects the bike lanes between Bancroft Drive and Grossmont Blvd	- Proposed alignment: two 7' parking lanes, two 5' bike lanes, two 11' motor vehicle lanes and one 11' TWLT	**$18,460**
4	0.7	Spring Street	Fresno Avenue and SR-94	Provides a bicycle facility along Spring Street	- Varying curb-to-curb widths. Outer lanes have space for bike lanes. Reduction of travel lanes to 11' are recommended to accommodate the bike lanes north of Pasadena Avenue - Colored bike lanes recommended through the intersections especially at the SR-94 on-off ramps - Part of the San Diego Regional Bike Plan network - Connects with La Mesa Blvd. and Spring St. Trolley Stations, Downtown La Mesa and the City of Lemon Grove - Caltrans partner, MTS partner	**$42,380**
5	0.1	Spring Street	Center Street to I-8	Provides a bicycle facility over I-8	- Existing: 21' curb-to-curb, Caltrans partner - Proposed alignment: 11' travel lane, 5' bike lane, 7' sidewalk, 2' curb on eastside - Part of the Freeway Crossing Plan - Connects Center Street with Downtown La Mesa - There needs to be improvements to eliminate the barrier to bike and pedestrian traffic imposed by the Spring Street bridge - Explore opportunities to connect Spring Street to Fletcher Parkway over the trolley tracks	**$8,320**

Rank	Miles	Bike Lanes	Limits	Benefits	Technical Notes	Total Cost*
6	0.7	La Mesa Boulevard	University Avenue and Grossmont Boulevard	Completes the bike lane gap along a high volume arterial	- TWLT may need to be narrowed to accommodate both bike lanes and on-street parking - Class 3 Bike Route with Sharrows is another option	**$41,080**
7	0.9	El Cajon Boulevard	City limit and Baltimore Drive	Access commerical and multi-family residential	- Existing: 80' curb-to-curb - Proposed alignment: two 7' on-street parking lane, two 5' bike lane and four 11' motor vehicle lanes and a 12' TWLT - Coincides with the La Mesa Walkability Plan - Class 3 Bike Route with Sharrows is also an option. It would connect with the Class 3 proposed for El Cajon Blvd in the City of San Diego	**$53,170**
8	0.1	Lake Murray Boulevard / 70th Street	Alvarado Road and Parkway Drive	Provides a separate bicycle facility over I-8	- Existing 67' curb-to-curb, Caltrans partner - Proposed alignment: two 11' inner motor vehicle travel lanes, two 10' outer motor vehicle travel lanes, two 6.5' bike lanes and one 5' sidewalk and one 7' sidewalk - Colored bike lanes recommended throughout this segment for high visibility - Coincides with the La Mesa Freeway Crossing Plan	**$8,320**
9	0.1	Severin Dr	Murray Drive and Bancroft Drive	Provides a bicycle facility on the I-8 interchange	- Existing 82' curb-to-curb, Caltrans partner - Proposed alignment: four 10' motor vehicle travel lanes, one 22' TWLT which includes two 11' lanes entering the freeway, two 5' bike lanes and two 5' sidewalks - Colored bike lanes recommended throughout this segment for high visibility - Coincides with the La Mesa Freeway Crossing Plan - Outer lanes have space for bike lanes. Colored bike lanes recommended throughout this segment - Potential site for a pilot project for the painted bike lanes	**$7,930**
10	0.5	Center Drive	Grossmont Center Drive and Jackson Drive	Bike lane connection adjacent to northeast side of Grossmont Center	- Bike lane striping already exists. Needs proper signage and pavement markings	**$26,260**
11	0.2	Baltimore Drive	El Cajon Blvd and University Avenue	Completes the bike lane gap along a high volume arterial	- Road diet maybe needed to accommodate bike lanes - Widen with future development - A Class 3 Bike Route with Shared Roadway Bicycle Markings is another option	**$9,360**
12	1.5	High Street	Riviera Drive and Valley View Circle	Provides a bike lane to connect to the Spring Street Trolley Station	- Bike lane striping already exists. Needs proper signage and pavement markings	**$88,400**

Rank	Miles	Bike Lanes	Limits	Benefits	Technical Notes	Total Cost*
13	0.6	Bancroft Drive	Grossmont Drive and Severin Drive	Completes the bike lane gap along this collector street	- Existing: 36' curb-to-curb with 6' striping already installed on the southbound lane. Signage and pavement markings needed - Proposed alignment: 12' motor vehicle lanes, 6' bike lanes. No on-street parking	**$34,320**
14	0.6	Baltimore Drive	Lake Murray Blvd and Fletcher Parkway	Add bike lanes in the southbound direction	- On street parking may be removed or the center median width reduced to accommodate bike lanes	**$35,100**
15	1.0	Alvarado Road	70th Street and Guava Avenue	Connects to the 70th Street Trolley Station and provides an east-west route south of I-8	- Colored Bike Lanes recommended through the 70th Street and the I-8 off/on ramps and at the Comanche Drive and I-8 on/off ramps - Caltrans partner	**$54,730**
16	0.1	Grossmont Center Drive	La Mesa Boulevard and I-8 off ramp	Provides a separate bicycle facility under I-8	- Existing: 90' curb-to-curb, Caltrans partner - Proposed alignment: two 6' bike lanes with 2' buffers, one 14' TWLT, and four 13' motor vehicle lanes and widen sidewalks 4' on each direction - Painted bike lanes recommended at the I-8 on/off ramps - Coincides with the La Mesa Freeway Crossing Plan	**$6,500**
17	0.6	Murray Drive	Severin Drive/I-8 and Grossmont Center Drive	Provides a bicycle facility adjacent to I-8. Travels beneath SR-125 without on/off ramps.	- Existing: 64' curb-to-curb, Caltrans partner - Proposed alignment: two 5' bike lanes, four 11' motor vehicle lanes in each direction with a 10' TWLT. Painted bike lanes recommended at the I-8 on/off ramps at Severin Dr - Coincides with the La Mesa Freeway Crossing Plan	**$35,880**
18	0.5	Murray Drive	Grossmont Center Drive and Jackson Drive	Provides a bicycle facility adjacent to the southside of Grossmont Center Mall	- Fairly high average daily trips (ADTs) warrant a bike lane for cyclist safety and visibility - A road diet from four lanes to two will need to be installed to accommodate the bike lanes - Proposed alignment: two 13' motor vehicle lanes, one 16' TWLT lane, two 6' bike lanes with 2' buffer between motor vehicle lane and bike lane	**$29,510**
19	0.3	Center Drive	Case Street and Jackson Drive	5' Bike lane striping already exists	- Signage and pavement markings needed	**$16,510**
20	0.4	Jackson Drive	Parkway Drive and Murray Drive	Completes the bike lane gap along a high volume arterial	- On-street parking between the trolley bridge and Center Drive will need to be removed to accommodate bike lanes - Painted bike lanes recommended at the I-8 intersection	**$21,190**

* Includes 30% Contingency

Rank	Miles	Bike Lanes	Limits	Benefits	Technical Notes	Total Cost*
21	0.5	Murray Drive	Severin Drive/I-8 and Water Drive	Provides and bicycle facility adjacent to I-8. Accesses the Grossmont Blvd bridge which does not have freeway on/off ramps.	- Existing: 38' curb-to-curb - Proposed alignment: Street section would have 5' bike lanes, 2' diagonally striped bike lane buffer and two 12' motor vehicle lanes in each direction with a 12' TWLT. Painted bike lanes recommended at the I-8 on/off ramps at Severin Dr - Coincides with the La Mesa Freeway Crossing Plan	$28,340
22	0.7	Dexter Drive / Riviera Drive	High Street and Gateside Road	Provides a bike facility adjacent to SR-94	- Existing: 40' curb-to-curb with 8' striping already installed - Proposed alignment: two 11' motor vehicle lanes, 5' bike lanes, 8' parking lane on north side	$41,340
Totals	12.8					$731,120

* Includes 30% Contingency

Table 2.9 General Recommendations for Existing Bike Lanes

General Recommendations for Existing Bike Lanes	
1	For bike lanes on high-speed, high volume arterials, install 2' striped buffers between the bike lane and the travel lane. This buffer adds extra space between vehicles travelling at high speeds and bicycles for an added sense of security to cyclists. Another option is to widen the bike lanes from 5' to 6'. Widen the bike lanes or adding buffers, narrows the travel lanes adding a traffic calming effect. Example: Along Fletcher Parkway and Bancroft Drive.
2	Whenever possible, install colored bike lanes at conflict points such as freeway intersections. Green is the preferred color. Example: Jackson Drive and I-8

Bike Lane on University Avenue

Figure 2.12 Recommended Class 3 Bike Routes

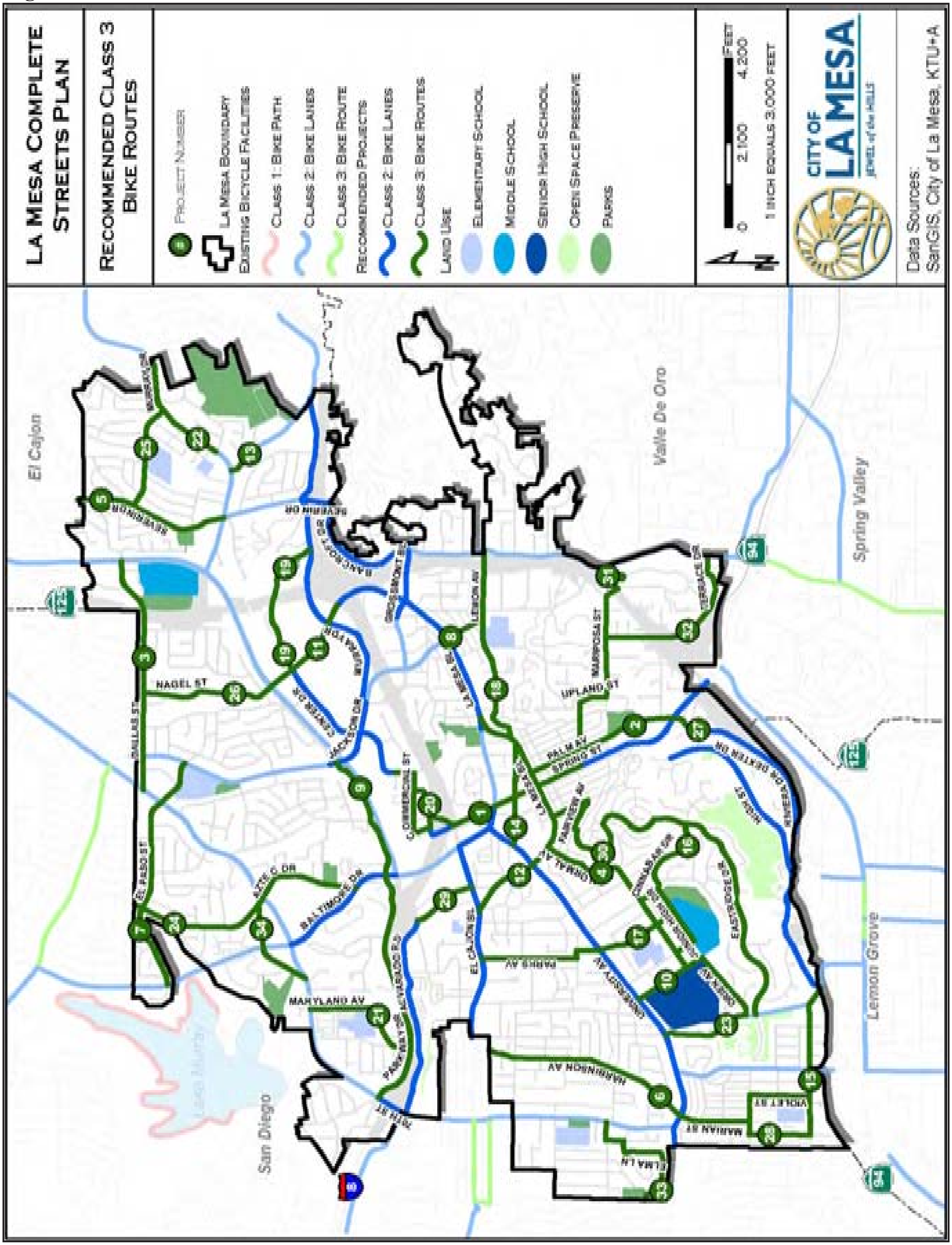


Table 2.10 Prioritized Class 3 Bike Routes

Rank	Miles	Bike Routes	Limits	Notes	Total Cost*
1	0.8	Spring Street	Fresno Avenue and I-8	- Part of the San Diego Regional Bike Plan network - Shared Lane Markings recommended throughout and increased signage - Bike route and signage should be incorporated when/if the Center Street Bridge is to be improved - Connects with La Mesa Blvd. and Spring St. Trolley Stations, Downtown La Mesa and the City of Lemon Grove - There needs to be improvements to eliminate the barrier to bike and pedestrian traffic imposed by the Spring Street bridge - The railroad right-of-way represents an opportunity to explore a bike and pedestrian path that parallels the tracks - Increase bicycle signage on the I-8 off-ramp to warn motorists of bicycle activity and the merging of bikes from the Spring Street bridge - Further study of the intersection is recommended for bicycle and pedestrian access	**$6,240**
2	0.8	Palm Avenue	Allison Avenue and Spring Street	- North-south alternative route to Spring Street - Connects to Collier Park - Candidate for a bicycle boulevard	**$6,370**
3	1.1	Dallas Street	Lake Murray Blvd and Fletcher Parkway	- Connects the bike lanes on Baltimore Dr and Fletcher Parkway - Makes the connection to La Mestia Park and the Junior Seau Sports Complex - Freeway Crossing Plan proposes bike lanes on the Dallas St bridge. Painted bike lanes still feasible over the bridge within a bike route	**$8,970**
4	0.9	Normal Avenue	Lowell Street and La Mesa Boulevard	- Primarily a residential route that connects Downtown La Mesa to Helix High and La Mesa Middle - Shared Roadway Bicycle Markings and/or Green Lanes with directional signage highly recommended due to the varying terrain and narrow streets	**$7,410**
5	0.7	Severin Drive	Amaya Drive and City limit	- Completes the connection with the proposed Class 3 Bike Route on Garfield Avenue the City of El Cajon. - Not enough curb-to-curb space to continue the bike lanes - Connects with Northmont Park - Part of the SANDAG Regional Bike Route	**$5,720**
6	1.0	Harbinson Avenue	City limit and University Avenue	- Alternate north-south connection that parallels 70th St	**$7,800**
7	1.2	El Paso Street	Baltimore Drive and Jackson Drive	- Primarily a residential route that connects the bike lanes on Baltimore Dr and Jackson Dr - A Bike Route sign exists off of Baltimore Drive but no other signage exists - Connects to Murray Manor Elementary	**$9,230**

* Includes 30% Contingency

Rank	Miles	Bike Routes	Limits	Notes	Total Cost*
8	0.2	Jackson Drive	La Mesa Boulevard and Lemon Avenue	- Primarily a residential route that connects the bike lanes on Jackson Dr to the proposed bike route on Lemon Ave - Connects to Lemon Avenue Elementary	**$1,560**
9	1.7	Parkway Drive	Lake Murray Blvd and Jackson Drive	- Connects bike lanes on Lake Murray Dr and Jackson Dr - Mixed land use route that parallels north of I-8 - Colored Shared Lanes recommended at the I-8 on/off ramp - Signal needed at Marengo Ave for cyclists to cross safely - Disconnected right-of-way and raised center median does not allow the continuation of or the Parkway Dr route	**$14,040**
10	0.7	Orien Avenue / Lowell Street	University Avenue and Yale Avenue	- Completes the bike route around Helix High - Shared Roadway Bicycle Markings recommended due to the volume of teenagers riding their bike and high vehicular turn over before and after school - Directional signage high recommended to Helix High, La Mesa Middle and University Avenue	**$5,720**
11	0.5	Grossmont Center Drive	I-8 and Fletcher Parkway	- Very high traffic volumes warrant bike lanes but existing curb-to-curb width does not accommodate them - Shared Lane Markings must be installed along with directional signage - A Green colored lane with Shared Lane Markings can be tested on this route where the outer lane is shared with both motor vehicle and bicycles - Connects to the Sharp Grossmont Hospital, Grossmont Center and the Grossmont Trolley Station - Potential site for a pilot project for the painted lanes	**$4,030**
12	1.2	La Mesa Boulevard	El Cajon Boulevard and University Avenue	- Primary route through the commercial areas of Downtown La Mesa	**$9,750**
13	0.2	Water Street	Amaya Drive and Milden Street	- Fills the gap the between the bike lanes on Water St and Amaya Dr - Curb-to-curb width too narrow for bike lanes. Right-of-way will need to be acquired to convert this section into bike lanes. A bike route is sufficient for this small section which is primarily residential	**$1,170**
14	0.5	Allison Avenue	University Avenue and La Mesa Boulevard	- Connects to City Hall, Public Library and the Fire Station - Shared Lane Markings recommended and switch angled parking to back-in diagonal parking to increase visibility of cyclists and motor vehicles when pulling out	**$3,900**
15	0.5	Waite Drive	High Street and Violet Street	- East-west connection that parallels SR-94 - Makes the connection to Vista La Mesa Elementary School	**$4,290**

Rank	Miles	Bike Routes	Limits	Notes	Total Cost*
16	0.9	Cinnabar Drive / Junior High Drive / Olive Avenue	Loop north of Normal Avenue	- Completes the bike route connection from Normal Avenue to La Mesa Middle School - Shared Roadway Bicycle Markings recommended on Junior High Drive due to the volume of children riding their bike and high vehicular turn over before and after school	**$7,150**
17	1.0	Parks Avenue / Seneca Place	El Cajon Boulevard and Junior High Drive	- North-south route to connect to La Mesa Middle School	**$7,800**
18	0.9	Lemon Avenue / Grant Avenue	Bancroft Drive and La Mesa Boulevard	- East-west connection paralleling University Avenue and La Mesa Boulevard - Connects with Lemon Avenue Elementary and Downtown La Mesa - Travels beneath SR-125 with only the eastbound lanes having on/off ramp connections	**$7,540**
19	0.7	Wakarusa Street/Center Street	Grossmont Center Drive and Murray Drive	- Connects to the Sharp Grossmont Hospital and Briercrest Park - Shared Lane Markings recommended on the steep eastbound lane on Center Dr - Utilizes an SR-125 overpass without on/off ramp connections	**$5,200**
20	0.7	Center Street/ Commercial Street	Spring Street and Jackson Drive	- Connects the industrial area north of I-8 to Spring St and Jackson Dr - Directional signage is important on this route which consists of one-way streets - Shared Roadway Bicycle Markings recommended with the high truck volume and one-way streets	**$5,200**
21	0.6	Maryland Avenue	Lake Murray Blvd and Parkway Drive	- Connects bike lanes on Lake Murray Dr and the proposed bike route on Parkway Dr - Connects to Maryland Avenue Elementary	**$4,550**
22	0.6	Amaya Drive / Murray Drive	Lakeview Drive and City limit	- Closes the gap between the bike lanes on Amaya Dr and the proposed bike route in the City of El Cajon	**$4,550**
23	0.4	Yale Avenue	University Avenue and Orien Avenue	- Roadway too narrow to accommodate bike lanes for a continuous facility from Murray Hill Rd - Yale Avenue is grade divided between Ouro Pl and Orien Ave - Directional signage high recommended to Helix High and University Avenue	**$3,250**
24	1.2	Cowles Mountain Boulevard / Aztec Drive	City limit and Baltimore Drive	- Connects to Aztect Park and creates an alternative bike route that parallels Baltimore Drive through residential land use - Continues the proposed bike route from the City of San Diego	**$9,360**
25	0.5	Gregory Street	Severin Drive and Murray Drive	- Connects with Northmont Elementary and the proposed bike routes on Severin Dr and Murray Dr	**$4,030**
26	0.6	Nagel Street	Fletcher Parkway and Dallas Street	- North-south option that parallels Jackson Dr through residential land use	**$4,940**

Rank	Miles	Bike Routes	Limits	Notes	Total Cost*
27	0.2	Gateside Road / Park Lane	Dexter Road and Spring Street	- Narrow and steep road that connects to the proposed bike lanes on Dexter Dr and Spring St south and continues the proposed bike route on Palm Avenue - Gateside westbound is a steep slope. Shared Roadway Bicycle Markings recommended on the westbound lanes	**$1,170**
28	1.5	Violet Street / Hoffman Drive / King Street / Marian Street	University Avenue and Waite Drive	- Connects the proposed bike routes on Harbinson Ave and Waite Dr - Makes the connection to Vista La Mesa Elementary School and Vista La Mesa Park"	**$12,350**
29	0.3	Guava Avenue	Alvarado Road and El Cajon Boulevard	- Completes the connection from Alvarado Road to El Cajon Boulevard - Shared Lane Markings recommended along with directional signage to complete a high visibility facility	**$2,470**
30	2.2	Eastridge Drive / Summit Drive / Pasadena Avenue / Fairview Avenue / Acacia Avenue	La Mesa Boulevard and Murray Hill Road	- Hilly route that connects Downtown La Mesa to Helix High - Shared Roadway Bicycle Markings recommended on the uphill routes - Directional signage recommended since the route utilizes numerous streets	**$17,810**
31	1.2	Fresno Avenue / Upland Street / Mariposa Street	Spring Street and Bancroft Drive	- Connects Bancroft Drive to Downtown La Mesa from the southeastern quadrant of the City - Shared Roadway Bicycle Markings recommended on the westbound Mariposa St lanes to act as a “climbing lane” due to the steep terrain of this section - Bridge overpass does not have any on/off ramps onto SR-94 - Directional signage highly recommended through this route	**$9,880**
32	0.8	Panorama Street / Terrace Drive	Bancroft Drive and Mariposa Street	- Connects Bancroft Drive to Downtown La Mesa from the southeastern quadrant of the City - Bridge underpass does not have any on/off ramps onto SR-94 - Panorama Street has very narrow roads with very little shoulder. Road should be widened to allow adequate space for cars to pass cyclists - Low volume street - Connects with Campo Road bridge over SR-94 which does not have any on/off ramps	**$6,370**
33	**0.7**	Alamo Way, Gordon Way, Rolando Knolls Drive, Elma Drive, Vigo Dr	City limits and 70th Street	- Connects to Rolando Park - Shared Roadway Bicycle Markings recommended - Directional signage recommended since the route utilizes numerous streets"	**$5,460**
34	**0.5**	Lake Park Drive	Cowles Mtn Boulevard and Lake Murray Boulevard	- Connects to Sunset Park - Shared Roadway Bicycle Markings recommended	**$3,640**
Totals	**27.3**				**$218,920**

* Includes 30% Contingency

2.8 Bicycle Demand Assessment

Bicycle and Pedestrian Counts

Bicycle and pedestrian counts were conducted in seven locations throughout the City in between June and July 2010. The counts were conducted using the guidelines from the National Bicycle and Pedestrian Documentation Project (NBPD). These guidelines try to provide a consistent counting methodology that can be applied to all cities conducting these counts. For the City of La Mesa, the counts were conducted between 6am and 6pm. Table 2.11 summarizes the daily counts and separates bicycles, pedestrians and an "Other" category. The "Other" category identifies other users such as strollers, skateboarders and rollerbladers. See Appendix J for count details on each location.

University Avenue at 70th Street and Harbinson Avenue were conducted in early June to count the high school pedestrian traffic from nearby Helix High School. The fluctuations of these two locations were prominent during the early commuting hours and mid afternoon hours when students were being dismissed. Spring Street at La Mesa Boulevard and Allison Avenue had by far the highest pedestrian traffic of all the locations while bicycle traffic stayed relatively the same as larger arterials with bike facilities such as Lake Murray Boulevard and Fletcher Parkway. The I-8 intersection and narrow right-of-way along Grossmont Center likely prevented more bicycle traffic to the Grossmont Shopping Center. The City should continue to collect these counts at other locations before facilities are implemented. Counts can then be conducted on a regular basis to see if bicycle usage increases as facilities are put into place.

Table 2.11 Bicycle Count Summary

Location	Cyclists	Pedestrians	Other
Amaya Drive and Fletcher Parkway	42	166	22
Grossmont Center and Murray Drive	24	273	13
70th Street and University Avenue	58	195	13
Harbinson Avenue and University Avenue	52	172	11
La Mesa Boulevard and Spring Street	55	797	41
Allison Avenue and Spring Street	53	614	28
Lake Murray Boulevard and Baltimore Drive	55	374	18
	339	**2,591**	**146**

2.9 Projected Bicycle Demand

La Mesa has a population of approximately 54,749 (from SANDAG Census 2000 Profile, June 2003). According to the Census profile, approximately 66 percent of the adult population is employed or 27,854 people for the City of La Mesa. SANDAG's Census Profile estimates that there are 26,825 people who commute to work and of that, 87 use the bicycle as a means of transportation. Those results indicate that less than one percent of the commutes are done by bicycle.

The 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. Based on studies from around the country, estimates of current ridership can be generated for different commuter types such as commuting to work, school and to transit. Currently, there is an estimated 1,047 commuters by bicycle within the City of La Mesa. Table 2.12 breaks down the estimates by commuter type.

Projected commuters are calculated by taking the estimated number of commuters and multiplying it by 279 percent. This 279 percent was based on case studies in Portland, San Francisco and Seattle. Ridership saw an average increase of 279 percent resulting from the improvements on particular corridors and in new and improved facilities. For the City of La Mesa the resulting projected total of bicycle commuters is 2,922. This is approximately five percent of the City's population.

Projected Daily Ridership simply doubles the projected commuters. This assumes that each cyclist makes two trips per day, one to the destination and one returning. The projected daily bicycle trips for La Mesa is 5,845. Table 2.13 breaks down the projected increase in bicycle commuters and projected daily bicycle trips.

Table 2.12 Estimated Total Commuters

Estimated Commuters to Work		
Total Employed (16 Years and older)*	Percentage**	Total
27,854	0.6%	167
* SANDAG Census 2000 Profile data. Census 2000 Profile data likely underestimates bike commuter numbers because the Census only asks for the primary mode of transportation, missing the once or twice a week bicycle commuter.		
** .06% from the American Community Survey		

Bicycle Commuters to Work	Total
SANDAG Census 2000 Profile data: Means of Transportation to Work	87

Commuters to School		
School Age Children (6-14 Years Old)*	Percentage**	Total
2,269	5%	302
* SANDAG Census 2000 Profile data		
** 5%. Results from the Lamorinda School Commute Study (1995) by Fehr & Peers and the San Diego County Commute Study		

Commuters to College		
College Students*	Percentage**	Total
1,423	5%	321
* SANDAG Census 2000 Profile data		
** 5%. Results from the Lamorinda School Commute Study (1995) by Fehr & Peers and the San Diego County Commute Study		

Riders to Transit		
Bicycle to Access Transit*	Percentage**	Total
20,874	1.4%	170
* Total number of boardings and alightings within La Mesa. (SANDAG, 2005)		
** 1.4%. Results from the "Bike-n-Ride Survey" by Denver's Regional Transportation District in Decemeber 1999		

Estimated Total Commuters	Total
	1,047

Table 2.13 Potential Increase in Bicycle Commuting

Projected Daily Commuter Increase		
Total of all current cyclist types*	Percentage**	Total
988	279%	2,922
* Total of all the current estimates		
** 279% based on Alta Planning + Design case studies in Portland, San Francisco and Seattle. Based on ridership increases in these cities resulting in improvements on particular corridors		

Projected Daily Bicycle Trips		
Estimated number of commuters*	Multiplier**	Total
2,757	2	5,845
* From the Total Projected Daily Commuter Increase		
** Assumes that each bicyclist makes two trips per day, one to the destination and one returning		

2.10 Bicycle Parking Assessment

For a bikeway network to be used to its full potential, secure bicycle parking should be provided at likely destination points. Bicycle thefts are common and lack of secure parking is often cited as a reason people hesitate to ride a bicycle to certain destinations. The same consideration should be given to cyclists as to motorists, who expect convenient and secure parking at their destinations.

Currently bicycle racks can be found at most major destination points such as schools, parks, Downtown, La Mesa Public Library, Grossmont Shopping Center and La Mesa Springs Shopping Center. Although bicycle parking exists at these locations, they are very scarce. For example, bicycle parking in Downtown La Mesa is limited to a few racks while other bikes were secured to trees or benches. At the Grossmont Shopping Center, bicycle parking was limited to a few racks spread around the shopping center. A few amenities such as shaded bicycle parking does exist at the Grossmont Shopping Center. Along University Avenue and El Cajon Boulevard, bicycle parking was limited to just a few racks at certain retail stores. Bike lockers are present at the Amaya Drive, La Mesa Boulevard and Spring Street Trolley Stations. Additional bicycle racks are also present at the La Mesa Boulevard Trolley Station. The Grossmont Center and 70th Street Trolley Stations does not have any bicycle racks or bike lockers.

Schoolyard or wheelwell racks and undulating bicycle racks are the most common bicycle racks throughout the City. The schoolyard racks are adequate if they are in a secured or fenced in area. These racks do not secure the bike frame, only the front wheel. Handlebar conflicts are also common on these racks. Undulating, or ribbon-racks, improve space efficiency and allows at least one wheel and the bike frame to be locked when properly designed and sited. When bikes are secured improperly, bike parking is minimized. Inverted U-racks, or racks that can secure the entire bike are preferred and recommended for installation in commercial areas, schools, parks and local businesses. Custom racks that showcase the local businesses are also encouraged to improve aesthetics as long as the racks provide adequate security.

La Mesa Boulevard is the epicenter of Downtown La Mesa. Many restaurants and shops are inviting to those cycling along La Mesa Boulevard. The lack of bicycle parking is an issue between Acacia Avenue and Fourth Street. With the amount of businesses in Downtown La Mesa, bicycle parking needs to be increased to improve the convenience and access of these shops by nearby residents. Many bikes can be seen locked up to streetlights, tree barriers and outdoor patio rails. A few parking spaces can be converted into bike corrals. This short term bicycle parking provides approximately 8-12 additional bike parking spaces per car parking space. This keeps bike parking off the sidewalk for more pedestrian accessibility and outdoor seating for local restaurants. Custom racks can be designed to incorporate the aesthetics of the Downtown area.

Adequate bicycle parking should be incorporated into any new development of redevelopment project within the City. Bicycle parking should be given a balanced level of importance when considering car parking improvements or development. Increased adequate bicycle parking in high pedestrian and commercial areas will help encourage the use of cycling as a means of transportation and multi-modal trips. In high commercial areas where bicycle traffic is more prevalent such as Downtown La Mesa, along University Avenue, La Mesa Boulevard and El Cajon Boulevard, increase in bicycle parking is recommended.

Bicycle rack type plays a role in the utilization of the bike racks. A successful bicycle rack design enables proper locking. Enabling proper locking means the user must be able to secure a typical size U-lock around the frame and one wheel to the locking area of the rack. Racks that support the bicycle but either provide no way to lock the frame or require awkward lifting to enable locking are not acceptable unless security is provided by other means such as a locked enclosure or monitoring by attendants.

Bicycle racks must be designed so that they:

- Do not bend wheels or damage other bicycle parts;
- Accommodate the high security U-shaped bike locks;
- Accommodate locks securing the frame and both wheels;
- Do not trip pedestrians;
- Are covered where users will leave their bikes for a long time; and
- Are easily accessed from the street and protected from motor vehicles.

Examples of custom bicycle racks

To provide real security for the bicycle (with its easily removed components) and accessories (lights, pump, tools and bags), either bicycle enclosures, lockers or a check-in service is required. Bicycle parking facilities are generally grouped into two classes:

Long Term - Provides complete security and protection from weather; it is intended for situations where the bicycle is left unattended for long periods of time: apartments and condominium complexes, schools, places of employment and transit stops. These are usually lockers, cages or rooms in buildings.

Short Term - Provides a means of locking bicycle frame and both wheels, but does not provide accessory and component security or weather protection unless covered. It is for decentralized parking where the bicycle is left for a short period of time and is visible and convenient to the building entrance.

Custom bike parking in Downtown La Mesa

Example of Inverted U-racks

Schoolyard bike rack on Allison Avenue

Example of a bike corrals in Long Beach, CA

3. Pedestrian Infrastructure

The key to safe and efficient pedestrian circulation is the design, construction and maintenance of walking facilities. As in most cities, the existence and condition of La Mesa's sidewalks is inconsistent. Based on the 2008 Sidewalk Master Plan data, a total of 274 miles of sidewalk were mapped. Sixty-two percent of areas with the potential for sidewalk placement already have sidewalks. This leaves 38% missing. Table 3.1 shows the sidewalk infrastructure from the Sidewalk Master Plan. Comments gathered from the online survey and the public workshops indicate that missing sidewalks and sidewalk gaps were the top issues people had regarding the pedestrian environment. A primary objective for pedestrian circulation will be to provide sidewalks on at least one side of most streets.

Table 3.1 Sidewalk Infrastructure

Sidewalk Inventory	Miles	% of Sidewalk Conditions
No Sidewalk	36.9	13%
Existing	169.8	62%
Proposed	67.2	25%
Totals	**273.9**	
* Source: La Mesa Sidewalk Master Plan, 2008		

La Mesa has long recognized that sidewalks have functions other than just an essential pedestrian amenity. They are also a feature which helps improve the appearance of neighborhoods and the community in general. They provide a trim line for lots and aid in maintaining the appearance of the community, thus improving the value of all property. Conversely, blocks without sidewalks often experience neighborhood conflicts when separation between the public street area and private yard areas are poorly defined.

In the Downtown area of La Mesa, sidewalks can also become extensions of commercial businesses which adds to the pedestrian experience intended with this "village" environment. Sidewalk cafes and shopping displays are features the City wishes to allow in the proper circumstances.

The policies of this Alternative Transportation Element are intended to provide a range of public improvements to benefit pedestrians. Increasing sidewalk widths, landscaping, street furniture and parking in commercial areas all work to help separate pedestrian and vehicular traffic while improving the appearance of the community and assist in supporting retail storefronts and restaurants.

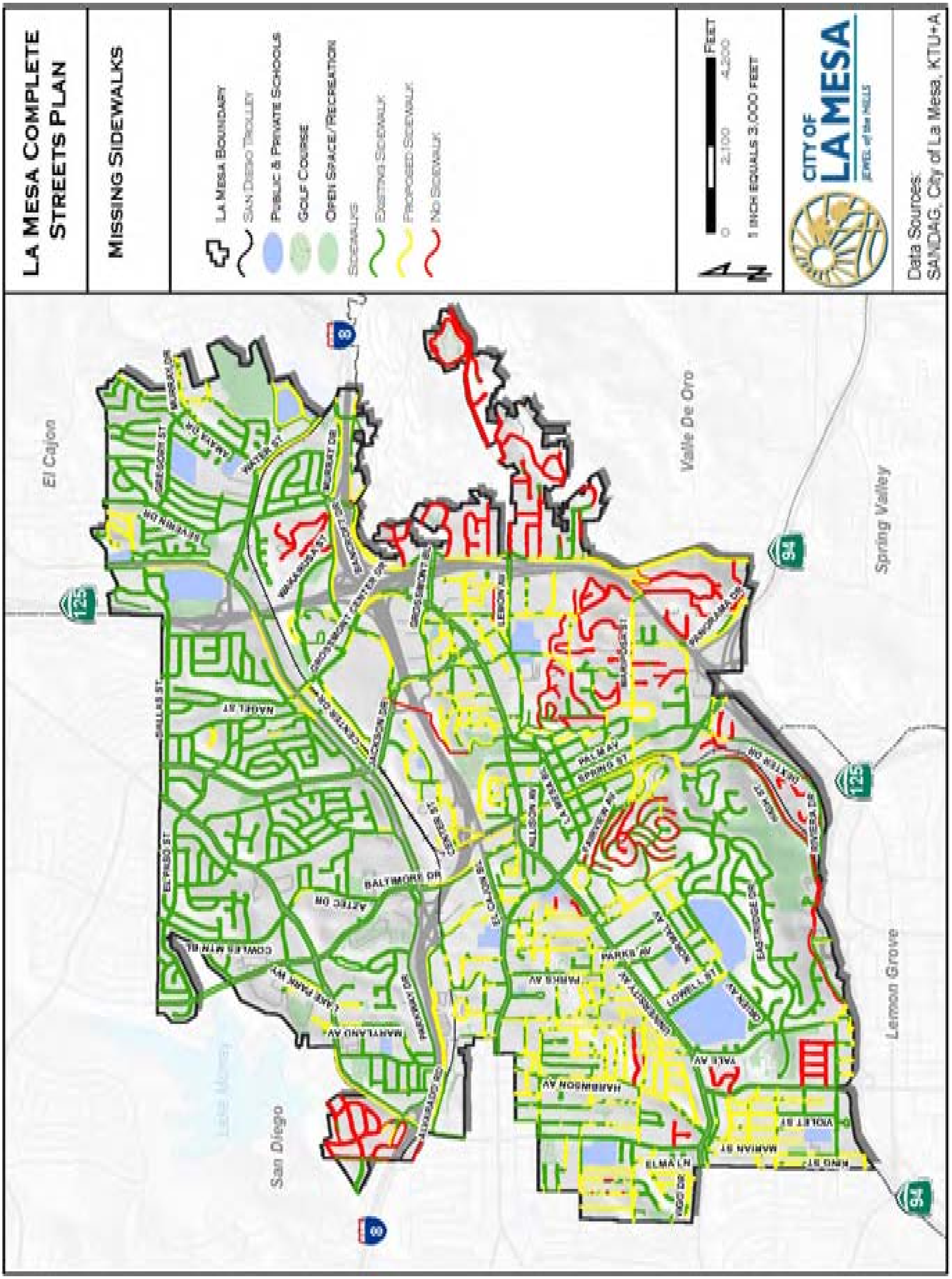
The Alternative Transportation Element policies also attempt to balance the need for pedestrian use of the public right-of-way with the physical limitations of certain areas of the City, In many cases, older streets developed in hillside areas have little or no chance for the installation of sidewalks. In other areas, a lack of enough existing improvements may make it difficult for pedestrian facilities to be installed without leaving a piecemeal system. This occurs especially with infill developments which are typical of much of the projected residential development in the years ahead. For these reasons, policies which allow flexibility in determining where pedestrian improvements will be required are included.

The enactment of the Americans with Disabilities Act has made it mandatory that public rights-of-way be improved to permit safe and efficient wheelchair access and use. For this reason, pedestrian ramps will be needed throughout the City where sidewalks are provided. Other requirements will also have to be met to provide clearance for wheelchairs around street signs, street lights, trees, mailboxes, etc. Neighborhoods void of all sidewalks are not as problematic as areas with only pieces of walkways. An able bodied walker can more easily navigate abrupt ends to walkways than a person with disabilities.

The City of La Mesa coordinates with local schools in order to develop a "Safe Routes to School" program. This program concentrates on providing sidewalks, intersection controls, lighting and volunteer efforts on those routes felt to be the safest for leading children to and from schools.

In addition to sidewalk improvements and crosswalk enhancements, properly timed pedestrian crossing signals should be provided at all signalized intersections with pedestrian access. This is particularly important at major streets with wide roadways which may be difficult for senior citizens and disabled people to cross. Balancing the needs of pedestrians with the need to move vehicular traffic will require the City's constant attention.

Figure 3.1 Sidewalk Infrastructure



3.1 Pedestrian Facilities Goals, Objectives and Policies

The notes in parenthesis after some policies refer to the existing Circulation Element policies for consistency.

Goal - To encourage walking by providing a safe means of travel through improvements that support policies such as smart growth, transit, and allowing for a healthier lifestyle.

Objective 1 - Develop and maintain a safe pedestrian network that is free of barriers and hazards to create a real as well as perceived sense of security for the pedestrian. Where deficiencies exist, utilize corrective measures through engineering, education and enforcement.

Policy 1.1

Streets leading to schools and parks will receive a higher priority when allocating City funds for sidewalk improvements. (CE 30)

Policy 1.2

All new streets shall make provisions for the adequate and safe movement of pedestrians, including improvements for the elderly and handicapped. (CE 30)

Policy 1.3

The City will continue to retro-fit existing streets, and require new developments to install public improvements that provide disabled access and mobility on public streets. The City recognizes that sidewalks are essential in all areas, including hillside areas where it may only be feasible to place sidewalk on one side of the street. (CE 31)

Policy 1.4

The City will maintain an inventory of sidewalk facilities to determine where pedestrian improvements are most needed. (CE 31)

Policy 1.5

The City will continue to identify and work towards repairing sidewalks and public areas that have pedestrian hazards.

Policy 1.6

The City will encourage pedestrian facility improvements such as signs, signals, street crossings, proper lighting, automated pedestrian signals, pedestrian-activated signals in remote locations, greening of streets, placement of benches, installation of pedestrian scale lighting, intersection lighting, shade and other ancillary pedestrian oriented features.

Policy 1.7

The City will continue to support education programs, such as Walk and Roll, to improve driver and pedestrian knowledge of pedestrian rights and responsibilities.

Policy 1.8

The City will continue to collect and monitor pedestrian-vehicular collision data and strive to reduce annual pedestrian-related collisions and fatalities.

Policy 1.9

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

Policy 1.10

Pedestrian safety and circulation will be included in all ongoing traffic analyses and traffic impact studies.

Objective 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.

Policy 2.1

Should the City defer construction of street improvements as part of any new development approval, the property owner may be required to sign an agreement to participate in the future installation of the improvements when a more complete street improvement project is feasible. (CE 31)

Policy 2.2

The City will provide for the approval of certain commercial uses in the sidewalk areas of the public right-of-way in the Downtown Commercial District when those commercial uses can be found to be of benefit to the overall pedestrian environment. (CE 31)

Policy 2.3

The City will strive to create both public and private open spaces that invite pedestrian activity.

Policy 2.4

When the opportunity presents itself, the City will orient new construction around plazas and pedestrian pathways and sidewalks.

Policy 2.5

The City will encourage pedestrian public improvement projects such as street trees, lighting, directional signs and public art.

Policy 2.6

The City will ensure that mailboxes, sign posts, benches, trash cans, signal control boxes, hydrants and other sidewalk furniture is placed and organized to minimize interruptions to the flow of people walking.

Policy 2.7

The City will continue to design walking routes as integral parts of new greenways and open space areas (where appropriate).

Objective 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.

Policy 3.1

The City will strive to support development patterns and site plans that promote walking and increase connectivity between buildings and sidewalks.

Policy 3.2

The City will work towards closing existing gaps in La Mesa's pedestrian network.

Policy 3.3

The City will work to create a comprehensive trail network throughout La Mesa's open spaces.

Policy 3.4

The City may waive sidewalk improvement requirements for new developments when there is ample evidence that pedestrian access is not necessary. This waiver maybe for a temporary period and the applicant may be required at a later date. The City will adopt standards to assist in these determinations which include the following considerations:

a) The percentage of existing continuous sidewalk along a block;

b) The relationship between the estimated costs for the public improvements and the costs of the project; and

c) Whether the street is in a hillside area which presents physical constraints to the practical addition of sidewalks. (CE 31)

Objective 4 - Support walking as a primary means of transportation that can meet travel demands. 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.

Policy 4.1

The City will work to ensure access to high quality pedestrian infrastructure at all the trolley stations and bus stops.

Policy 4.2

The City will identify weak links and discontinuities in the existing network, and develop a plan to prioritize and fund solutions that improve or complete links.

Policy 4.3

The City will develop criteria for safe walking and bicycle access to schools, parks, shopping centers, community centers and other destinations inside and outside City limits.

Policy 4.4

The City will include walking and bicycling routes as an integral part of street design so that bikeways and pathways form an integrated transportation network.

3.2 Summary of Existing Pedestrian Plans

La Mesa Community Wellness Program

The La Mesa Wellness Task Force is a group of community members made up of representatives from the City, area school districts, hospitals, non-profit organizations and community volunteers that are focused on wellness initiatives for the city. The group has taken on many significant activities, including many that fulfill the action items listed in the Walkability Plan. Support for the initiatives of this group, along with assistance from the City Council is recommended for the implementation of the La Mesa Community Wellness Program, as approved in July 2006, and the Strategic plan for Supporting Community Wellness in La Mesa and Spring Valley is recommended.

The Goals of the Strategic Plan are as follows:

- Support policy and environmental changes that increase the capacity of neighborhood environments in La Mesa and Spring Valley to support healthy eating and active lifestyle of residents.

- Support policy and environmental changes that increase the capacity of schools, after school programs, and child care providers to promote healthy behaviors among all grade levels.

- Collaborate with health and fitness professionals to increase promotion of healthy behaviors in professional settings and advocate for healthier community environments.

- Build on local collaboration to develop a community-wide approach, including a Community Ambassador Program, as well as faith and business sectors, which will promote and sustain the Live Well Initiative in La Mesa and Spring Valley.

- Employ initiative-level strategies that maximize the efficiencies of current resources for Live Well, while minimizing the impact on local resources.

Key success measures and action pathways are:

- Improve policies for pedestrian and cyclists' ability to walk/bike in the city,

- Obtaining funding and completing improvement for bicycle and pedestrian infrastructure improvements.

- Target walking and biking to school

- Encourage business and hospitals to adopt their own wellness policies for employees.

The strategic plan calls for developing policies, supporting education programs and gathering support for wellness in the Community. The update to the Non-Motorized Transportation section of the General Plan will support these goals.

La Mesa Freeway Crossing Plan, 2008

The La Mesa Freeway Crossing Plan does not specify specific goals, objectives or policies. The plan provides design suggestions for problem areas identified through public workshops. Additionally the plan provides detailed descriptions of various funding possibilities. There is a general goal of continuing a cooperative approach between the City of La Mesa and Caltrans for prioritizing and implementing freeway crossing improvements.

"This project is aimed at improving bicycle, pedestrian, and motor vehicle connections across the two major freeways — Interstate 8 and State Route 125 — that divide the City of La Mesa. This project engaged community leaders, businesses, and residents through an intensive design charrette process, to develop a vision and detailed recommendations for improving connections and linkages between neighborhoods and to transit centers at eight freeway crossings." – La Mesa Freeway Crossing Plan, 2008

City of La Mesa Walkability Plan, 2006

The Walkability Plan summarizes the existing goals and policies of the City's General Plan and Downtown Village Specific Plan. Additionally, new goals and strategies are presented for incorporation into the General Plan and have been incorporated into Section 3.1 Pedestrian Objectives and Policies. This plan also looks at roads and intersections within the City that have pedestrian issues and develops concepts for improvements. The Recommended Prioritization Process in Chapter 5 identifies Proximity Factors, Deficiencies and Intersections that are Difficult for Pedestrians to Cross which were utilized in this plan as part of the Bicycle and Pedestrian Suitability Model. The purpose of the Walkability Plan is as follows:

"The purpose of developing a walkability plan for the City of La Mesa is to create a broad, community-based vision and action plan to make La Mesa a more walkable community. This plan sets the stage for achieving the General Plan vision of creating a community in which residents can get around the City without a motor vehicle." – City of La Mesa, Walkability Plan, 2006

La Mesa General Plan, 1996

The Circulation Element of the City's General Plan provides Policies and Objectives for establishing a walkable environment within the City. The discussion of missing sidewalks is still relevant since sidewalk gaps are the most common concern for today's residents. This plan identifies some of the barriers and development patterns that have hindered the completion of filling in the sidewalk gaps. Pedestrian ramps and ADA are also generally discussed in the Pedestrian Circulation.

La Mesa Neighborhood Traffic Management Program

The Neighborhood Traffic Management Program is based on similar programs in other cities, with an eye toward using traffic calming measures to address neighborhood concerns about unwanted traffic. The City Council has established the La Mesa Neighborhood Traffic Management Program to help improve the quality of life for La Mesa residents by reducing excessive traffic and/or higher than normal vehicle speeds in their neighborhoods. With a defined traffic calming process and established procedures contained in this document, La Mesa residents will have the measures and techniques ("tools") at their disposal to avert many negative impacts associated with vehicular traffic on residential streets.

The goals of a traffic calming program include:

• Improving the quality of life in the neighborhood

• Creating safe streets by reducing the collision frequency and severity

• Reducing negative effects of motorized vehicles

To further enhance the goal of calming a street by neutralizing the negative situation causing the problem, some basic principles apply:

• Safety is the primary issue. Protection of vulnerable street users must occur through traffic calming

• Community-based planning of traffic calming must take place

• A degree of self-enforcement of regulations is needed through design

• Driver behavior must be affected by traffic calming

3.3 Pedestrian Collisions

Bicycle and pedestrian collision information in the City of La Mesa was reviewed for dates between 2006-2009 and January of 2010. Within these four years, there have been a total of 85 pedestrian related collisions with 87 injuries and two fatalities. (See Pedestrian Collision Summary tables 3.2 - 3.4) Pedestrian collisions mostly occurred on major arterials and collector streets such as Grossmont Center Drive (15 collisions), University Avenue (11 collisions), La Mesa Boulevard (8 collisions) and El Cajon Boulevard (8 collisions).

Pedestrian collision rates do not always coincide with high pedestrian activity. Grossmont Center Drive and University Avenue had the most collisions but also had some of the lowest pedestrian counts. This is probably due to limited facilities that accommodate pedestrians along these streets as well as the high vehicular speed and traffic volumes. Pedestrian counts conducted on Spring Street at Allison Avenue and La Mesa Boulevard recorded the highest number of pedestrians for an entire day. Grossmont Center Drive at Murray Drive had significant pedestrian activity during the noon hours while University Avenue at Harbinson Avenue and 70th Street had spikes in activity as Helix High was dismissed for the afternoon. However, despite these spikes, overall the pedestrian volume was low. Amenities that calm traffic and improve the pedestrian walking environment are key factors to increased pedestrian activity and reduced collisions.

Table 3.2 Pedestrian Collision Summary (Time of Day)

Lighting	Dark - No Street Lights	Dark - Street Lights	Dark - Street Lights Not Functioning	Daylight	Dusk/ Dawn	Totals
Number of collisions	3	16	1	62	3	85
Number of injuries	3	15	1	65	3	87
Number of fatalities	0	1	0	1	0	2
Source: City of La Mesa Pedestrian Collisions Data (2006-2009)						

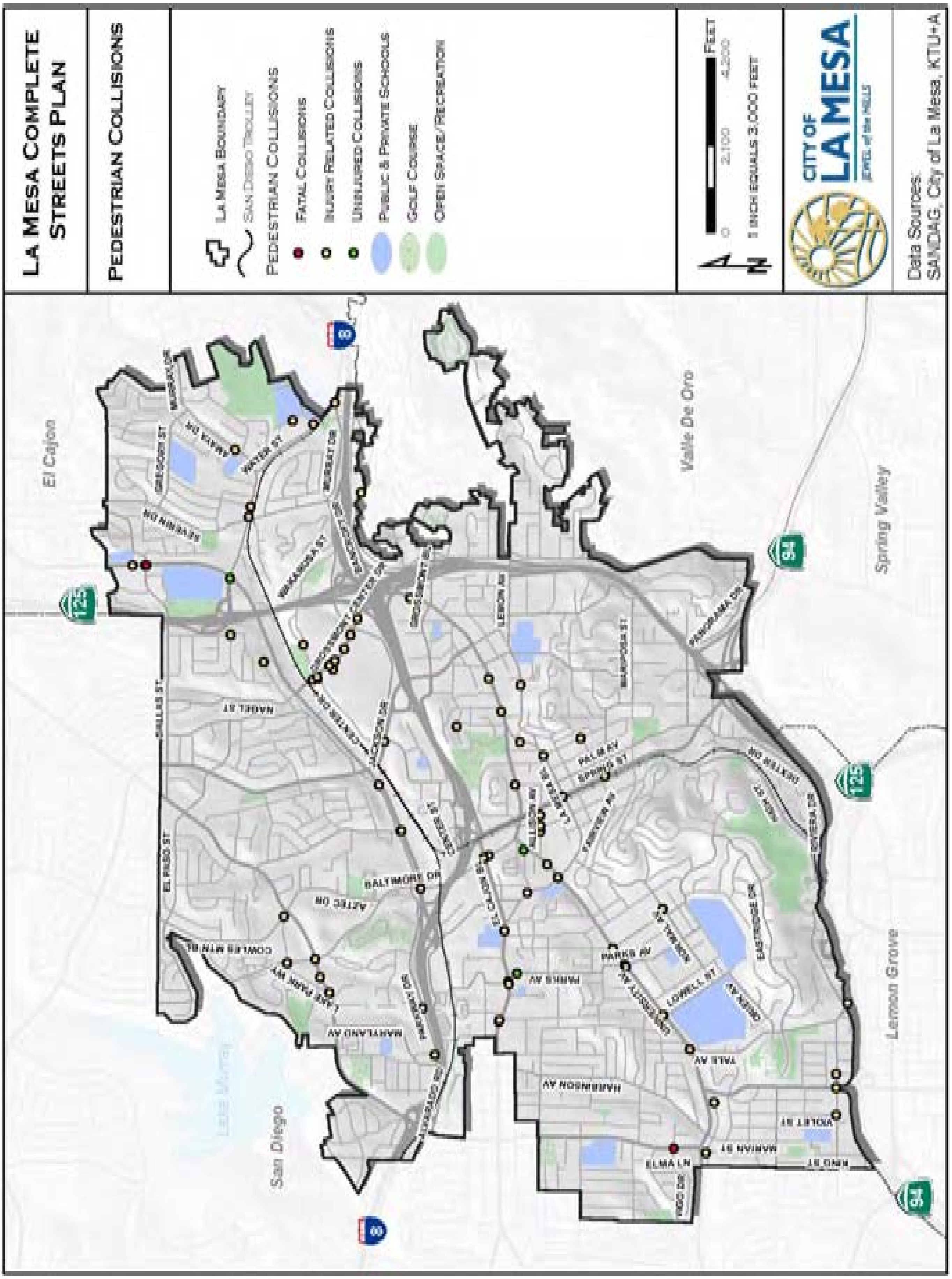
Table 3.3 Collisions per Year

Year	Total collisions	Number of injuries	Number of fatalities
2006	2	2	0
2007	23	25	0
2008	32	32	0
2009	25	25	2
2010	3	3	0
Source: City of La Mesa Pedestrian Collisions Data (2006-2009)			

Table 3.4 Pedestrian Collision Causes

Cause of Collision	Collisions
Driving Under Influence	1
Improper Turning	3
Other Hazardous Movement	3
Other Improper Driving	17
Other Than Driver	2
Automobile Violating Pedestrian Right-of-Way	18
Traffic Signals and Signs	4
Unknown	4
Unsafe Speed	3
Unsafe Starting or Backing	2
Pedestrian Violating Automobile Right-of-Way	1
Pedestrian Violation	27
Totals	**85**
Source: City of La Mesa Pedestrian Collisions Data (2006-2009)	

Figure 3.2 Pedestrian Related Collisions



3.4 Route Classifications

Different neighborhoods require differing levels of pedestrian improvements based upon adjacent roadways, levels of use, topography and land uses. This section defines the walkway classifications and the corresponding level of infrastructure improvements needed for each type.

3.5 Route Types Defined

All walking facilities found within La Mesa fit into one of the following categories of walking facilities. See Table 3.5 and Figure 3.3 through 3.7 for details.

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. District Sidewalks are primarily in the Downtown Village area. The district may be adjacent to residential neighborhoods, but can be distinguished from residential streets by the adjacent commercial land uses, densities and urban form. It has an identifiable focus that provides orientation, destination, and character, and reinforces a sense of community among users.

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. They connect moderate to high density commercial and residential areas, along major arterials. Fletcher Parkway and University Avenue are examples.

Connector Sidewalks

Connector sidewalks tend to have low pedestrian levels and are along roads with moderate to high average vehicular traffic. They primary connect residential and commercial land uses to each other and within each one another. Connector sidewalks can typically be long and, in some cases, do not have accessible land uses directly adjacent to the sidewalk, such as Dexter Drive. This can include sidewalks along major arterials that run parallel to open space and canyon lands.

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. Examples include Bancroft Drive and Parkway Drive.

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 narrow 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, existing physical design can cause excessive speeding. Traffic calming techniques are a good match for neighborhood streets.

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.

3.6 Route Types Found in La Mesa

Figure 3.8 shows a summary of route types found throughout La Mesa 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.

Table 3.5 Existing Route Types and Typical Conditions

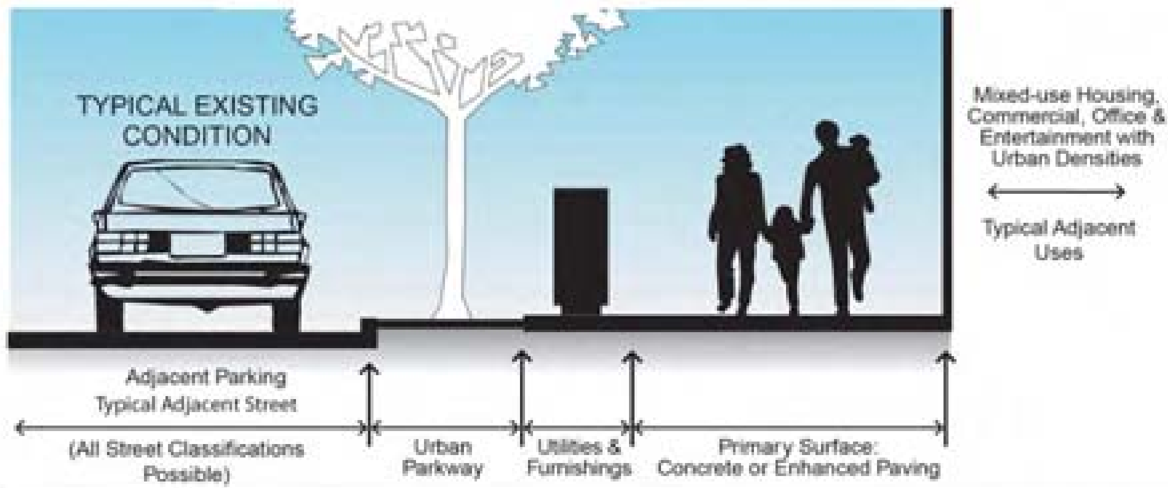
ROUTE TYPE:	District Sidewalks	Corridor Sidewalks	Connector Sidewalks	Neighborhood Sidewalks	Ancillary Pedestrian Facilities
Purpose	Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas	Sidewalks Along Roads that Support Moderate Density Business & Shopping 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
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
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
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

Figure 3.3 District Sidewalks

LA MESA PEDESTRIAN ELEMENT

District Sidewalks

Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas



Sidewalk with lighting and plant separation

Sidewalk with street trees, and enhanced paving

Sidewalk with outdoor cafes

Walkways with wide clear paths in business district

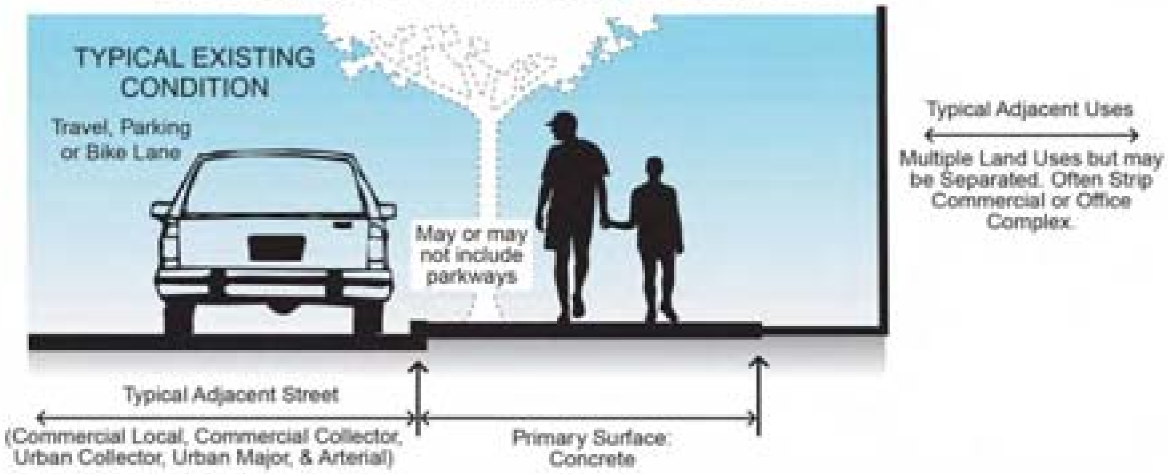
EXAMPLE LOCATIONS

Figure 3.4 Corridor Sidewalks

LA MESA PEDESTRIAN ELEMENT

Corridor Sidewalks

Sidewalks Along Roads that Support Moderate Density Business and Shopping Districts with Moderate Pedestrian Levels



Sidewalks with traffic calming improvements on Baltimore Drive

Corridor sidewalks with street trees on Fletcher Parkway

Traffic calming improvements on University Avenue

Typical commercial district with supporting sidewalks

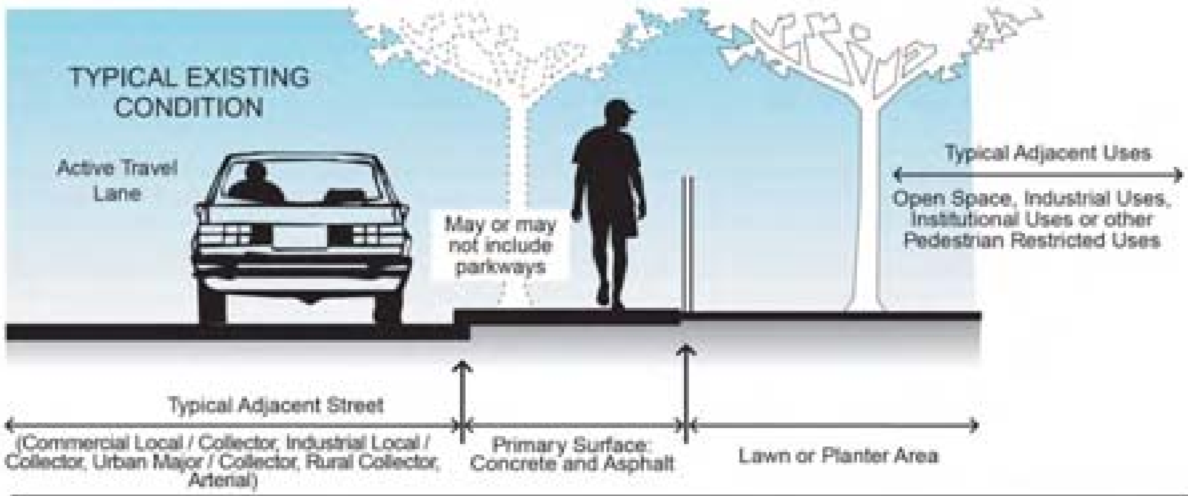
EXAMPLE LOCATIONS

Figure 3.5 Connector Sidewalks

LA MESA PEDESTRIAN ELEMENT

Connector Sidewalks

Sidewalks Along Roads that Support Institutional, Industrial or Business Complexes with Limited Lateral Access and Low Pedestrian Levels



Dallas Street with sidewalk connection over State Route 125

Sidewalk connection under Interstate 8 and Grossmont Center

Connector sidewalk on Dexter Drive

Sidewalks along Jackson Drive

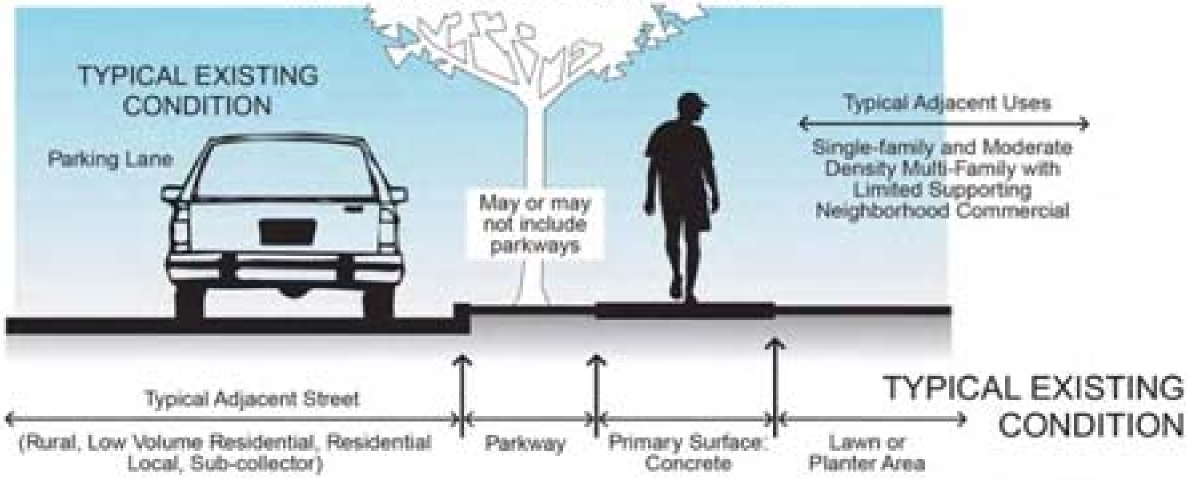
EXAMPLE LOCATIONS

Figure 3.6 Neighborhood Sidewalks

LA MESA PEDESTRIAN ELEMENT

Neighborhood Sidewalk

Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels



Sidewalk along Beverly Drive

Sidewalk with driveways and parkway strips

Secret Stairs on Fairview Avenue

Intermittent sidewalks along Normal Avenue

EXAMPLE LOCATIONS

Figure 3.7 Ancillary Pedestrian Facilities

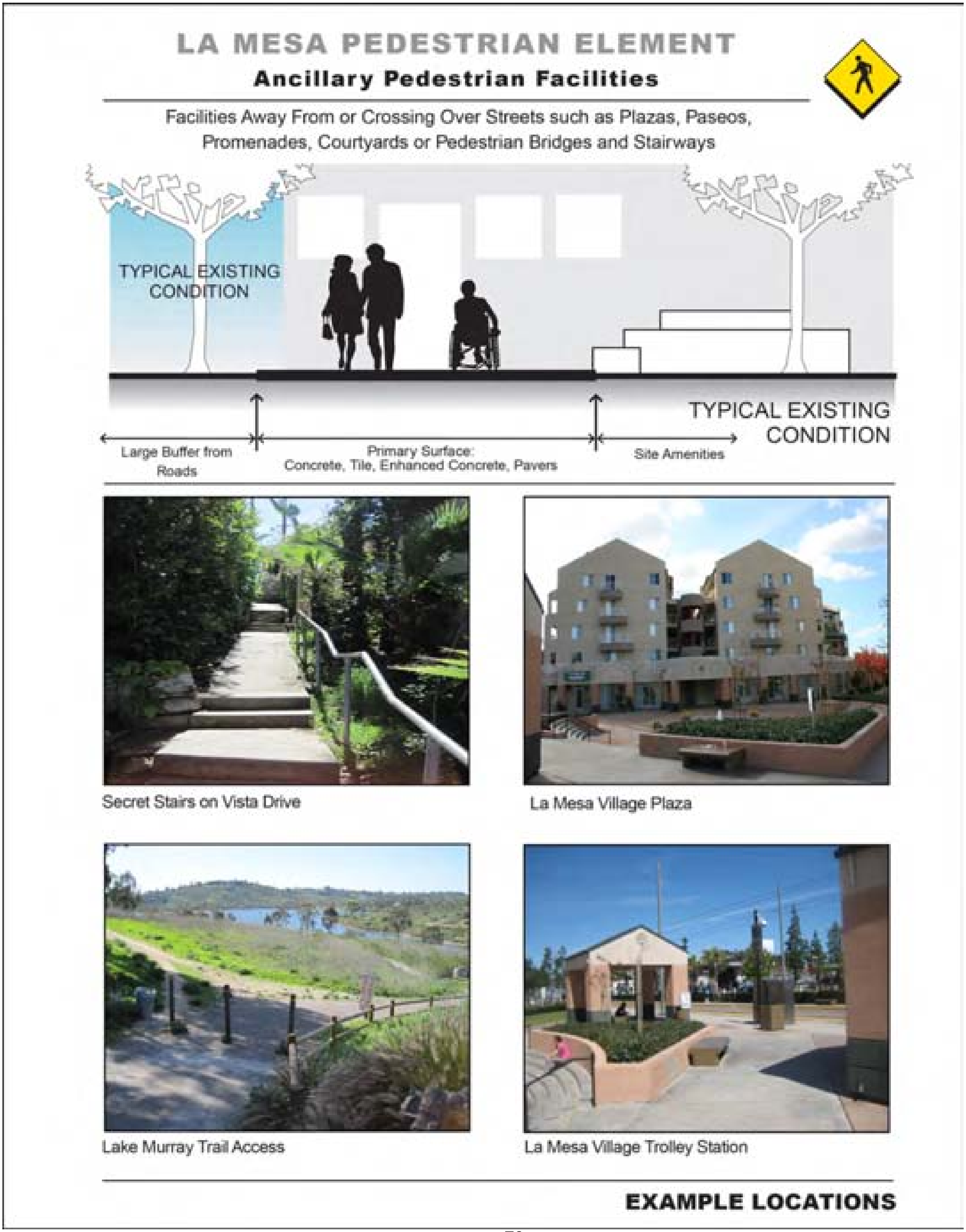
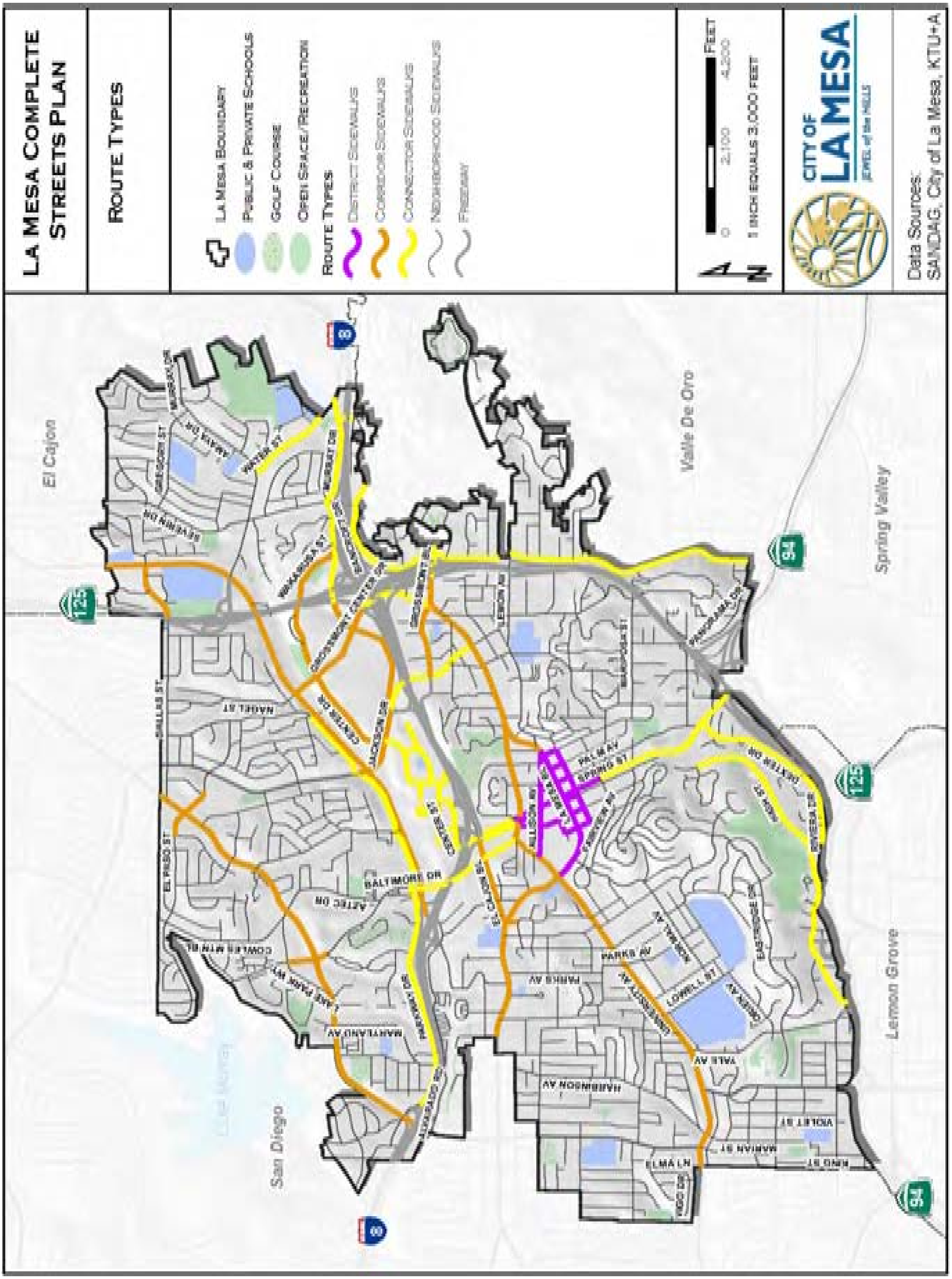


Figure 3.8 Route Types



3.7 Route Type Treatment Levels

There should be flexibility in the specific conditions of any pedestrian facility; different route types deserve different treatments. Table 3.6 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 3.6 also summarizes all of the pedestrian facilities, techniques, and enhancements that could be used in any particular area. Table 3.6 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 following sections for these issues and potential solutions provided by Table 3.6. Though this guidance has been provided, it should remain the responsibility of the Planning and Engineering Departments to determine which of these treatments are appropriate for specific areas or issues.

Table 3.6 Route Types and Treatment Levels

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	R	R	R	SC
2A) Audible/visual crosswalk signals	R	R	SC	SC
3A) Walkways & ramps free of damage or trip hazards	R	R	R	S
4A) Pedestrian paths free of obstructions and barriers	R	R	R	S
5A) Sidewalks with limited driveways and minimal cross-slope	R	S	S	S
6A) Re-grade slope of walkway to meet ADA / Title 24 standards	SC	SC	SC	SC
7A) Repair, slice or patch lifts on walk surfaces or reset utility boxes to be flush	SC	SC	SC	SC
Provide Safety Features Such As:				
1S) Median refuges (a safe place to stand in the street)	R	S	NA	NA
2S) Pedestrian popouts (curb / sidewalk extensions into street)	S	S	NA	NA
3S) High visibility crosswalk striping	R	S	NA	SC
4S) Raised crosswalks or special paving materials to denote crosswalks	S	S	NA	SC
5S) Advance stop bars at least 15 feet from crosswalk	S	S	NA	SC
6S) Radar Speed Monitor & Display	SC	SC	SC	SC
7S) Reduced curb radii	S	S	S	NA
8S) Early pedestrian start at crossing signal (Lead Pedestrian Interval)	S	SC	NA	SC
9S) No Turn on Red at Intersection	SC	SC	SC	SC
10S) Mid-block crosswalks with ped. flashers but no traffic control	NA	NA	S	NA
11S) Automatic pedestrian detection & signal control	S	NA	NA	SC
12S) Mid-block crossing with signs, median or curb ext. & flashing lights in road	SC	SC	NA	SC
13S) Mid-block crosswalks with ped. actuated traffic control device	S	SC	NA	NA
14S) 1-Lane Mid-block with high contrast crossings, signs & center lane marker	SC	SC	S	SC
15S) Parkway planting for buffer between sidewalk and cars	R	R	S	SC
16S) On-street parking for buffer between sidewalk and cars	R	S	S	NA
17S) Adequate levels of pedestrian lighting	R	R	S	S
18S) Various traffic calming measures	S	S	S	NA
19S) Enforcement, education or encouragement solutions	SC	SC	SC	SC
20S) Missing sidewalks added or provide adeq. walk width clear of obstructions	SC	SC	SC	SC
Improve Walkability by Providing:				
1W) Above minimum walkway widths (> 5')	R	S	SC	SC
2W) Trees that provide shade on walkways	R	R	S	S
3W) Street furnishings for comfort and enjoyment	R	S	SC	S
4W) Countdown display crosswalk signals	S	SC	SC	NA
5W) Traffic control for crossings such as traffic signals or "All way stops"	R	S	S	S
6W) Pedestrian scrambles (cross all directions of street)	SC	NA	NA	SC

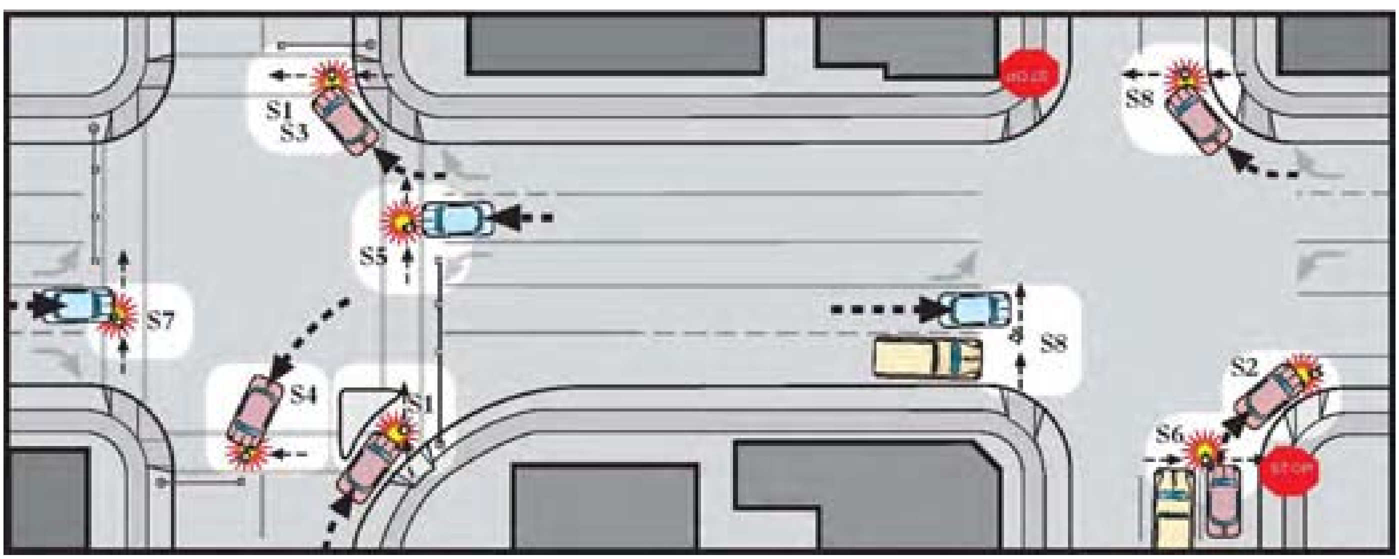
TREATMENT LEVEL:	Treatment Level 1 "Premium" Walkway Improvements	Treatment Level 2 "Enhanced" Walkway Improvements	Treatment Level 3 "Basic" Walkway Improvements	Treatment Level 4 "Special Use" Walkway Improvements
Route Types Receiving These Treatment Levels (Unless Special Circumstances Exist*)	District 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
Ensure Connectivity by Adding:				
1C) Missing sidewalk segments in areas where sidewalks mostly exist	R	R	S	S
2c) Missing sidewalks in areas where no sidewalks exist at all	R	S	SC	S
3C) Connection pathways between streets	R	S	S	S
4C) Narrow street widths or adding features to narrow for pedestrians	R	S	S	S
5C) Destinations within walking distance of origins	R	S	S	S
6C) Pedestrian bridges that avoid excessive ramp lengths	SC	NA	NA	SC
7C) Pedestrian crossing opportunities for all sides (legs) of an intersection	R	S	S	NA
8C) Verify that pedestrian distances between land uses are reasonable & direct	SC	SC	SC	SC

("R"= Required, "S" = Suggested, "SC"= Suggested if conditions or standards met & "NA" = Not applicable)

3.8 Safety Issues

There are several typical safety issues and solutions associated with pedestrian crossings at intersections, driveways, and mid-block crossings. Figure 3.9 and 3.10 have been developed to describe the typical safety issues associated with pedestrians crossing at intersections and walking or crossing along roadway segments. Tables 3.7 through 3.10 make recommendations for possible solutions that can fully or partially address the safety issues. Examples of these solutions are illustrated on the pages following. Some photos examples in section 3.8 - 3.10 were taken in La Mesa and the others were from around the region.

Figure 3.9 Safety Issues at Intersections



These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design

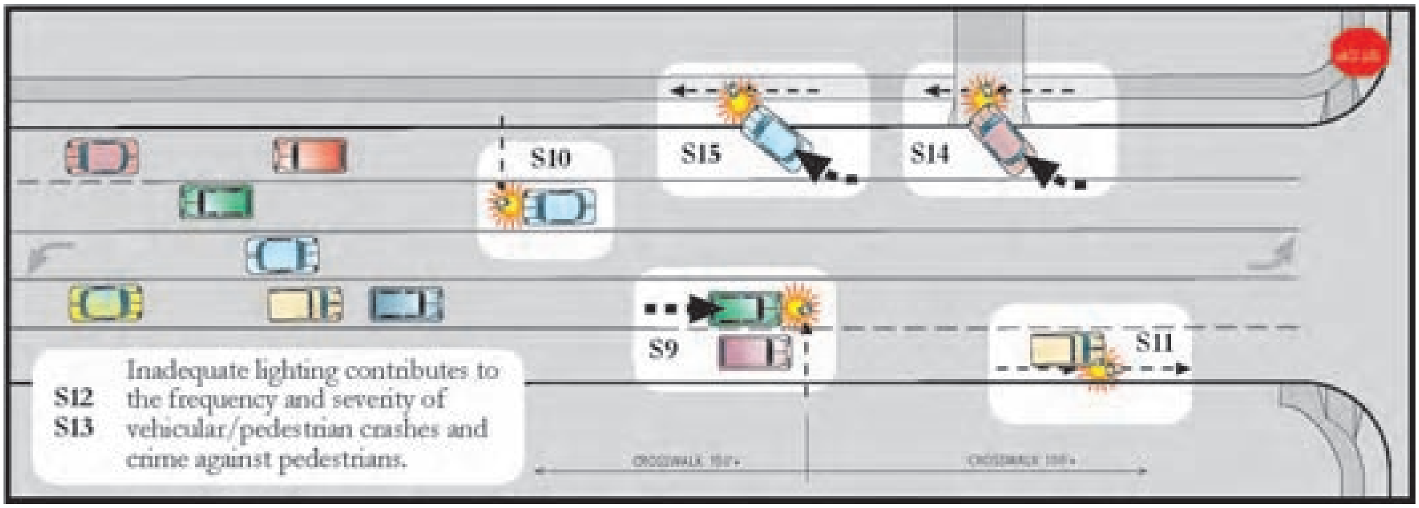
Table 3.7 Safety Issues at Intersections

Safety Issues at Intersections	Possible Solutions
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**

Table 3.8 Possible Solutions at Intersections

Possible Safety Solutions at Intersections
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 bars at 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 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) Traffic calming measures
19S) Enforcement and education solutions
20S) Missing sidewalk added or provide adequate walkway width clear of obstructions

Figure 3.10 Safety Issues along Streets



These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design

Table 3.9 Safety Issues along Streets

Safety Issues along Streets	Possible Solutions
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. 21S**
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**

Table 3.10 Possible Solutions for Safety along Streets

Possible 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 bars at 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
21S) Where adequate pavement width exists, install shoulder stripe to provide additional separation

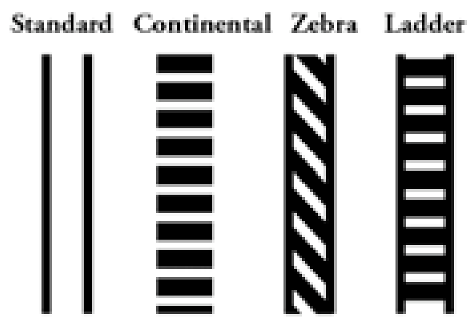
1S) A good example of a median refuge that provides access without ramps and protects a walker unable to make it across. Photo credit: Andy Hamilton

1S) Median refuges 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

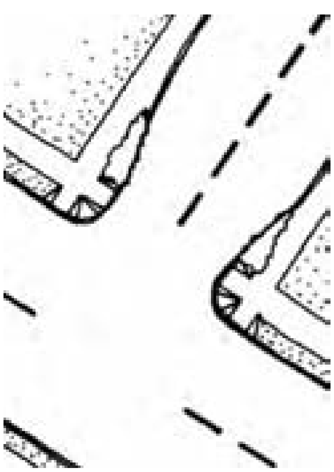
1S) Median refuges should be considered at intersections with or without traffic control. Multi-lane roadways should utilize solutions that include traffic control. Illustration credit: Michael Johnston

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: Joe Punsalan

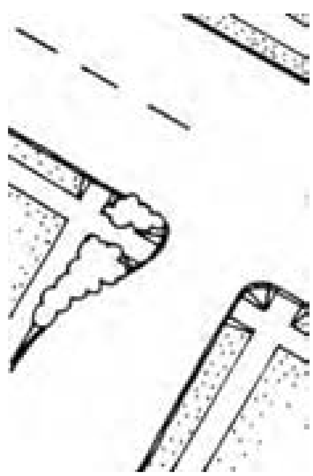
2S) Pedestrian pop-outs in conjunction with bollards can serve to block a street from vehicular traffic. Illustration credit: Michael Johnston



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



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

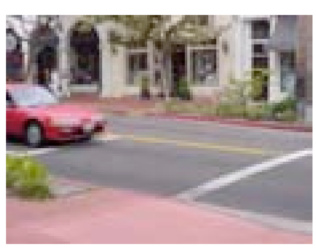
3S) Certain urban areas (that are pedestrian dominant) should utilize high visibility markings in the entire intersection. Photo credit: Joe Punsalan

3S) Ladder style markings can be modified and spaced to lower the wear from vehicle tires. Photo credit: Dan Burden

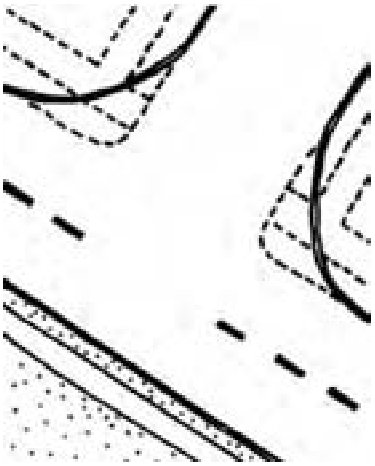
3S) Increased visibility can be obtained through a change of paving materials and striping. Photo credit: Joe Punsalan

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 above: Joe Punsalan



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



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

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: Joe Pusnalan

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

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

11S) A traffic signal or special pedestrian crossing can be con-trolled 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

13S) This mid-block crossing utilizes standard traffic signals, a stop bar, ladder style crosswalks, median refuge and a pedes-trian controlled actuator. Photo credit: Mike Singleton

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: Joe Punsalan

13S) The response time for stopping traffic for this mid-block crossing was quick. The design of the adjacent walkways con-centrated pedestrians into this walkway crossing. Photo credit: Joe Punsalan

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) 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

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

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: Joe Punsalan

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: Catrine Machi

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: Joe Punsalan

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

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: Joe Punsalan

16S) Adjacent parallel or angled parking provides an increased level of protection and comfort along major streets. Photo credit: Mike Singleton

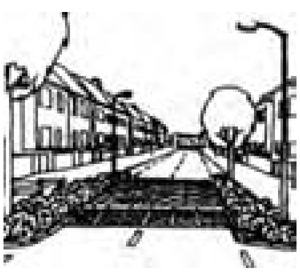
16S) As a last resort, barriers may be required to protect pedestrians along high speed streets, especially on high speed horizontal curves. Photo credit: Catrine Machi

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

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

18S) Mini-traffic circle. Photo credit: Joe Punsalan

18S) Speed tables (raised in-tersection). Illustration credit: Dan Burden



18S) Raised crosswalks. Illus¬tration credit: Dan Burden

18S) Modern roundabout with properly planned pedestrian cross¬ings, markings, signage and lighting. Photo credit: Dan Burden

20S) Fill in missing sidewalks or provide adequate walk width clear of obstructions. Photo credit: Joe Punsalan

3.9 Connectivity Issues

Connectivity refers to the existence of a defined direct pedestrian path (generally along streets) between where a walker starts and where she or he wants to go. Community connectivity is the basis for a pedestrian-friendly environment. The typical walking distance is not much more than 1/4 mile distance which is equivalent to a five- to ten-minute walk at an easy pace of 2-3 mph. 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.

Typical Connectivity Issues

In La Mesa, sidewalk obstacles that make walking difficult include gaps in the sidewalks, multi-block areas without pedestrian facilities, steep slope/canyon barriers, "difficult to cross" road barriers such as freeway overpasses, high volume arterials and land use barriers that prevent easy pedestrian flows through a site.

Walkway Gaps

Throughout the City, there are gaps where walkways have not been completed because of development phasing, neighborhood aesthetics or funding. 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 walkway 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.

Walkway gaps are predominant in the southwest neighborhoods and the hillside neighborhoods of the City. These neighborhoods are older and were developed before sidewalks were conditions of the development. The neighborhoods north of I-8 have less missing walkways since they are newer. To maintain the rural appeal of their properties, some residents of hillside neighborhoods have requested that their streets do not have sidewalks.

Steep Slope

La Mesa's hilly topography is one of its defining features, but these landforms can make pedestrian movement difficult. In some of the City's hillside neighborhoods, sidewalks are non-existent and slope is always an issue for both pedestrians and bicycles.

Road Barriers/Freeway Crossings

Designing for the movement of vehicles has often relegated the pedestrian to a secondary status. This includes practices of wide curb radii that allow cars to make turns without significantly reducing speed, and freeway-like ramping, turn lanes and merge lanes that required a pedestrian to cross high speed traffic. Also, high speed, high volume and wide streets represent barriers because of the length of time needed to wait between cycles to cross, the overall crossing distance and the fear of safety issues. These roadway related barriers do affect connectivity.

La Mesa is unique in that two freeways bisect the City essentially dividing it into four parts. There are numerous freeway crossings that have little to no pedestrian and bicycle facilities. They tend to have sidewalks only on one side and very little room for bicycles to share the road. Fortunately, there are five pedestrian accommodating bridges that cross over these freeways without an interchange. Lemon Avenue at SR-125 has one on and off ramp so freeway traffic is limited at this interchange. The City also has a Freeway Crossing Plan that was approved in 2008. Nine freeway crossings were evaluated and recommendations for improvements prepared.

Rail Road Barriers

The San Diego Trolley Orange Line that runs north and south along Spring Street acts as a major barrier limiting pedestrian access in the east/west direction particularly in the downtown area. The east-west San Diego Trolley Green Line 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.

Walkway Capacity and Obstruction Barriers

The location and size of walkways can also be a connectivity problem if the route is avoided because of other walkability issues. A walkway, even one that meets the City's minimum required width, can be a deterrent to pedestrian travel. Poles for streetlights, traffic signal poles, utility boxes, newspaper racks, backflow preventers, vending machines, etc., are often located in the path of travel making it difficult to maneuver even if there are only a small number of pedestrians using the walk.

Street Patterns that Limit or Extend Pedestrian Connections

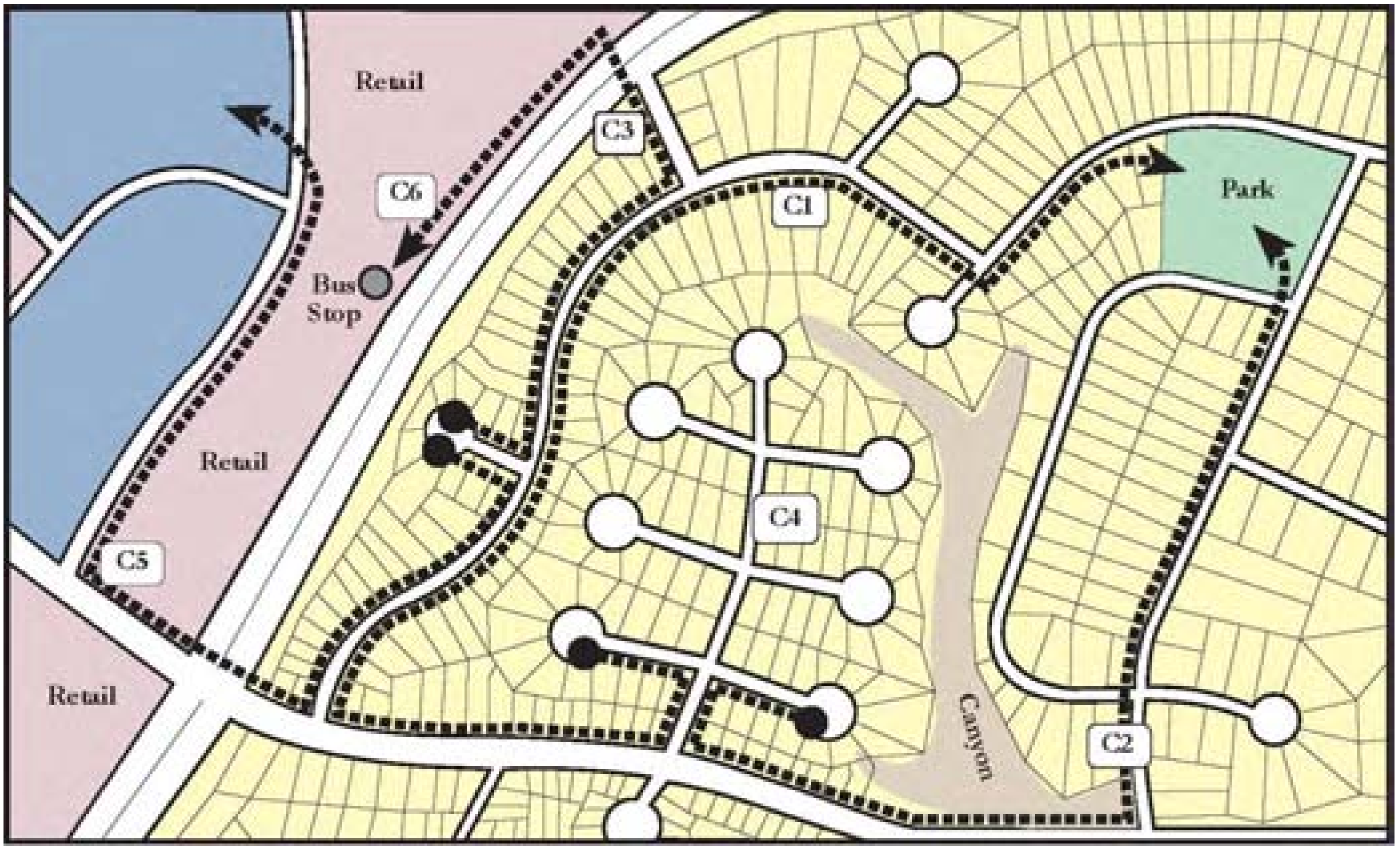
The typical suburban street layout, with its hierarchal designation of streets, long blocks without cross-streets and streets ending in cul-de-sacs, makes it difficult for pedestrians to walk from home to school, to shopping, or to recreation. This is due to the street pattern that does not allow easy access to destinations, even if they are relatively close by. In turn, this forces potential walkers to rely on the automobile. The neighborhoods north of I-8 tend to follow this trend with large arterials such as Baltimore Drive and Jackson Drive serving as the major connector street into these neighborhoods.

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 grid street systems in older communities, these systems do allow many options for people to walk to their destinations and they also allow people to walk around in neighborhoods. 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. Examples of these can be found on Dallas Street near SR-125, a trail connector near Maryland Elementary School and the "Secret Staircases" in the hillside neighborhoods of Mt. Nebo. The grid street system can be found to some extent in the southeast neighborhoods and downtown La Mesa.

Solutions that Address Connectivity Issues

Tables 3.11 and 3.12 have been developed to describe the typical connectivity issues associated with public rights-of-way and development patterns. Many of these solutions need to be brought up at the site planning and project approval stage. When a project is being portrayed as supporting smart growth and complete street strategies, it is incumbent upon the developer or property owner to prove that the new project will be connected with local land uses through direct walking facilities. This often requires connections that lead beyond the immediate limits of the project parcel. If the new or retrofitted environment is not fully connected at a pedestrian scale, then it will not support the objectives of smart growth or a complete street.

Figure 3.11 Connectivity Issues



These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design

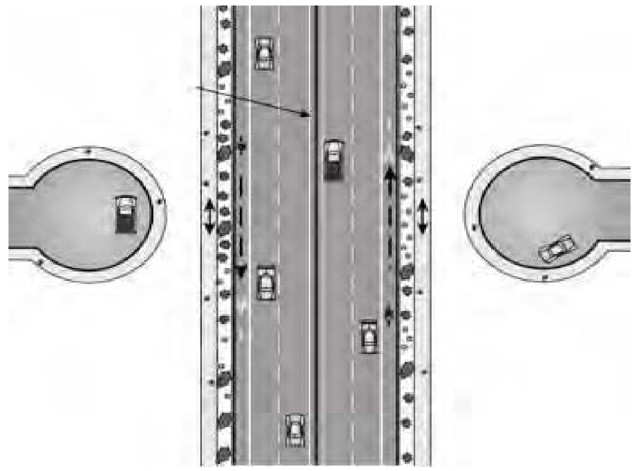
Table 3.11 Connectivity Issues

Connectivity Issues	Possible Solutions
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**

Table 3.12 Possible Connectivity Solutions

Possible 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

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: Catrine Machi



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: Catrine Machi

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: Joe Punsalan

3C) Even heavily traveled urban streets can act as barriers to pedestrians if appropriate crossings have not been provided. Photo credit: Mike Singleton

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: Joe Punsalan

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: Catrine Machi

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: Joe Punsalan

5C) Streets should be designed for more than moving vehicles. When all elements come together, a socially interactive environment will evolve. Photo credit: Joe Punsalan

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

6C) To meet accessibility requirements, long ramps are required to access activity centers such as transit stations. Photo credit: Joe Punsalan

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

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

8C) Verify that pedestrian distances between land uses are reason¬able 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.

3.10 Walkability Issues

Walkability is defined as a mixture of physical and perceptual elements that make up the built environment that are conducive to walking. They general fall within one of four zones:

Road edge zone: Uses along the roadway edge that may include parkway strips, raised curbs, pedestrian pop-outs, etc.

Furnishing zone: Includes street trees, newspaper racks, benches, bike racks, trash receptacles, etc.

Throughway zone: The physical elements include the walkway itself and may include protection from harsh environmental conditions of sun, wind or rain provided adjacent to or above the walkway.

Building frontage zone: Includes easy access to adjacent land uses.

The perceptual elements are factors that contribute to the feeling of safety, protection from collisions, avoidance of crime, buffering from activity and 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 completely because of it being perceived as not being walkable.

Basic Requirements for Walkability

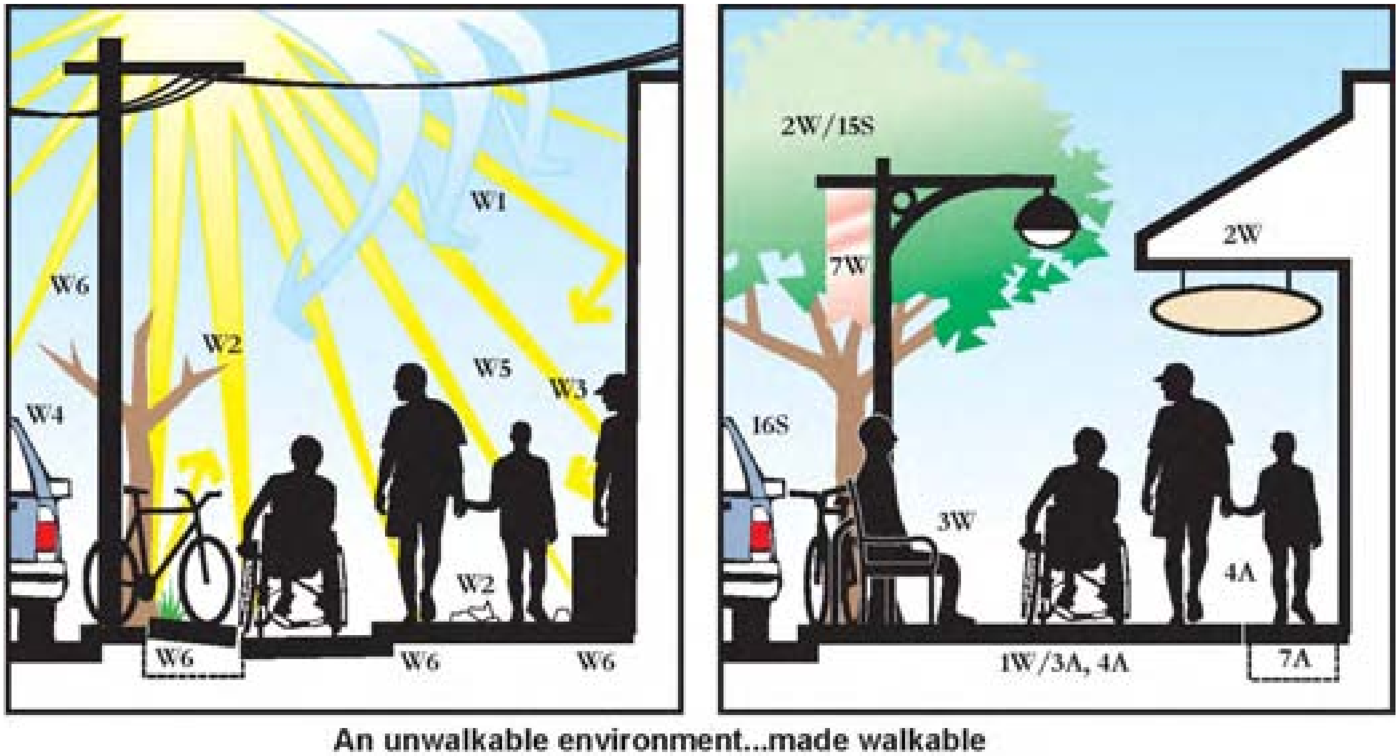
In addition to providing a safe, accessible and connected pedestrian environment, a walkable environment includes some additional elements and requirements including:

- The introduction of elements such as shade trees, pedestrian-level lighting, street furniture and appealing plazas not only enhance the pedestrian walking experience, but create streetscapes of superior design that improve the City's image and 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.
- 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 communicate welcome and invite lingering. These amenities can improve the success of business establishments.

Solutions that Address Walkability Issues

Tables 3.13 and 3.14 have been developed to describe the typical environmental elements that prevent an area from being considered as walkable and propose 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, Connectivity matrices and the Accessibility matrices in Chapter 6. The Accessibility issues in Chapter 6 encompass the ADA aspects to help make a street walkable and accessible for everyone.

Figure 3.12 Walkability Issues



These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design

Table 3.13 Walkability Issues

Walkability Issues	Possible Solutions
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**

Table 3.14 Possible Walkability Solutions

Possible 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.

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: Joe Punsalan

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: Joe Punsalan

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

7W) 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: Joe Punsalan

3.11 Prioritized Pedestrian Projects

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 to assist in prioritizing the individual pedestrian projects.

The following list of priority projects were collected from existing city plans, public input, collision data and the Bicycle and Pedestrian Priority Model. Formulating the list consisted of city and public input, 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. Elements such as vehicular speed, pedestrian collisions and traffic volumes were incorporated into the model.

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. Vehicular speed, number of lanes, traffic volumes and public input were analyzed as part of this 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 La Mesa have the second highest score while common treatments found within the city receive the lowest.

Many of the projects are primarily located along University Avenue and schools due to the higher density mix of commercial, transit, employment and residential land uses. This mixture of land uses tends to produce higher rates of pedestrian activity. Many pedestrian improvement projects from City documents have already been developed and are included as part of the project list.

All the projects including those that were part of an existing plan such as the Walkability Plan were included in the priority list but costs were estimated. The projects in existing City plans do not have detailed costs estimates for their proposed improvements so this section will provide estimates based on basic improvements. For more detail on the projects from other plans, please refer to the plan documents themselves.

3.12 Top Priority Pedestrian Projects

Following Table 3.15 are the top 13 projects after they were ranked utilizing the pedestrian project prioritization checklist. See Table 3.15 for an overall ranking of all proposed projects and Figure 3.12 maps their locations. The pedestrian ranking criteria sheets can be found in Appendix C. F. Table 3.16 provides cost estimates for basic improvements for each project.

Table 3.15 Priority Pedestrian Projects

Rank	Project Name	Pedestrian Activity Levels	Safety Criteria	Accessibility Criteria	Connectivity Criteria	Walkability Criteria	Innovation Criteria	Total Score	Total Cost
1	North Spring Street and I-8	10	1	19	14	5	3	52	$619,000
2	Grossmont Center Drive between Fletcher Parkway and I-8	4	30	12	3	0	1	50	$1,413,100
3	Baltimore Drive from I-8 to University Avenue	4	6	19	10	2	1	42	$659,490
4	Lemon Avenue, Madison Avenue, Jackson Drive and Garfield Street	4	2	19	12	2	1	40	$1,778,628
5	Murray Hill Road and Waite Drive	4	2	17	9	3	1	36	$255,938
6	University Avenue and Parks Street	6	6	12	11	0	1	36	$253,416
7	University Avenue, Memorial Drive and La Mesa Boulevard	6	1	16	9	2	1	35	$326,606
8	Amaya Drive and Fletcher Parkway	4	2	17	11	0	1	35	$198,575
9	Maryland Avenue and Lake Murray Boulevard	2	1	19	8	2	1	33	$302,088
10	University Avenue and Lowell Street	10	2	9	11	0	1	33	$199,030
11	University Avenue and Maple Avenue	6	1	12	11	0	2	32	$469,924
12	Tower Street	2	1	18	7	2	1	31	$707,948
13	University Avenue and Culbertson Avenue	6	1	12	11	0	1	31	$373,315
								Total Cost	**$7,557,055**

Figure 3.13 Pedestrian Projects

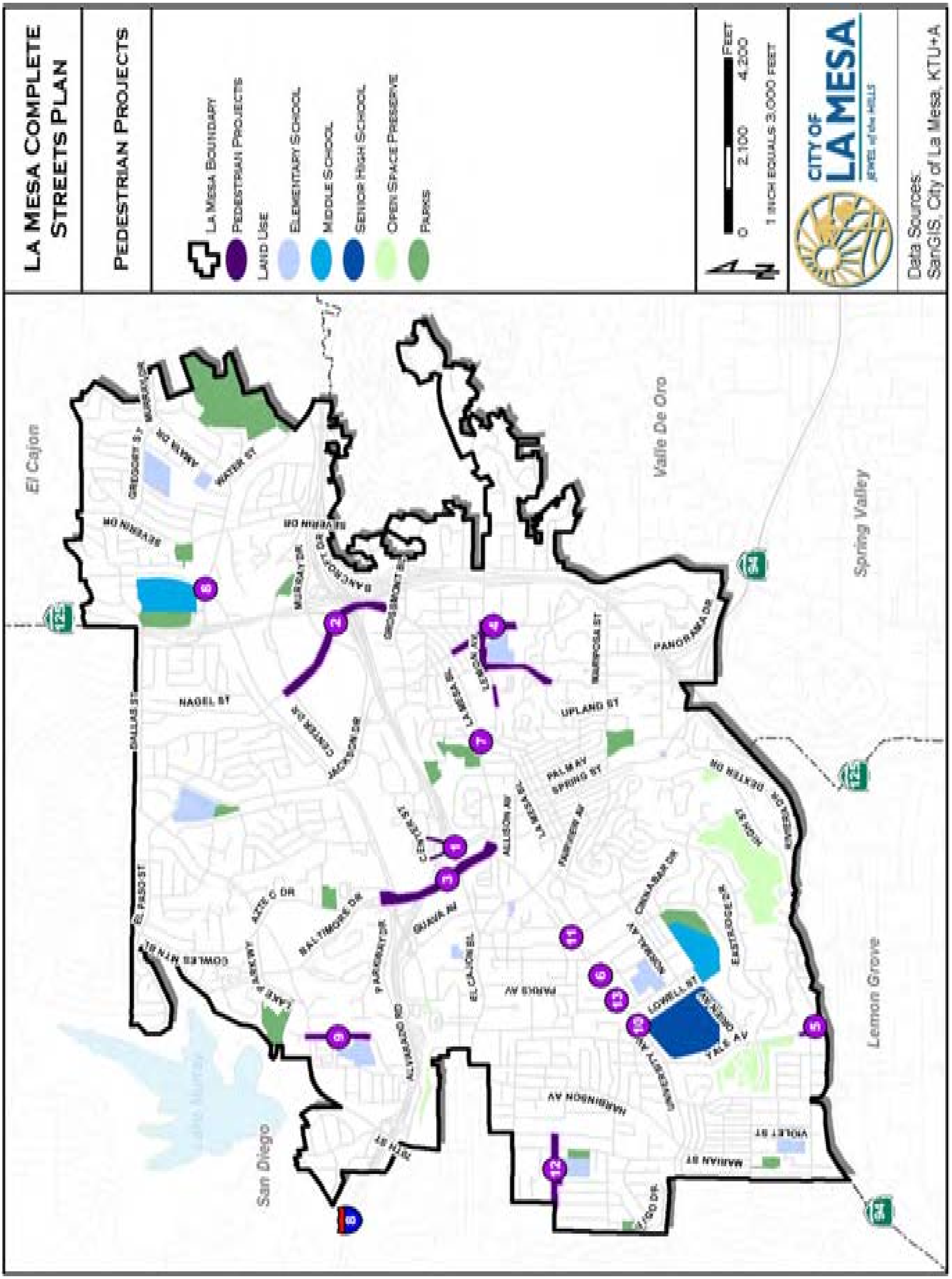


Table 3.16 Cost Estimates for Pedestrian Projects

1. North Spring Street and I-8*				
Construction Items				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Clearing and grubbing	-	LS	-	$32,200
Concrete curb and gutter	560	LF	$18	$10,074.24
Concrete curb	300	LF	$15	$4,505.73
Concrete curb ramp	6	EA	$2,000	$12,000
Install sidewalks	5,370	SF	$5	$26,848.97
Material removal	10	CY	$70	$700
Bridge sidewalk section	-	LS	-	$1,930.5
Retaining wall	273	LF	$400	$109,200
Fencing and guardrails	741	LF	$50	$37,025
Transition railing	2	EA	$3,000	$6,000
Signing and striping	1	LS	$11,000	$11,000
Traffic signal modification	1	LS	$175,000	$175,000
Street lighting	1	LS	$46,000	$46,000
			Sub-Total	$473,000
Non-Construction Items				
Traffic control	1	LS	8%	$37,840
Water pollution control	1	LS	2%	$9,460
Mobilization	1	LS	8%	$41,624
Contingency	1	LS	10%	$56,192
			Total Cost	**$619,000**

*Source: North Spring Street Improvement Project

2. Grossmont Center Dr from Fletcher Pkwy and I-8				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	780	$25	LF	$19,500
Install walkways (5')	63,100	$7	SF	$441,700
Curb ramp with truncated dome	22	$2,900	Each	$63,800
Bulb-outs	22	$25,000	Each	$550,000
Re-striping	2,000	$6	LF	$12,000
			Sub-Total	$1,087,000
			Contingency (30%)	$326,100
			Total Cost	**$1,413,100**

3. Baltimore Dr from I-8 to University Ave				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	190	$25	LF	$4,750
Install walkways (5')	49,350	$7	SF	$345,450
Bulb-outs	1	$25,000	Each	$25,000
Ped Signals/Speed Indicators	2	$800-$5,000	Each	$1,600
Re-striping	3,000	$6	LF	$18,000
Median reconfiguration	7,500	$15	SF	$112,500
			Sub-Total	$507,300
			Contingency (30%)	$152,190
			Total Cost	**$659,490**

4. Lemon Ave, Madison Ave, Jackson Dr and Garfield St				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	700	$25	LF	$17,500
Install walkways (5')	147,925	$7	SF	$1,035,475
Curb ramp with truncated dome	9	$2,900	Each	$26,100
Bulb-outs	4	$25,000	Each	$100,000
Ped Signals/Speed Indicators	2	$800-$5,000	Each	$1,600
Re-striping	1,000	$6	LF	$6,000
Median reconfiguration	12,100	$15	SF	$181,500
			Sub-Total	$1,368,175
			Contingency (30%)	$410,453
			Total Cost	**$1,778,628**

5. Murray Hill Rd and Waite Dr				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Install walkways (5')	28,125	$7	SF	$196,875
			Sub-Total	$196,875
			Contingency (30%)	$59,063
			Total Cost	**$255,938**

6. University Ave and Parks St				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	400	$25	LF	$10,000
Install walkways (5')	1,225	$7	SF	$8,575
Curb ramp with truncated dome	12	$2,900	Each	$34,800
Bulb-outs	4	$25,000	Each	$100,000
Ped Signals/Speed Indicators	8	$800-$5,000	Each	$6,400
Re-striping	260	$6	LF	$1,560
Median reconfiguration	2,240	$15	SF	$33,600
			Sub-Total	$194,935
			Contingency (30%)	$58,481
			Total Cost	**$253,416**

7. University Ave, Memorial Dr and La Mesa Blvd				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	300	$25	LF	$7,500
Install walkways (5')	3,325	$7	SF	$23,275
Curb ramp with truncated dome	10	$2,900	Each	$29,000
Bulb-outs	6	$25,000	Each	$150,000
Re-striping	510	$6	LF	$3,060
Median reconfiguration	2,560	$15	SF	$38,400
			Sub-Total	$251,235
			Contingency (30%)	$75,371
			Total Cost	**$326,606**

8. Amaya Dr and Fletcher Pkwy				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	550	$25	LF	$13,750
Curb ramp with truncated dome	10	$2,900	Each	$29,000
Bulb-outs	4	$25,000	Each	$100,000
Ped Signals/Speed Indicators	5	$800-$5,000	Each	$4,000
Median reconfiguration	400	$15	SF	$6,000
			Sub-Total	$152,750
			Contingency (30%)	$45,825
			Total Cost	**$198,575**

9. Maryland Ave and Lake Murray Blvd				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	280	$25	LF	$7,000
Install walkways (5')	13,925	$7	SF	$97,475
Curb ramp with truncated dome	1	$2,900	Each	$2,900
Traffic signal / Ped Beacon	1	$75,000-$125,000	Each	$125,000
			Sub-Total	$232,375
			Contingency (30%)	$69,713
			Total Cost	**$302,088**

10. University Ave and Lowell St				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	360	$25	LF	$9,000
Curb ramp with truncated dome	9	$2,900	Each	$26,100
Bulb-outs	4	$25,000	Each	$100,000
Ped Signals/Speed Indicators	9	$800-$5,000	Each	$7,200
Re-striping	300	$6	LF	$1,800
Median reconfiguration	600	$15	SF	$9,000
			Sub-Total	$153,100
			Contingency (30%)	$45,930
			Total Cost	**$199,030**

11. University Ave and Maple Ave				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	230	$25	LF	$5,750
Install walkways (5')	3,150	$7	SF	$22,050
Curb ramp with truncated dome	8	$2,900	Each	$23,200
Bulb-outs	4	$25,000	Each	$100,000
Traffic signal / Ped Beacon	2	$75,000-$125,000	Each	$150,000
Re-striping	280	$6	LF	$1,680
Median reconfiguration	3,920	$15	SF	$58,800
			Sub-Total	$361,480
			Contingency (30%)	$108,444
			Total Cost	**$469,924**

12. Tower St				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	250	$25	LF	$6,250
Install walkways (5')	61,375	$7	SF	$429,625
Curb ramp with truncated dome	3	$2,900	Each	$8,700
Bulb-outs	4	$25,000	Each	$100,000
			Sub-Total	$544,575
			Contingency (30%)	$163,373
			Total Cost	**$707,948**

13. University Ave and Culbertson Ave				
Treatment	Qty	Unit Cost	Unit Measure	Cost
Crosswalk striping	185	$25	LF	$4,625
Curb ramp with truncated dome	6	$2,900	Each	$17,400
Bulb-outs	3	$25,000	Each	$75,000
Traffic signal / Ped Beacon	2	$75,000-$125,000	Each	$150,000
Re-striping	190	$6	LF	$1,140
Median reconfiguration	2,600	$15	SF	$39,000
			Sub-Total	$287,165
			Contingency (30%)	$86,150
			Total Cost	**$373,315**

4. Recommended Bicycle and Pedestrian Programs

The League of American Bicyclists (LAB) has developed a set of guidelines called the "Five Es" to assist cities in becoming bicycle friendly communities: Engineering, Education, Encouragement, Enforcement and Evaluation and Planning. These criteria are a good reference for any community seeking to improve its bicycle and pedestrian environment.

The basic strategies for coming up with solutions include what is described as the 5 Es:

Encouragement: includes developing awareness and building enthusiasm for walking and biking.

Education: programs that teach motorists, pedestrians and cyclists about their responsibilities and about traffic rules and facilities.

Enforcement: includes enforcing current traffic laws to educate motorists and cyclists for the purpose of maximizing the safety of vulnerable road users.

Engineering: develops a safe, convenient, and continuous network of bikeways and walkways that serves the needs of all types of cyclists and pedestrians. Maintain and reconstruct existing bicycle facilities and walkways in a manner that promotes safety, increases convenience, and minimizes lifetime costs.

Evaluation and Planning: compiles data from surveys and site audits to make sure the program is effectively responding to community needs and parent concerns.

This chapter lays out the different steps and programs to improve cycling and walking in the City of La Mesa. The City can conduct additional research for other plans and programs that have been implemented throughout the region and the country. The recommendations are meant to be a starting point to improve the walking and cycling environment.

4.1 Encouragement

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. Host pit stops during Bike to Work Weeks and Days. To increase encouragement, host Bike to Work days more often, such as monthly. Coordinate with other agencies on bicycle events such as "Bike to School Day," bicycle safety courses or a ciclovia. A cyclovia is where a street is temporarily closed to motor vehicles and opened to non-motorized transportation. It can be turned into a festive atmosphere in conjunction with a farmers market or local event.

Bike to Work Pit Stop

2. Improve bicycle route wayfinding markers

Signage needs to be improved. Clear bicycle facility information shall be provided by installing standards compliant signs and markings. Directional signage allows new cyclists and tourists alike to find their way to their destination or nearby landmark via a recommended route.

The purpose of signage is to direct people and provide information about destinations, directions, and/or distances. It increases comfort, assists navigation, warns of approaching roadway crossings and guides users through diverse environments. In the unfortunate event of an emergency, directional signage provides important location information to a potentially uninformed visitor. When applied on a regional level, wayfinding can link communities and provide consistent visual indicators to direct cyclists to their destinations along the route of their choice. Wayfinding signage can achieve public objectives, such as promotion of a community's attractions, education, mile marking and directional guidance. A good wayfinding system functions to achieve the following purposes:

- Help people find destinations from all travel modes
- Establish clear pathways through the use of signs, maps and other landmarks
- Carry user-friendly and understandable messages

People are the single most important component in developing a wayfinding strategy. By identifying user patterns and destinations, wayfinding users understand how the bicycle facility system operates and how to move through spaces and get directed to their destinations.

In designing a wayfinding strategy or system, the following questions need to be considered:

- Who are the people who are going to use the wayfinding system?
- Where are the facility users going?
- What do the users or visitors want to see and hear?
- Is the goal navigation, directional information, orientation, location in formation, or interpretation?
- Is a clear message being sent by the signage?

There are three general objectives in a wayfinding signage system. When determining sign locations and messages, achieving these objectives should guide the wayfinding plan.

1. Get people to the bicycle facilities

Promote the bicycle network by linking people from the community to the neighborhoods. This promotes the bicycle facilities as both destinations to enjoy and as transportation routes.

2. Warn motorists that there may be cyclists sharing the roadway with them

Use cautionary and safety messages to increase motorist's awareness of cyclists. Bicycling is an important component of the transportation system and should be respected by other modes of transportation. However, since cyclists are more vulnerable to injury in a collision with an automobile, motorists should pay particular attention to their presence and safety.

3. Inform people how to get around the network

Guide cyclists through the bicycle facility network, assisting their decision-making ability at intersections and decision points. Show a bike route or lane's role in the larger network visually through maps. Utilizing a sign hierarchy can emphasize certain types of messages. Information on the latest standards on wayfinding signage can be found in section 9B.12 of the California Manual on Uniform Traffic Control Devices (CA MUTCD), 2006 Edition.

3. Develop a City-wide bicycle map

A regularly updated city-wide bicycle map will allow residents to plan their routes by using the bicycle facilities. Many residents and visitors are unaware of the existing facilities within the City and may therefore be less encouraged to travel by bicycle. A map showing where the facilities are, their destinations and even rules of the road can encourage more bicycle use throughout the City. The flip side of the map is an excellent place to locate education materials and sponsorship information. If the printing of the map is prohibitive, seeking funding though grants and sponsorship is recommended.

It is critical to update the map as new bicycle facilities are implemented or current facilities are changed. Annual updating and printing results in a more reliable map.

4. Business and Employer Incentive Programs

The City and local businesses can support bicycling and the development of a comprehensive bicycle transportation system as a viable alternative to the automobile. Developing a bicycle system that meets the needs of both commuter and recreational users is only a small part to improve the cycling culture in the City.

The City can encourage the League of American Bicyclists' (LAB) Bicycle Friendly Business program to encourage and facilitate use of alternative modes of transportation by employees and customers. Local business can give discounts, free gifts and incentives to those who frequent their business by bicycle. The same incentives can be given to their employees who commute by bicycle. The City and local businesses can provide secured bicycle parking, shower and locker facilities to employees to encourage bicycle commuting.

Encourage fringe benefits such as the Bicycle Commuter Benefit Act which allows employees to reimburse bicycle commuters who regularly use your bike for a substantial portion of travel between home and work. Companies can reimburse employees on a tax-free basis for "reasonable expenses" incurred as a bicycle commuter. This can include the actual purchase of a bicycle and just about any type of accompanying equipment and accessories such as lights, racks and clothing, up to the annual limit of $240, or however much your company chooses to offer.

5. Develop a series of short loop rides around La Mesa

Southern California is one of the best locations for bicycle riding. The mild year-round weather attracts many professionals and recreational cyclists throughout the year. Bicycle racing and cycling clubs are a great way to get new cyclists into the sport which then carries on to daily life such as bicycle commuting. Local cities such as Chula Vista, San Diego and San Marcos participate in bicycle racing during the spring. The City can work with the local bike clubs such as Cyclo-Vets, Bike Buddies Cycling and shops like Big Ring Cyclery to promote and organize a bike race and/or weekly bike rides throughout the City. Start local races that showcase La Mesa's landmarks. Local races can draw attention to the City and at the same time encourage cycling as a fun and healthy sport.

6. Continue to promote walking in La Mesa through the La Mesa Wellness Task Force

The La Mesa Wellness Task Force has done a good job of promoting its City Walks and Urban Hikes program. The Art Walk partners with the community to create a Walking Art Trail through the downtown village which showcases the art work on painted utility boxes. Walk La Mesa is a program free for participants and has schedules for walking through different part of La Mesa.

Urban Walking Trails have been designated at three locations for different levels of difficulty. There are three different routes - with blue markers for beginner, green markers for intermediate and red markers for advanced levels. These walks are fun and unstructured volunteer groups get together each week for walks.

The City of La Mesa has several sets of public stairways in the Mt. Nebo/Windsor Hills area. These stairways were installed many years ago to facilitate foot traffic through the adjacent neighborhoods. La Mesa is one of the few areas in San Diego County that have a system of public stairways. Residents take pleasure in facing the challenge of navigating the steep ascents.

The City and the La Mesa Wellness Task Force should continue to promote these activities and facilities to encourage more walking and exercise.

7. Participate in Walk and Bike to School Day

Now in its 13th year, this one-day event in the U.S. is a part of an international effort in more than 40 countries to celebrate the many benefits of safely walking and bicycling to school and to encourage more families to consider getting out of the car and onto their feet on the way to school in October. Walking and rolling to school also embodies two main goals of First Lady Michelle Obama's Let's Move! campaign: to increase our kids' physical activity and to empower parents to make these kinds of healthy choices.

The National Center for Safe Routes to School, which serves as the clearinghouse for the federal Safe Routes to School (SRTS) program, coordinates online registration efforts and provides technical support and resources for Walk to School Day. Safe Routes to School programs are sustained efforts by parents, schools, community leaders and local, state, and federal governments to improve the health and well-being of children by enabling and encouraging them to walk and bicycle to school. Safe Routes to School activities range from building sidewalks, to getting drivers to slow down in school zones, to encouraging students to take active trips to school with school-wide competitions. On average, at least 50 percent of Walk to School Day events are part of an ongoing SRTS program each year. For more information, go to www.walktoschool.org.

With concerns about childhood obesity, climate change, and high gas prices, choosing to leave the car at home for the trip to school is a step in the right direction. Each year, students from eight La Mesa-Spring Valley District schools participate in International Walk to School Day. This event promotes healthy lifestyles and a cleaner environment by inviting children and their parents to walk or bike to school for this world-wide event which has grown to include over 45 countries on every continent. Local elected leaders, community champions and public safety personnel also lend their support to La Mesa's National Walk to School Day and help celebrate the many benefits of safely walking and bicycling to school. This event is part of the ongoing effort of the La Mesa Kids Walk & Roll to School Safe Routes program, which encourages students and families to get to and from school in a healthier and safer manner by walking or biking.

8. Promote the Walking School Bus and Bicycle Train

These programs are volunteer based in which children are assisted by adults to walk or bike to school. This program can be as informal as two families taking turns walking or riding their bikes to school or a more structured route with meeting points, a timetable and a regularly rotated schedule for trained volunteers. Parents often cite safety issues as one of the primary reasons they are reluctant to allow their children to walk to school. Providing adult supervision may help reduce those worries for families who live within walking or bicycling distance to school.

The City can start with one school as a pilot program and expand to other school if there is demand. Success with a simple walking school bus or a bicycle train may inspire a community to build a more structured program. This may include additional routes, more days of walking and bicycle and more children. Alternating days between walking and biking to school can provide variety to a structured program. These programs and volunteer efforts require coordination and potential attention to other issues, such as safety training and liability. These efforts can coincide with other educational programs such as "bike rodeos" at the schools. The participating school principal and administration, law enforcement and other community leaders should be involved to help promote an alternative travel to automobiles. For more information visit www.walkingschoolbus.org.

4.2 Education

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 cyclists alike is an important tool for the safety of those using the roads. The more knowledgeable all users are about the rights and rules each party has, the less potential there will be for conflict and incidents. Direction and destination signage should be placed to inform cyclists of the route to their destination or nearby landmark.

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

Provide training opportunities for engineering, planning staff and law enforcement on how to best accommodate cyclists. Help City staff to better understand cyclists' needs and behavior, their right to use City streets, as well as multi-use paths for transportation. For example, in California a source for outside evaluation is the Institute of Transportation Studies at the University of California, Berkeley, which is been one of the world's leading centers for transportation research, education, and scholarship. Its mission is to conduct research and provide instruction to transportation professionals. Additionally, the City can contact the San Diego County Bicycle Coalition (SDCBC) for staff training available on a fee for service basis.

3. Have bicycling and motorist education messages added to routine local activities

Increased education for motorists and cyclists is needed. Increase public awareness of the benefits of bicycling and of available resources and facilities. Getting more people on bikes will also help modify motorists' behavior. In other cities, the primary method of education being used to reach both motorists and cyclists 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. A guide to developing a bicycle rodeo created by Cornell University can be found at http://www.bike.cornell.edu/pdfs/Bike_Rodeo_404.2.pdf. The San Diego County Bicycle Coalition (SDCBC) is another local resource to utilize for information and assistance.

4. Create a public education campaign aimed at the behavior of cyclists, pedestrians and motorists

Develop a traffic calming program designed to makes streets a more pleasant and safer place, which ultimately can reduce the number of traffic related accidents, injuries and deaths. This program can address the traffic problems through the motorist, pedestrian and cyclist. The intent is to raise public awareness and discussion about peoples' attitudes and actions on the streets. It can offer new ways of thinking and reinforce that laws are to be followed. The City of San Jose has developed a program and strategic objectives for this type of campaign. The campaign information can be found at http://www.getstreetsmarts.org.

Locally, the City of San Diego in partnership with SANDAG and SDCBC has created a public education campaign entitled "Lose the Roaditude." More information can be found at http://losetheroaditude.com.

5. Expand the Safe Routes to School program and encourage all schools to get involved

La Mesa has already been involved with it's very own Safe Routes to School programs. The City should continue to encourage schools to participate in the Safe Routes to School program to 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 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.

The City should continue to assist with "bike rodeos" and other bicycle education programs for City schools. Funding is available at both the federal and state level for a Safe Routes to School program. This funding can be used for a variety of activities including site specific evaluation and planning, infrastructure costs and education programs. Assistance with funding applications and program facilitation is available from local non-profits WalkSanDiego and SDCBC. More information can be found at: http://www.saferoutesinfo.org. Currently, SANDAG and the County of San Diego are assisting with Safe Routes to School implementation.

As part of the Federal Safe Routes to School Program, the "La Mesa Kids Walk & Roll to School" program brings together WalkSanDiego and the City of La Mesa's "Live Well Initiative" with the La Mesa-Spring Valley School District, County Health and Human Services and many other community organizations to encourage walking and biking to schools. Inactivity among children is a health issue and bicycling to school is a way to get children active and introduce exercise into their daily routine. The program is guided by a Steering Committee (Safer Routes Team) comprised of school administrators, public officials, principals, teachers, school organizations, students, community stakeholders and neighbors. The four-year grant project implements the "5 E's" of Safe Routes to School: education, encouragement, enforcement, engineering and evaluation.

The Five E's in La Mesa:

Education

- Presentations for parents, students and school staff
- Bike safety programs (Bike Rodeos)
- Workshops

Encouragement

- Walk to School Day
- Walking School Bus
- Walk on Wednesdays (WOW)
- Art/creativity contests
- Promotional materials (pedometers, reflectors, bike helmets, etc.)

Enforcement

- School safety patrol training
- Mobile speed trailers
- Safety patrol equipment upgrades
- Extra patrols during arrival and dismissal

Engineering

- Parent suggested safe routes maps
- Walk/bike audits performed by workshop participants and La Mesa Public Works engineers
- Infrastructure improvements

Evaluation

- Surveys
- Classroom student tallies

6. Implement a program to encourage proper helmet use

There are many resources available for assistance with curriculum, materials and information about bicycle safety and specifically helmet usage, fitting and safety statistics. The California Department of Public Health lists California specific resources for teachers and : http://www.cdph.ca.gov/HEALTHINFO/INJVIOSAF/Pages/BicycleSafety.aspx.

The Brain Injury Law Center is giving away CPSC-certified helmets for persons 19 years old or younger, anywhere in the United States for free through December 31, 2010. For more information visit: http://www.brain-injury-law-center.com/about-us/helmets-for-kids.html.

The Bicycle Helmet Safety Institute is another resource with a wealth of information, links and free toolkits. It is a small, active, non-profit consumer-funded program providing bicycle helmet information. http://www.bhsi.org

4.3 Enforcement

1. Encourage the police department to use targeted enforcement to educate motorists and cyclists of traffic laws and to share the road

This could be in the form of a brochure or tip card explaining each user's rights and responsibilities. Encourage the Police Department to warn and educate cyclists and pedestrians about breaking the laws, the rules of the road and safety procedures. This will help educate law enforcement, motorists, pedestrians and cyclists. Possible traffic safety problems where enforcement is part of the solution.

- Speeding in school zone
- Illegal passing of school bus
- Not yielding to pedestrians in a crosswalk
- Parking violations – bus zone, crosswalks, residential driveways, time zones
- Risks to pedestrians and cyclists during drop-off and pick-up times.
- Lack of safety patrol/crossing guard operations
- Unsafe pedestrian and bicycle practices
- Other traffic law violations in school zone
- Crisis management/incident response

2. Designate a police department liaison for the cycling community

This liaison would be the main contact for the residents concerning bicycle-related incidents. A liaison that serves the cycling community is an integral piece of communication between law enforcement and the cycling community. The liaison would be in charge of educating fellow police officers about bicycling rules, etiquette and behavior to better serve both motorists and cyclists alike. Allocate funding for the training and support of this duty as well as for necessary bicycle equipment.

3. Establish a process for referrals to law enforcement

Design a communication process that encourages students and parents to notify the school and police of the occurrence of a crash or near miss during school commute trips involving auto, bus, pedestrian, or bicycle transportation. Include the La Mesa Police Department and Public Works in this reporting system to help produce more valuable data.

4. Enlist the help of law enforcement with a number of traffic safety duties

- Enforcement of traffic laws and parking controls through citations and warnings.
- Targeted enforcement of problem areas – an intensive, focused effort during the first two weeks of school and a strategy for the rest of the year.

- Participation in School Safety Committees and Safe Routes to School task force to help identify safety problems and solutions.

4.4 Engineering

1. Adopt a "Complete Streets" policy

Every street should accommodate cyclists, 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. (This has now been codified in California as AB 1358, the Complete Streets Act of 2008.)

2. Continue to expand and maintain the bicycle network

Expand bicycle access to all parts of the city through a signed network of on and off-street facilities, low-speed streets, and secure parking. Assist cyclists to cross barriers (including I-8 and SR 125) and to reach their desired destinations in a convenient, timely and comfortable manner on a bicycle route network. Consider bicycle friendly design using new technologies and innovative treatments at intersections and on roads and bikeways. Install bicycle stencils and bicycle-sensitive loop detectors (or other detector type) on bikeways as part of new signals, signal upgrades, and resurfacing/re-striping projects conforming to the latest MUTCD guidelines. 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, which acts as a recurring reminder to safely share the road. Implement the recommended facilities in the 2010 Bicycle Facilities Plan through prioritized increments or available funding.

Local cyclists should be involved in identifying maintenance needs and ongoing improvements. Develop a maintenance schedule for bicycle facilities. This includes regular sweeping, removal of debris. When any roadwork repairs are done by the City or other agencies such as utilities, the road shall be restored to satisfactory quality, with particular attention to surface smoothness and restriping suitable for bicycling.

3. Increase the amount of secure bicycle parking

Provide plentiful, high quality bicycle parking facilities to complement the bicycle route network consistent with SANDAG Regional Bicycle Plan. Increasing bike parking, especially in areas of high bicycle traffic, will encourage bicycle use and give cyclists a safe place to park their bikes. Provide short- and long-term bicycle parking in employment centers and multifamily developments, at schools, special events, recreational areas, and transit centers. If there is a safe, weather-proof place to park their bicycles, employees may be more inclined to commute by bicycle to work. Bicycle racks should be monitored for rust and disrepair. See Appendix D for more information on how to select and install bike racks.

4. Promote intermodal travel

The City can do this by increasing connections between public transport and bicycles, by improving access and bicycle parking at the bus stops and other public transport vehicles. This can be enhanced by distributing information on cyclists' ability to put their bikes on a bus rack, trolley and travel outside the City without the use of a personal vehicle.

5. Identify opportunities to make engineering improvements

The City has done a good job of identifying pedestrian needs with improvements near schools such as curb pop-outs, truncated domes and median refuges. Continuing the effort to engage the public and school officials to improve facilities at all the schools is important to promote walking and biking to schools, transit stops and shopping centers. Examples of items to address are:

- Traffic control signs in school zone – legible, visible, and placed properly
- Curb and pavement markings – crosswalks, parking controls, and bike lanes
- Signal timing adjustments – especially during morning and afternoon peak times, to allow more time for children to cross the street
- Vegetation trimming and object removal from sidewalks and paths
- Drop-off/pick-up operations – safe, efficient, monitored, and enforced
- Off-street lots for drop-off/pick-up
- Parking controls – bus zone, ADA spaces, truck loading, no parking, and time zones
- Traffic safety monitoring, supervised crossings, and school zone enforcement

4.5 Evaluation and Planning

1. Integrate development of the cycling network into larger land use planning and development projects

Future developments such as businesses, parks and residential developments need to take into account bicycles as a mode of transportation and incorporate appropriate facilities to meet their needs. Secured bike parking such as racks or lockers, as well as showers and changing rooms are a few examples of incorporating facilities within new developments, along with bike paths and bike lanes. As a condition of project approval, require development projects to construct adjacent bicycle facilities included in the proposed bicycle system and provide adequate bicycle parking.

Coordinate bikeway improvements to coincide with already scheduled and funded projects to minimize any overlapping costs or work. For example, include bikeway and pedestrian improvements in the City's Capital Improvement Program.

2. Consistency and Cooperation

Strive for intra-agency coordination within the City to ensure the City's Bicycle Facilities Plan is incorporated at every level of transportation planning, engineering, and design. Ensure all City policies, plans, codes and programs are updated and implemented to take advantage of every opportunity to create a more bicycle-friendly community. An integrative approach results in creative funding opportunities, synergistic teamwork and successful projects. An example is the Portland, Oregon project integrating traffic calming measures and stormwater retention. Intersection curb extensions were installed to serve as a traffic calming measure and also designed to serve as catch basins to capture stormwater. This ingenious program is called Portland's "Greenstreets Program" and allowed the city to utilize stormwater retention funding to install otherwise costly traffic calming infrastructure that also improved the local urban visual environment.

Cooperation should also extend beyond city limits. Coordinate with adjacent military, local and regional agencies to ensure strong bicycle connections and inclusion of the City's Bicycle Facilities Plan in other planning efforts.

Recommended Evaluation Actions:

1. Develop a Mobility Report Card

The City could develop a mobility report card; a checklist used to measure the success of vehicle, bicycle, pedestrian and transit implementation and actions within La Mesa. The report card could be used to identify the magnitude of accomplishments in the previous year, since inception and the general trends.

The mobility report card could include, but be not limited to, the following categories. The list below represents a wide menu of factors that the City could present together as a report card or a la carte.

- System completion
- Bicycle Ridership (counts)
- Transit Ridership (counts)
- Transit Goals (frequency, service hours)
- Safety (vehicle-vehicle collisions, vehicle-bike/ped collisions)
- Funding

As opposed to focusing on the actual annual change in a given category, the City could establish the report card to track trends. For example, an upward trend in travel by bicycle would be viewed as a success, regardless of the specific increase in the number of cyclists. Safety should be considered relative to the increase in cyclists. Sometimes collisions go up simply because ridership increases, at least initially. Instead measure collisions as a percentage of an estimated overall mode share count.

A major portion of the bicycle report card would be an evaluation of system completion. An upward trend would indicate that the City is progressing in its efforts to complete the bicycle network identified in this document.

The report card could be updated annually and could be expanded to included elements of other transportation modes in the City, such as transit. Transit ridership should also be collected to analyze trends from year to year. This trend data would be beneficial in identifying ridership increase if/when new bus stops or transit stations have been added or improved. This will provide data into whether ridership has increased due to improved facilities and/or increased frequency. Evidence that improved facilities increased transit ridership would help when seeking grant funding for additional improvements.

The report card could be developed to utilize information collected as part of annual and on-going evaluations, as discussed in the following sections. The report card is not intended to be an exhaustive effort for City staff, but rather a straightforward means of conveying the results of the City's recent efforts to the public.

If a committee is appointed to help implement the Bicycle Facilities Plan and guide future progress as it relates to bicycling in the city, it can be a task of the committee to review the progress of the report cards and adjust future plans and goals accordingly.

2. Review Bicycle/Motorist Collisions

Continue to collect and track bicycle collision data. Traffic collisions involving cyclists could be reviewed and analyzed regularly to develop plans to reduce their frequency and severity. Any such plans should include Police Department involvement and should be monitored to determine their effectiveness.

Results of the number of bicycle-related traffic collisions should be recorded for inclusion in the bicycle report card.

3. Conduct Annual and/or Seasonal Bicycle Counts throughout the City

Conduct bicycle counts throughout the city to determine mode share baseline and changes. Gathering bicycle counts would allow the City to collect information on where the highest bicycle activity occurs. This assists in prioritizing and justifying projects when funding is acquired. Bicycle counts can be advantageous in collecting data to study cycling trends throughout the City. Analysis that could be conducted includes:

- Trends in volume
- Changes in volumes before and after projects have been implemented
- Determining needs for non-motorized facilities
- Trip generation rates
- Prioritization of local and regional projects
- Research on clean air change with increased bicycle use
- Traffic impacts

Counts should be conducted at the same intersections and at the same time every year. Conducting counts during different times of the year may be beneficial to understand the differences in traffic patterns throughout the year.

In addition, bicycle counts should be collected as part of any existing traffic counts. Results of the number of cyclists should be regularly recorded for inclusion in the bicycle report card.

4. Quantify Encouragement Efforts

As part of education and encouragement goals, the City should strive to conduct at least three bicycle-related encouragement events per year. Examples of encouragement events include bike-to-work day events, bicycle rodeos, ciclovias etc. The annual tally of events could be completed in conjunction with completion of the bicycle report card.

5. Public Transit Infrastructure

La Mesa is well served by the region's transit system. Most neighborhoods are located within a half mile of a trolley station or bus stop. The Orange and Green Lines of the San Diego Trolley system are operated by the Metropolitan Transit System (MTS). MTS is the regional transit service provider in the southern half of San Diego County. The Orange Line runs between the downtown San Diego and Santee along the original right-of-way for the San Diego and Arizona Eastern Railroad. The Green Line runs through Mission Valley, along the I-8 corridor and into La Mesa with stops at 70th Street, the Grossmont Station and the Amaya Drive Station. These two trolley lines provide excellent transit access between the La Mesa, downtown San Diego, San Diego State University, Mission Valley and the South Bay. Approximately 4,700 passengers board the trolley at La Mesa stations every day.

Additional transit service is provided by bus routes along most of La Mesa's major streets. Bus routes along University Avenue, El Cajon Boulevard and La Mesa Boulevard provide east-west access and routes on Baltimore Drive and Lake Murray Boulevard provide north-south access. Approximately 2,000 passengers per day board transit at La Mesa bus stops each day. Figure 5.1 Shows the transit services and Figure 5.2 shows the volume of passengers at stops within La Mesa.

5.1 City of La Mesa Public Transit Goals, Policies and Objectives

Goal: To provide and promote a diverse public transit system which offers an efficient and cost effective transportation alternative to the community and a means of reducing traffic congestion and improving air quality. (CE 17)

Objective: Promote an efficient and reliable transit system that offers convenient alternatives to private vehicle travel

Policy 1.1
The City will work with MTS to provide bus stop amenities, including lighting, covered waiting areas and coordinated transfers between transit services.

Policy 1.2
The City will encourage MTS to provide a full range of passenger services at trolley stations, including security measures, concessions, route information, benches, bicycle parking, trash receptacles, directional signing and lighting.

Policy 1.3
The City will encourage MTS to provide suitable landscaping and funding for maintenance along trolley rights-of-way in La Mesa.

Policy 1.4
The City will work with MTS and SANDAG to improve transit coverage and increase service frequency at trolley stations and bus stop throughout the City.

Policy 1.5
The City will advocate for a network of regional bus routes which will allow La Mesa residents to travel to all parts of the San Diego region efficiently, effectively, and safely.

Policy 1.6
The City will utilize the existing transportation facilities and services to the most efficient extent possible.

Policy 1.7
The City will support transportation programs the meet the special travel needs of the elderly and persons with disabilities.

Policy 1.8
The City will apply design standards applicable to new developments which will improve access to public transit.

Policy 1.9
Accessible routes will be provided within a quarter-mile of major bus stops and trolley stations, including closing gaps in the sidewalks and providing wheelchair ramps.

5.2 Light Rail Infrastructure

Five trolley stations are located in La Mesa, four of which have parking lots to accommodate park-and-ride commuters. The La Mesa Boulevard station does not have a dedicated parking lot, however public off- and on-street parking exists within the nearby Civic Center complex. La Mesa's downtown district supports pedestrian travel and the district is well served by primary bus routes, reducing the need for a dedicated transit parking lot. The Downtown Village Specific Plan notes a long-term goal of working with MTS to study the feasibility of jointly developing a parking structure in conjunction with other redevelopment concepts for the Downtown area. At the Grossmont Station, the City of La Mesa and MTS reached agreement on the provision of 600 structured parking spaces dedicated to park and ride commuters. These spaces are provided in conjunction with the transit oriented development recently constructed adjacent to the station.

In addition to parking, other aspects of the operation and development of the Trolley system are important to the City, including:

Landscaping: The City was successful in obtaining landscape improvements within the trolley right-of-way. The City will continue to work with MTS on landscape improvements within the trolley right of way.

Security: Security is one of the most important aspects of the transit services and MTS works to provide an appropriate level and mix of security measures necessary to provide a safe environment for passengers. The City and MTS will continue to work together to strengthen transit security.

Joint Development Ventures: The City, MTS and a private sector developer recently completed a joint use development of Grossmont Trolley Station parking lots. This transit oriented development (TOD) includes 527 apartment units, recreation facilities and attendant parking spaces along with 600 dedicated transit passenger parking spaces. The City will continue to work with MTS and developers interested in pursuing TOD projects at other locations adjacent to trolley stations.

Amenities: The standard MTS trolley station consists primarily of a shelter and, in some cases, a telephone. A lack of other amenities, focused on passenger comfort, diminishes the attractiveness of transit services. An on-site security attendant or vendor contributes to a safe environment, preventing vandalism and other more serious crimes. The City will encourage MTS to consider including the facilities for restrooms and concession stands in any future stations in La Mesa. The following stations are within La Mesa City Limits:

Served by Orange Line Only: La Mesa Boulevard and Spring Street

Served by Green Line Only: 70th Street

Served by Both Lines: Amaya Drive and Grossmont Center

Trolley stations generally include two platforms, a large shelter, information signage, telephone and ticket vending machines. All trolley vehicles can accommodate bicycles and all transit stations have bike lockers. High-volume trolley stations act as multi-modal Transit Centers, offering passengers connection between light rail transit and bus services.

An inventory of station boarding and alighting completed in 2010 provides a snapshot of transit usage within the City of La Mesa. Table 5.2 shows the transit stop locations serving the greatest number of daily passengers within La Mesa.

The operating details of each line are shown in Table 5.1 and Table 5.2, list the top ten transit center boardings and alightings.

Table 5.1 Trolley Service in La Mesa

Route	Type	Effective Date	Route Description	Span of Service	Peak Frequency (minutes)	Mid-Day Frequency (minutes)	Night Frequency (minutes)
520	Orange Line	1/2011	Downtown San Diego – Gillespie Field	Monday-Sunday; 4:16A-1:55A	15	15	15/30
530	Green Line	1/2011	Old Town San Diego – Santee	Monday-Sunday; 4:15A-12:55A	15	15	15/30

Table 5.2 Top Ten Transit Center Boardings and Alightings

Station Name	Boardings	Alightings	Total Passengers
Grossmont Transit Center	1,280	1,282	2,562
La Mesa Blvd Trolley Station	1,203	1,166	2,369
Spring Street Trolley Station	1,005	1,252	2,257
Amaya Trolley Station	556	638	1,194
70th Street Trolley Station	476	491	967
Allison Ave and Date Ave Bus Stop	179	179	385
Grossmont Center Dr at Center Dr Bus Stop	85	85	170
Grossmont Center Dr at Center Dr Bus Stop	74	74	148
Allison Ave and Spring Street Dr Bus Stop	53	53	106
El Cajon Blvd and Jessie Ave Bus Stop	52	52	104

Source: MTS , 2010

5.3 Bus Service

In addition to the Trolley service, MTS provides bus service within the City of La Mesa. The map shown in Figure 5.1 shows bus route alignments and Figure 5.2 shows a map of the locations of the bus stops. Details about the bus route transit serving La Mesa are listed in Table 5.3. All of the MTS buses feature either front-mounted or side compartment racks for bicycles.

Table 5.3 MTS Fixed-Route Transit Service

Route	Type	Effective Date	Route Description	Span of Service	Peak Frequency (minutes)	Mid-Day Frequency (minutes)	Night Frequency (minutes)
1	MTS Local Bus	9/5/10	Hillcrest – Grossmont Transit Center	Monday-Sunday; 5:01A-12:30P	15	15	30
7	MTS Local Bus	9/4/11	Downtown San Diego – Allison Ave and Palm Ave.	Monday-Sunday; 4:30A-2:01A	24	24	30
14	MTS Local Bus	2/28/10	Grantville Trolley – Lake Murray Blvd	Monday-Sunday; 5:55A-10:12P	60	60	60
851	MTS Local Bus	6/15/09	Spring St. Trolley – Spring Valley	Monday-Friday; 5:14A-6:58P	45-60	60	NA
854	MTS Local Bus	9/4/11	Grossmont Transit Center – Grossmont College	Monday-Sunday; 5:36A-10:15P	15-30	30	60
855	MTS Local Bus	2/28/10	Spring Street Trolley – Rancho San Diego	Monday-Sunday; 5:14A-11:00P	30	30	60

Bus shelters on Allison Ave and Date Avenue

Figure 5.1: Transit Service

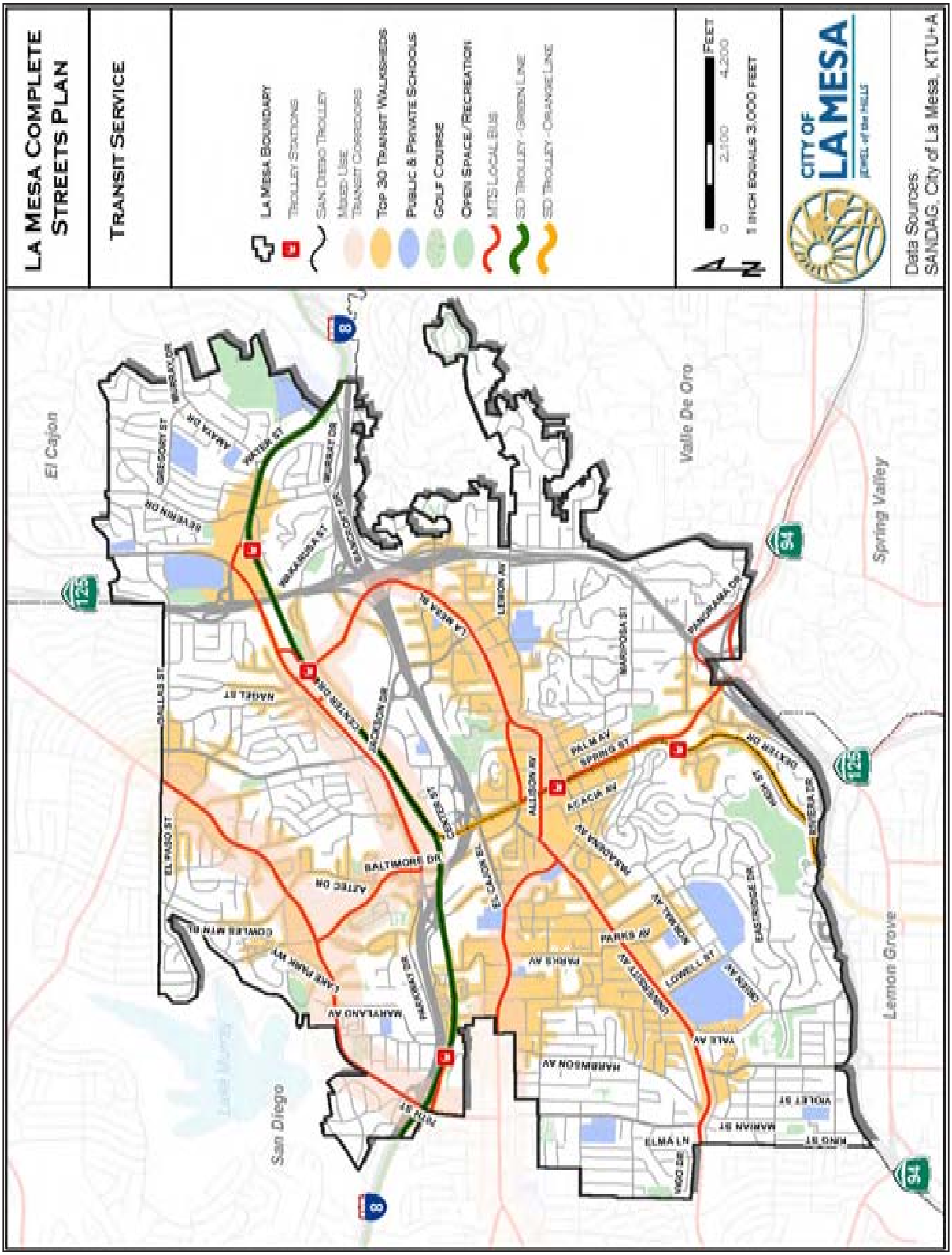
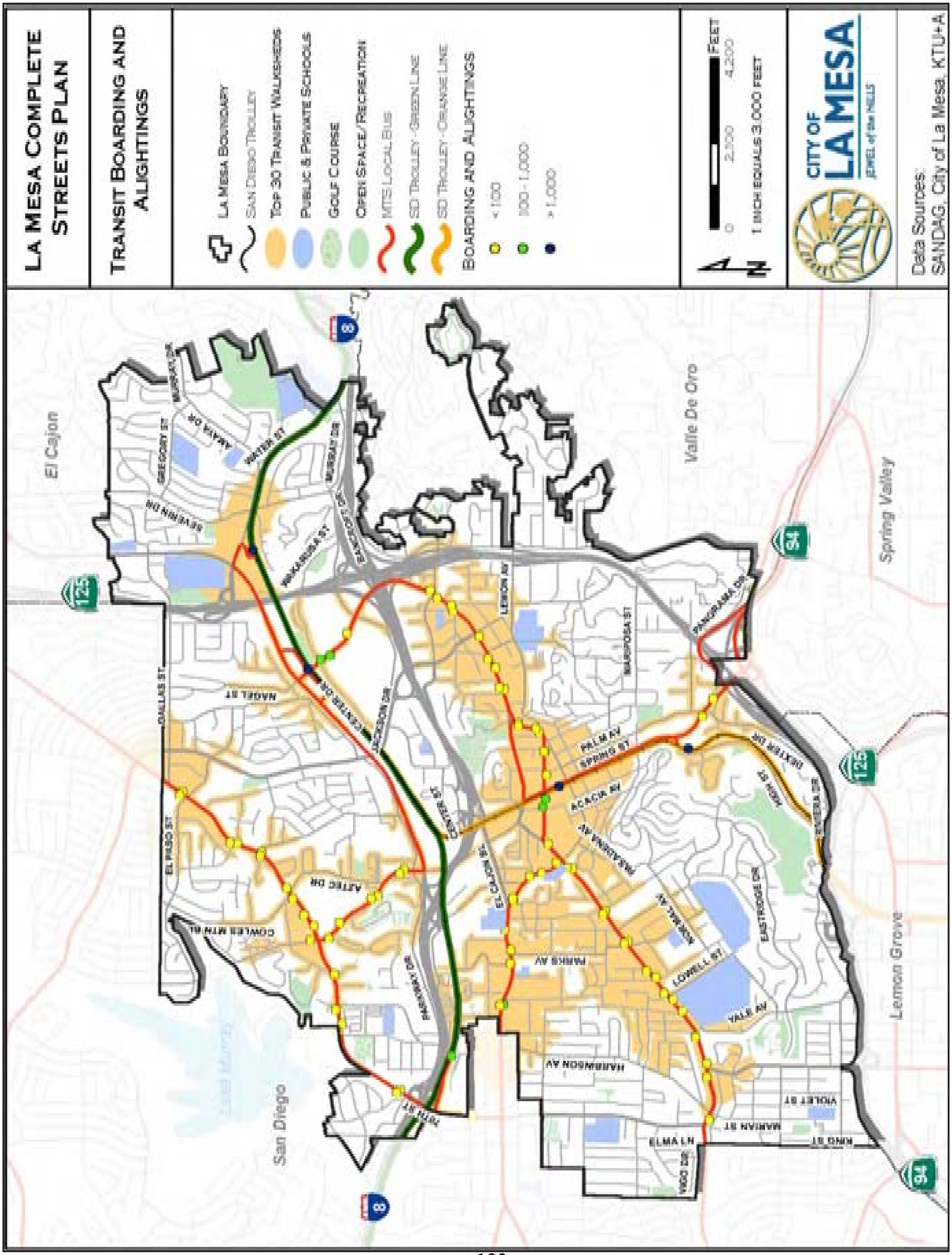


Figure 5.2: Transit Boardings and Alightings



5.4 ADA Paratransit Service

The Americans with Disabilities Act (ADA) mandates that MTS provides a curb-to-curb transit service for persons with disabilities who are unable to use fixed-route service and live within three-quarters of a mile of trolley or bus service. Eligible La Mesa residents are served by the MTS "Access" service, which covers most of the neighborhoods within the La Mesa city limits.

A two-week sampling of Access trips in May of 2011, identifies key destinations of the 352 unique passengers requesting the service. Usage varied from a low of two trips per passenger (one round trip) in the two-week sample, to a high of over twenty trips per passenger. This pattern of use is fairly common to paratransit services, as riders often link several trips over the course of the day to accommodate shopping, medical, or personal trips, and each leg of their travel is logged by the system as a unique event, thus the seemingly high number of trips per person. Using the address information logged by the system, Table 5.4 lists the most-requested Access destinations, along with the number of trips in the sample period.

Table 5.4 Most Requested MTS Access Destinations

Most Requested MTS Access Destinations		
Grossmont Center	5500 Grossmont Center Drive	76
Challenge Center	5540 Lake Park Way	74
Various Medical Offices	8851 Center Drvie	34
Various Medical Offices	8881 Fletcher Parkway	28
Kaiser Permanente	8080 Parkway Drive	28
Shirley's Kitchen	7118 University Avenue	28
San Diego Dialysis Services Inc	5995 Severin Drive	24
Various Medical Offices	5565 Grossmont Center Drive	22
Innovative Center	7464 University Avenue	20
Sharp Grossmont Hospital	5555 Grossmont Center Drive	18

Source: MTS , 2011

5.5 Specialized Travel Programs Sponsored by the City of La Mesa

The City of La Mesa provides a volunteer-based paratransit service, the Ride4Neighbors program. Ride4Neighbors volunteer drivers are reimbursed for mileage and receive secondary liability insurance in exchange for driving seniors to their destinations. As a volunteer, the drivers decide their availability and choose the rides they wish to provide. There is no minimum time commitment or number of rides required to be a volunteer. The program participant can either call when a ride is needed, or be notified via an e-mail blast. The Rides4Neighbors program is funded by a Federal New Freedom grant administered by SANDAG. Authorized by the State and Federal governments as the transportation planning agency for the San Diego region, SANDAG covers the development and operating expenses of the Rides4Neighbors program..

The City of La Mesa also provides Senior Taxi Script program for seniors and people with disabilities who live within the Grossmont HealthCare District. Eligible passengers can purchase $20.00 of taxi fare for $10.00. La Mesa provides eligibility verifications for the riders and sells the taxi script.

5.6 Assessment of future trolley and bus service levels

SANDAG has developed regional transportation modeling forecasts that indicate that La Mesa will see small changes in transit levels of service in the future. For every horizon year forecast, SANDAG provides two revenue scenarios- "reasonably expected," and "revenue constrained." For the purpose of this Plan, each scenario was reviewed for the year 2020.

Based on these forecasts, and owing to La Mesa's relatively built-out, developed nature, relatively minor changes are anticipated for the City. These include the addition of a handful of bus stops along existing routes in the City, an increase in service frequency of existing routes (including the trolley), and a potential new alignment along Palm Avenue between Allison Avenue and Spring Street.

In addition, SANDAG is in the process of updating its Long Range Transportation Plan, which includes a number of conceptual services and alignments for the region in the year 2050, designed to comply with SB 375 and limit greenhouse gas emissions by connecting transportation and land use decisions.

While conceptual in nature, these alternatives generally call for an increase in transit service frequency and quality (in the form of limited-stop Rapid Bus service), and a series of improvements to the pedestrian and cycling environments surrounding transit access points. The preferred strategy is scheduled to be adopted sometime in 2011.

5.7 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 La Mesa. The highest ridership activity is centered on downtown La Mesa, particularly around the La Mesa Blvd Trolley Station. This area has several hundred riders daily from both bus and trolley modes. The location with the highest ridership is the Grossmont Transit Station.

In general, a well-designed transit stop should include a five-foot by eight-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 trolley stations in La Mesa 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. 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, commercial businesses or topography. For example, the Grossmont Transit Center, Amaya Drive Transit Center and the 70th Street Trolley Station are located next to steep hillsides which limit the line of sight of neighboring land uses. In addition, providing a mixed land use with a medium to high density environment, will support increased transit ridership such as is the case for the Grossmont Transit Center.

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 pedestrians.

Table 5.5 lists the total wheelchair and bicycle usage from the top ten transit stations and bus stops.

Table 5.5 Transit Usage and Access

Transit Station/Stops	Boardings	Alightings	Total	Wheelchair Total	Bicycle Total
Grossmont Transit Center	1,280	1,282	2,562	11	127
La Mesa Blvd Station	1,203	1,166	2,369	15	57
Spring Street Trolley Station	1,005	1,252	2,257	16	29
Amaya Drive Station	556	638	1,194	8	62
70th Street Trolley Station	476	491	967	1	40
Allison Ave and Date Ave Bus Stop	179	179	385	0	0
Grossmont Center Dr at Center Dr Bus Stop	85	85	170	0	0
Grossmont Center Dr at Center Dr Bus Stop	74	74	148	0	0
Allison Ave and Spring Street Dr Bus Stop	53	53	106	0	0
El Cajon Blvd and Jessie Ave Bus Stop	52	52	104	0	0

Source: MTS , 2010

ADA accessible ramps at the Spring Street Trolley Station

New elevator and staircase at the Grossmont Transit Center

Bike lockers at the 70th Street Trolley Station

5.8 Bus Stop Issues

Bus stop amenities and conditions vary throughout the City. Many of the high use bus stops typically have shelters and almost all bus stops have some seating. Some bus stops are shaded enough by adjacent trees that shelters not needed. Bus access to some of these stops can include bus turnouts on high volume streets but typically, the bus stops partly in the travel lane to allow passengers to board. This section identifies some of the common issues at bus stops and provides a table to guide the City's efforts to improve bus stop amenities.

Figure 5.3 Bus Stop Issues

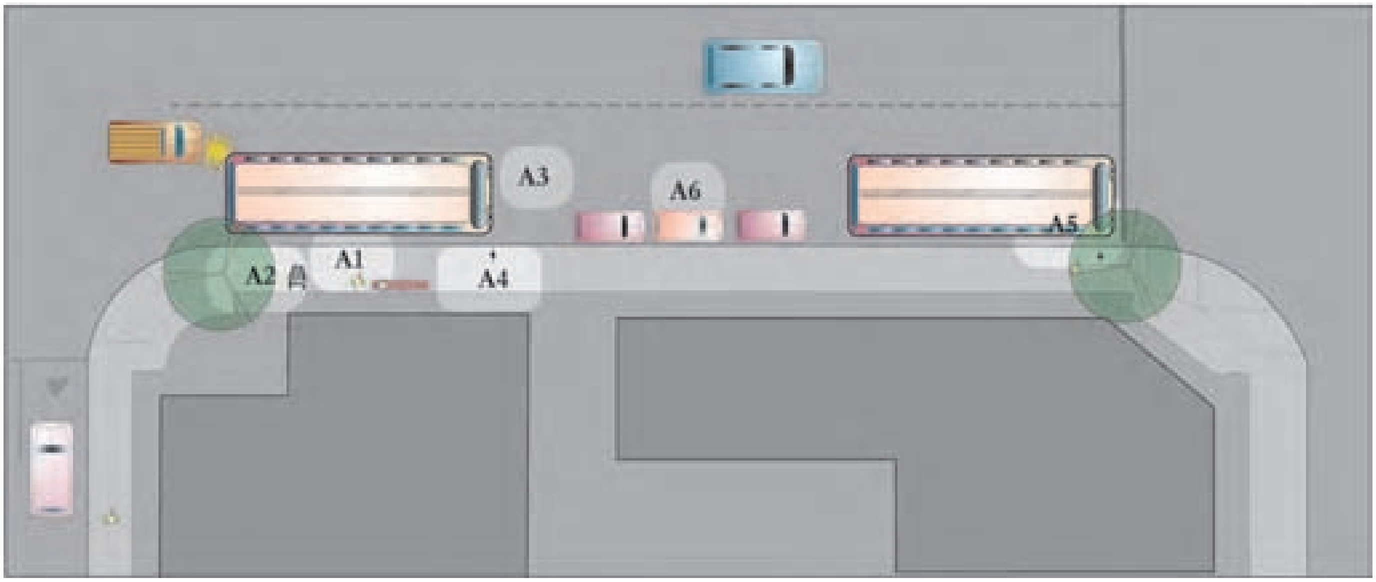


Table 5.6 Bus Access Issues and Preferred Guidelines

Bus Access Issues and Preferred Guidelines
A1) Insufficient transit access/sidewalk clear space (10-15' preferred)
A2) Insufficient vertical clearance of street trees (15' preferred)
A3) Insufficient curbside lane widths (12-14' preferred)
A4) Insufficient clearance between lane and lateral obstuctions widths (2' preferred)
A5) Bus stop pavement area is inadequate and prone to degradation
A6) Insufficient stop clear distances (preferred for far-side stop is 80',near-side is 100', mid-block is 130')

Refer to regional "Designing for transit" for additional guidelines and clarification

Table 5.7 Bus Stop Guidelines

Bus Summary of Stop Guidelines			
Street / Stop Interface Criteria	**Minimum**	**Ideal**	**Maximum**
Bus berth length (add 20' if articulated buses will be used, plus 50'-70' for each additional bus using the stop simultaneously)	50'	50'	50'
In-lane type/far-side stop total length (includes 10' approach and 30' departure tapers)	80'	80'	80'
In-lane type/near-side stop total length (includes 60' approach taper)	100'	100'	100'
In-lane type/mid-block stop total length (includes 60' approach and 30' departure tapers)	130'	130'	130'
In-lane type/far-side stop after bus turn total length (includes 60' approach and 30' departure tapers)	130'	130'	130'

Bus Summary of Stop Guidelines			
Street / Stop Interface Criteria	**Minimum**	**Ideal**	**Maximum**
Turn-out type approach taper (included in turn-out lengths for near-side and mid-block stops)	60'	80'	80'
"Turn-out type departure taper (included in turn-out lengths for far-side and mid-block stops)	40'	60'	60'
Turn-out type/far-side turnout total length	90'	110'	110'
Turn-out type/near-side turnout total length	110'	130'	130'
Turn-out type/mid-block turnout total length	150'	190'	
Distance between rear door and front of bus (articulating)	45'	47'	50'
Straight curb distance needed for one articulating bus & one standard bus	110'	125'	150'
Height of outer curb nearest vehicle doors	6 inches	8 inches	9 inches
Cross slope pitch of walkway / platform	1%	1.5%	2%
Primary slope of walkway (ramp above 5%)	1%	2%	6%
Lane Criteria			
Lane width for in-lane transit stop (with street parking)	18'	20'	20'
Lane width for in-lane transit stop (without street parking)	12'	14'	14'
Lane width for pull-out curb length	12'	12'	14'
Stop Layout Criteria			
Sidewalk clear width	4'	6'	8'
Distance from front of vertical element of sign to curb	2'	2'	3'
Total width of platform area from curb to property setback line	10'	15'	n/a
Height clearance of any horizontal obstruction over walking area	8'	10'	n/a
Height clearance of any horizontal element over the transit lane past the curb	14'6"	15'6"	16'6"
Width at boarding door area for ADA access	6.88 x 6.5'	8' x 8'	8' x 8'
Extra Elements for Larger Stops			
Large size solid roof shade shelter	n/a	4' 8" x 16' 7"	n/a
Ticket vending machine with SmartCard recharge capabilities	n/a	3' x 3' pad	n/a
Real time bus arrival LED display system	n/a	6" x 3' LED sign	n/a
Community information board / map	n/a	1 display @ 3' x 4'	n/a
Public Art (accommodate art option but may not finance)	n/a	2-D Panel	n/a
Street trees	n/a	1 broad canopy tree	n/a
Advertisement panel	n/a	1 panel	n/a
Newsrack system	n/a	1 newsrack	Additional as needed
Wind break built into shade structure	n/a	1 windbreak	n/a
Moderate sized solid roof shade shelter with integral logo / name	n/a	8' x 4'	n/a
ADA Staging Area Markers Using Tactile Strips	n/a	4'	n/a
Transit stop sign pole at front boarding, with location identifier & braille plate	n/a	5' x 5'	n/a
Route maps & timetable information	n/a	2' x 3' display area	n/a
Sitting benches under shelter	n/a	Two @ 1.5' x 3'	n/a
Lean bars or rails under shelter	n/a	Two people	n/a
Trash receptacles	n/a	One Side Access	n/a
Security lighting	n/a	5 foot candles	n/a
Concrete bus pad	n/a	10' x 50'	n/a

Bus Stop Guidelines Source:
- Bus Stop Handbook, Street Improvements for Transit, City of Phoenix, Public Transit Department, January 2008
- Designing for Transit, A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area, Metropolitan Transit Development Board (MTDB), July 1993

5.9 Safe Routes to Transit: Recommended Transit Improvements

In 2011, La Mesa was awarded additional funding to identify deficiencies that hinder the use of public transit and overall accessibility to bus stops and transit stations. The objective of the project was to identify improvements that will enhance the experience of people travelling to and from transit service. Identifying these deficiencies inherently increases walkability and accessibility not only to transit services but public facilities, parks, schools and commercial areas. The facilities identified included, missing curb ramps, truncated domes, missing sidewalks, obstructions on the sidewalks, trip hazards, missing crosswalks and adequate sidewalk width. Other items identified were places where vehicles blocked sidewalks or bike lanes and where people didn't feel safe due to criminal activity or physical features such as wide intersections or high vehicular speed.

This project was conducted in conjunction with the City's Parks Master Plan to identify the same deficiencies as it relates to access to city parks. This collaboration brought forth a city wide data collection effort that surveyed 82% of the City's streets. The top 30 transit stations and bus stops were identified by the number of boardings and alightings. To determine the footprint of the survey area, or walksheds, for the top 30 transit stops, a GIS based 10-minute walk time analysis was performed. This analysis used the existing street network and a 2.5 miles per hour walk time to create the walksheds. Typically pedestrians walk at about 3 miles per hour, but 2.5 mile per hour represented typical delays at signalized intersections, stop signs or where the topography of the City slows the walking pace. Walksheds were created for each of the top 30 stops without any overlap from adjacent bus stops. This same methodology was used for the Parks Master Plan giving the City a vast area to survey. All transit stops and stations were surveyed to identify deficiencies at each stop. Since the stops follow similar corridors, many of the accessibility improvements of the top 30 sites overlap with the remaining transit stops. The transit stop survey includes the presence of a bus shelter, bench, lighting, signage, trash receptacle and if a hard surface exists for wheelchair access.

The City was then divided into five quadrants, each having 22-25 miles of roads to survey. Volunteers were provided with map books, photo samples and a measuring tool to begin collecting information for the Safe Routes to Transit Plan and the Parks Master Plan. Once the surveys were completed, the data was input into GIS to begin identifying needs and costs for improvements.

The transit locations are mapped on Figure 5.4 and Figure 5.5 shows the data collected for the barriers and conflicts within the walksheds. Table 5.8 summarizes the top 30 stops based on improvement costs. Detailed map sheets of each of the top 30 stops immediately follow to show the locations of the deficiencies and estimated costs of improvements. Table 5.9 summarizes the improvements for the remaining 51 bus stops. Only the bus stop improvement itself has been identified for the remaining 51 bus stops.

Overgrown vegetation on the High Street pedestrian path accessing the Spring Street Trolley Station on Navy-owned property.

Table 5.8 Top 30 Transit Stations and Stops Summary

Transit Stops				Costs					
Rank	Stop ID	Transit Station/Stop	Total Boarding and Alightings*	Transit Im-provement Cost	Accessibility Cost	Sub-Total Cost	Contingency (30%)	Total Cost
1	75031	Grossmont Transit Center	2,562	$5,400	$183,548	$188,948	$56,684	$245,632
2	75034	La Mesa Blvd Station	2,369	-	$490,222	$490,222	$147,066	$637,288
3	70032	Spring Street Trolley Station	2,257	-	$179,065	$179,065	$53,719	$232,784
4	75028	Amaya Drive Station	1,194	-	$166,049	$166,049	$49,815	$215,864
5	75032	70th St Trolley Station	967	-	$260,035	$260,035	$78,011	$338,046
6	13410	Allison Ave & Date Ave	358	$252	$220,008	$220,260	$66,078	$286,338
7	12986	Grossmont Center Dr & Center Dr	170	$4,500	$69,373	$73,873	$22,162	$96,034
8	11819	Grossmont Center Dr & Center Dr	148	$4,500	$240,567	$245,067	$73,520	$318,587
9	10324	Allison Ave & Spring St	106	$252	$366,625	$366,877	$110,063	$476,940
10	10306	El Cajon Blvd & Jessie Ave	104	$11,250	$481,721	$492,971	$147,891	$640,863
11	11065	El Cajon Blvd & Keeney St	92	$11,250	$286,622	$297,872	$89,362	$387,234
12	13170	La Mesa Blvd & University Ave	78	$10,650	$290,362	$301,012	$90,304	$391,316
13	10717	University Ave & Parks Ave	64	$10,650	$382,175	$392,825	$117,847	$510,672
14	10310	El Cajon Blvd & Parks Ave	62	$7,650	$192,335	$199,985	$59,995	$259,980
15	12973	Baltimore Dr & Parkway Dr	55	$4,500	$76,817	$81,317	$24,395	$105,712
16	11464	University Ave & La Mesa Blvd	52	$10,650	$178,410	$189,060	$56,718	$245,777
17	13521	University Ave & Pomona Ave	44	$10,650	$793,798	$804,448	$241,334	$1,045,782
18	11074	University Ave & Parks Ave	44	$10,650	$510,435	$521,085	$156,325	$677,410
19	11477	La Mesa Blvd & Glen St	40	$10,650	$1,120,364	$1,131,014	$339,304	$1,470,318
20	11456	Baltimore Dr & Lake Murray Blvd	40	$3,000	$194,807	$197,807	$59,342	$257,149
21	11073	El Cajon Blvd & Comanche Dr	40	$10,650	$394,604	$405,254	$121,576	$526,830
22	11080	La Mesa Blvd & El Cajon Blvd	38	$10,650	$656,109	$666,759	$200,028	$866,786
23	40134	Lake Murray Blvd & Aztec Dr	36	$10,650	$8,600	$19,250	$5,775	$25,025
24	11804	Baltimore Dr & Parkway Dr	36	$4,500	$2,100	$6,600	$1,980	$8,580
25	40132	Lake Murray Blvd & Baltimore Dr	33	$10,650	-	$10,650	$3,195	$13,845
26	10735	La Mesa Blvd & Grossmont Blvd	28	$3,000	$1,010,146	$1,013,146	$303,944	$1,317,090
27	11447	University Ave & Yale Ave	26	$10,650	$980,887	$991,537	$297,461	$1,288,999
28	40372	Lake Murray Blvd & Cowles Mountain Blvd	24	$4,500	$40,131	$44,631	$13,389	$58,021
29	40142	Lake Murray Blvd & El Paso St	24	$10,650	$52,800	$63,450	$19,035	$82,485
30	40715	Spring St & Palm Ave	23	$10,650	$453,395	$464,045	$139,213	$603,258
							Total Cost for Top 30 projects	**$13,630,646**

Source: 2010 MTS Data

Figure 5.4: Transit Stations and Stop Rankings

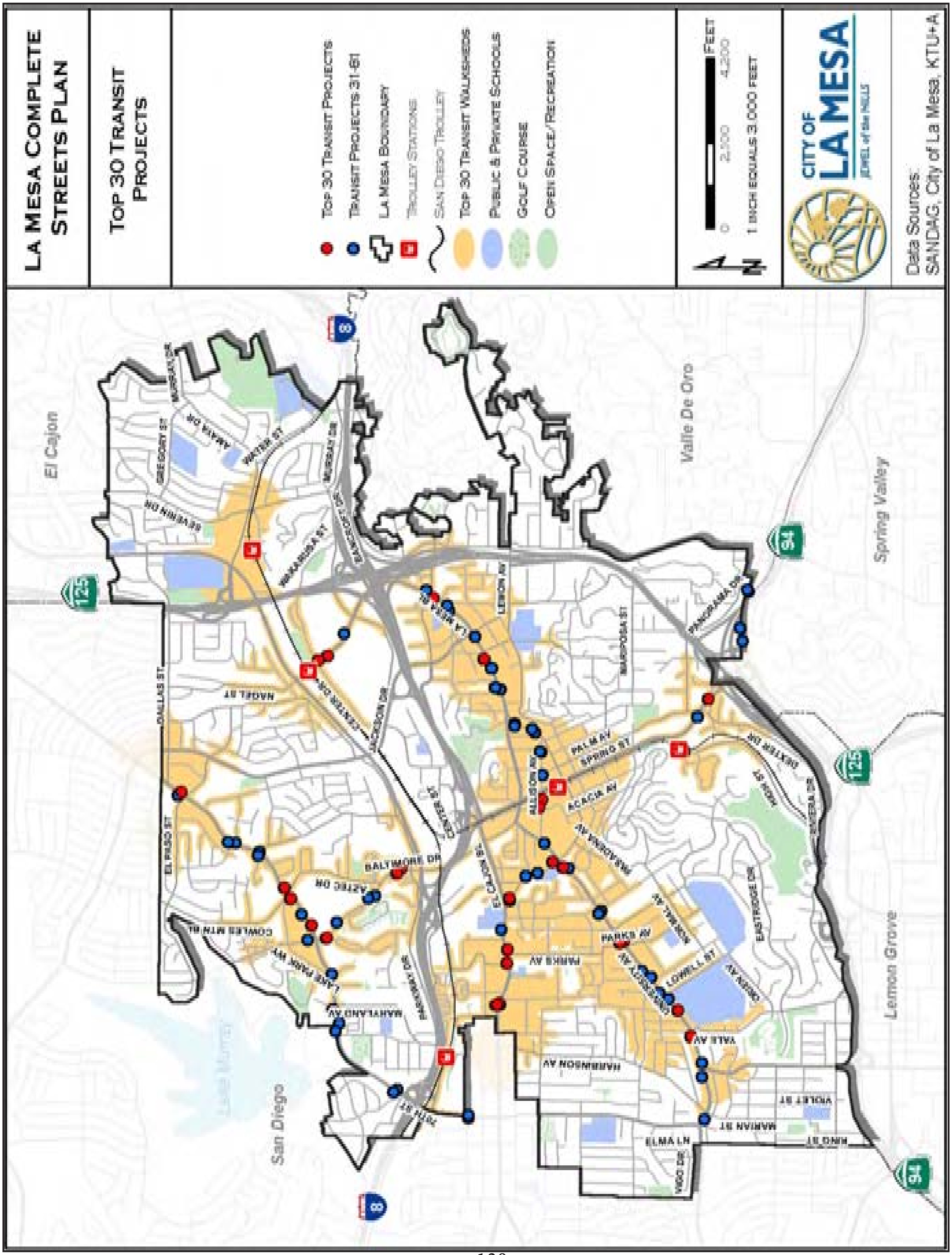
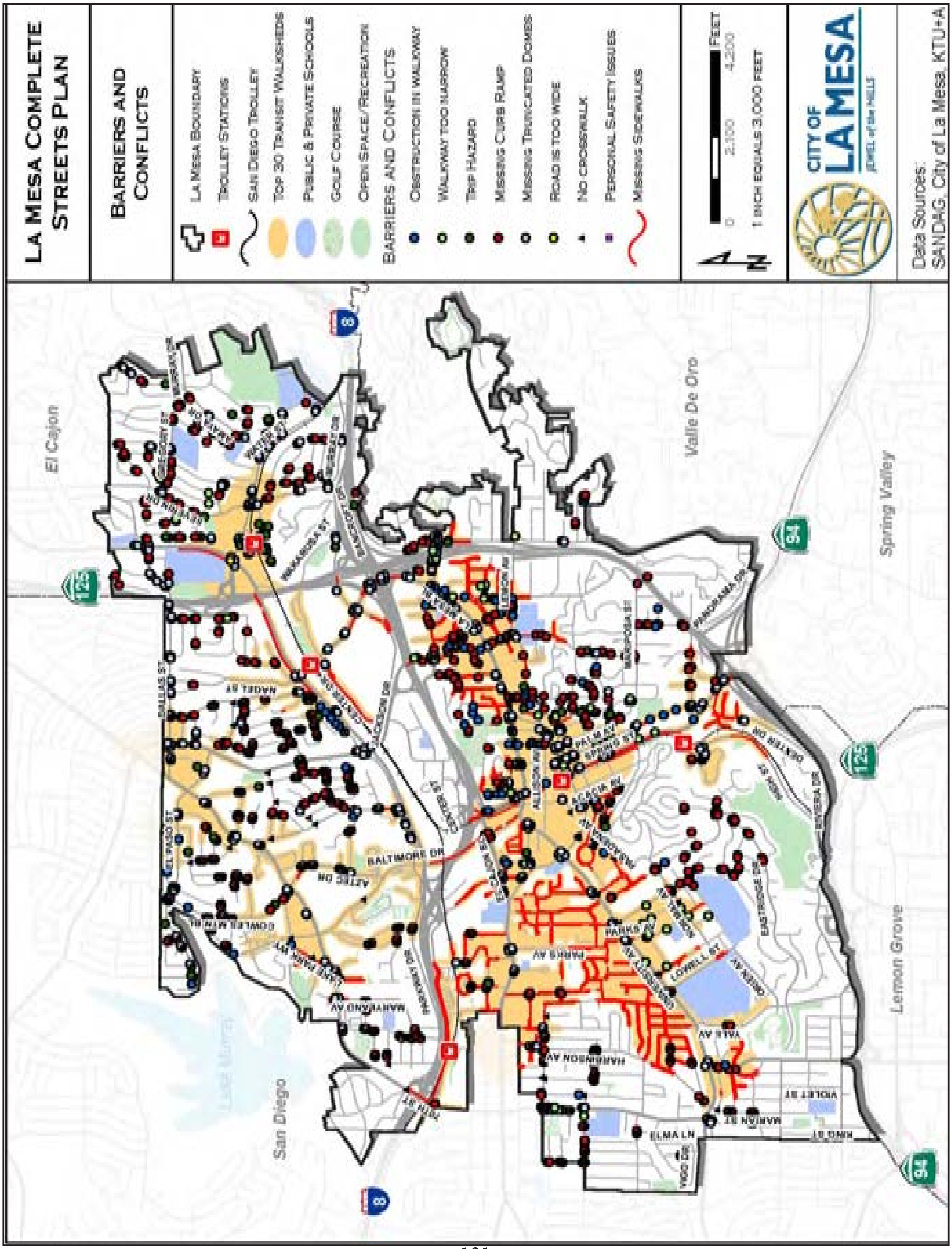


Figure 5.5: Barriers and Conflicts



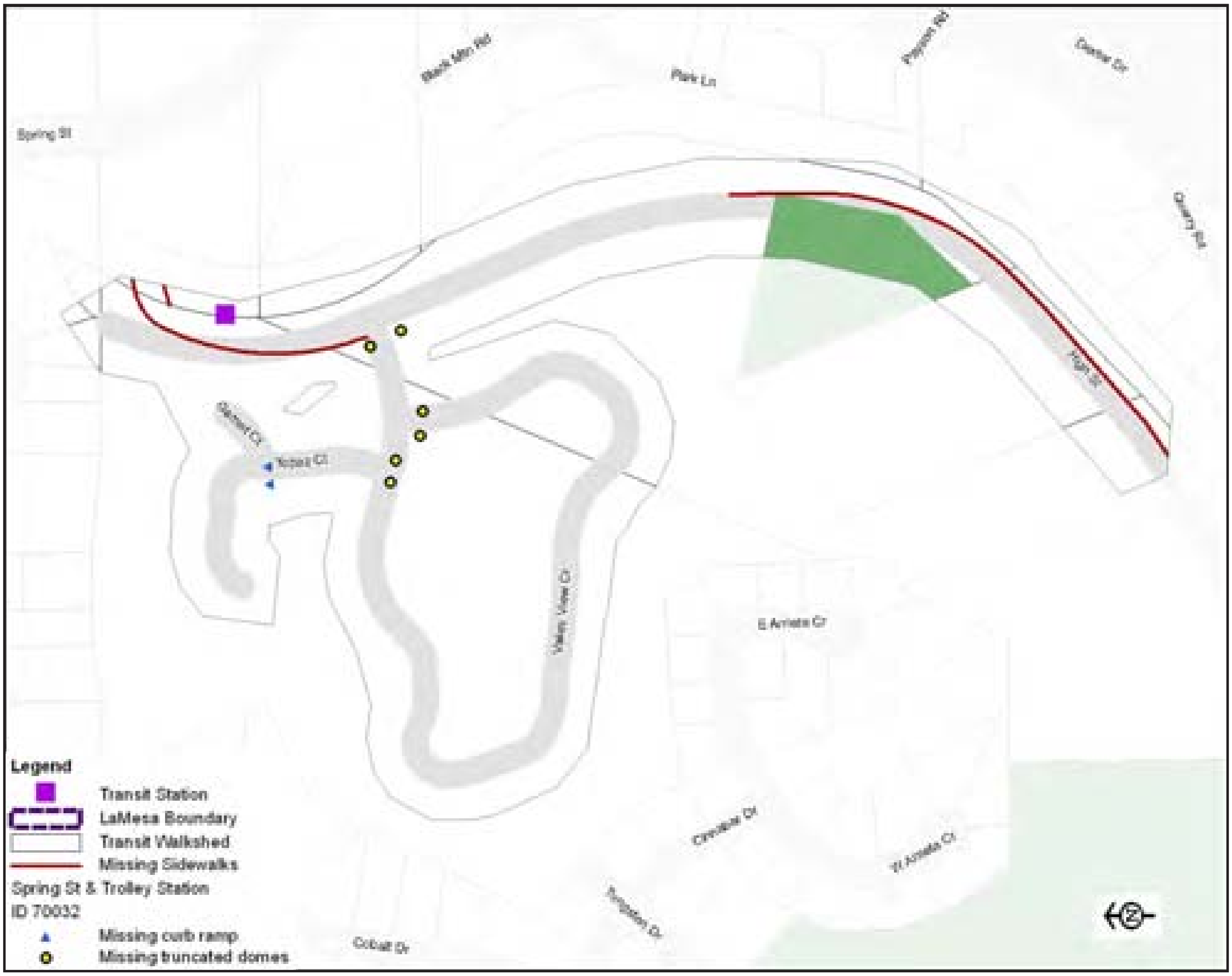
Rank: #1 Grossmont Transit Center

75031 - Grossmont Transit Center				
Transit Station Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Bike lockers (two bikes per locker)	3	EA	$1,800	$5,400
			Total for Transit Amenities	**$5,400**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	13	EA	$2,500	$32,500
Missing truncated domes	11	EA	$400	$4,400
No crosswalks	4	EA	$500	$2,000
Obstructions, blocked by poles, utility boxes, plants, etc.	4	EA	$1,400	$5,600
Uneven, trip hazard	1	EA	$350	$350
Sidewalk improvements	19,814	SF	$7	$138,698
			Total for Accessibility Improvements	**$183,548**
			Sub-Total	**$188,948**
			Contingency (30%)	**$56,684**
			Grand Total Cost	**$245,632**

Rank: #2 La Mesa Blvd Transit Station

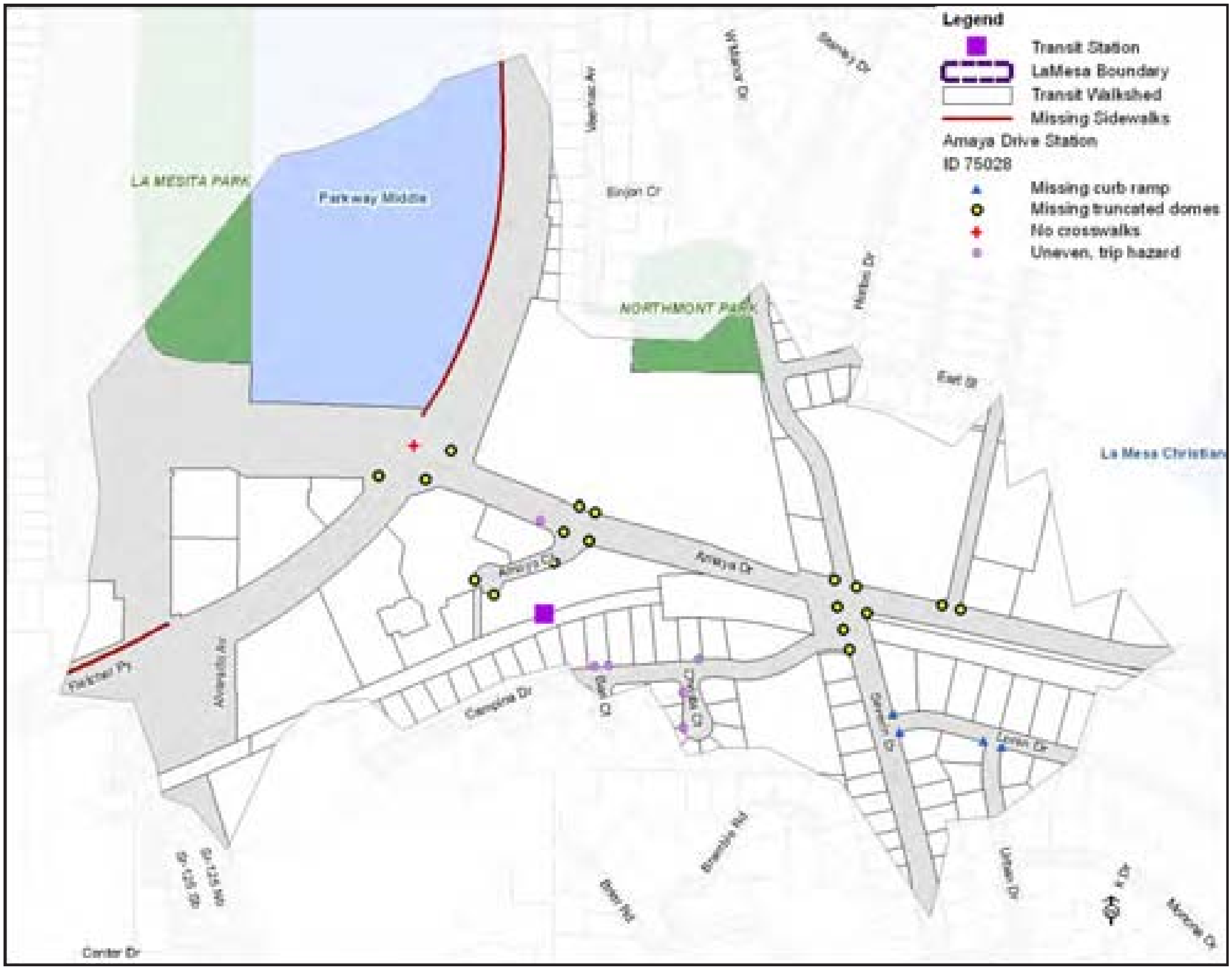
75034 - La Mesa Blvd Transit Station				
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	22	EA	$2,500	$55,000
Missing truncated domes	59	EA	$400	$23,600
No crosswalks	10	EA	$500	$5,000
Obstructions, blocked by poles, utility boxes, plants, etc.	7	EA	$1,400	$9,800
Sidewalk improvements	56,489	SF	$7	$395,422
Uneven, trip hazard	4	EA	$350	$1,400
			Total for Accessibility Improvements	**$490,222**
			Sub-Total	**$490,222**
			Contingency (30%)	**$147,066**
			Grand Total Cost	**$637,288**

Rank: #3 Spring Street Transit Station



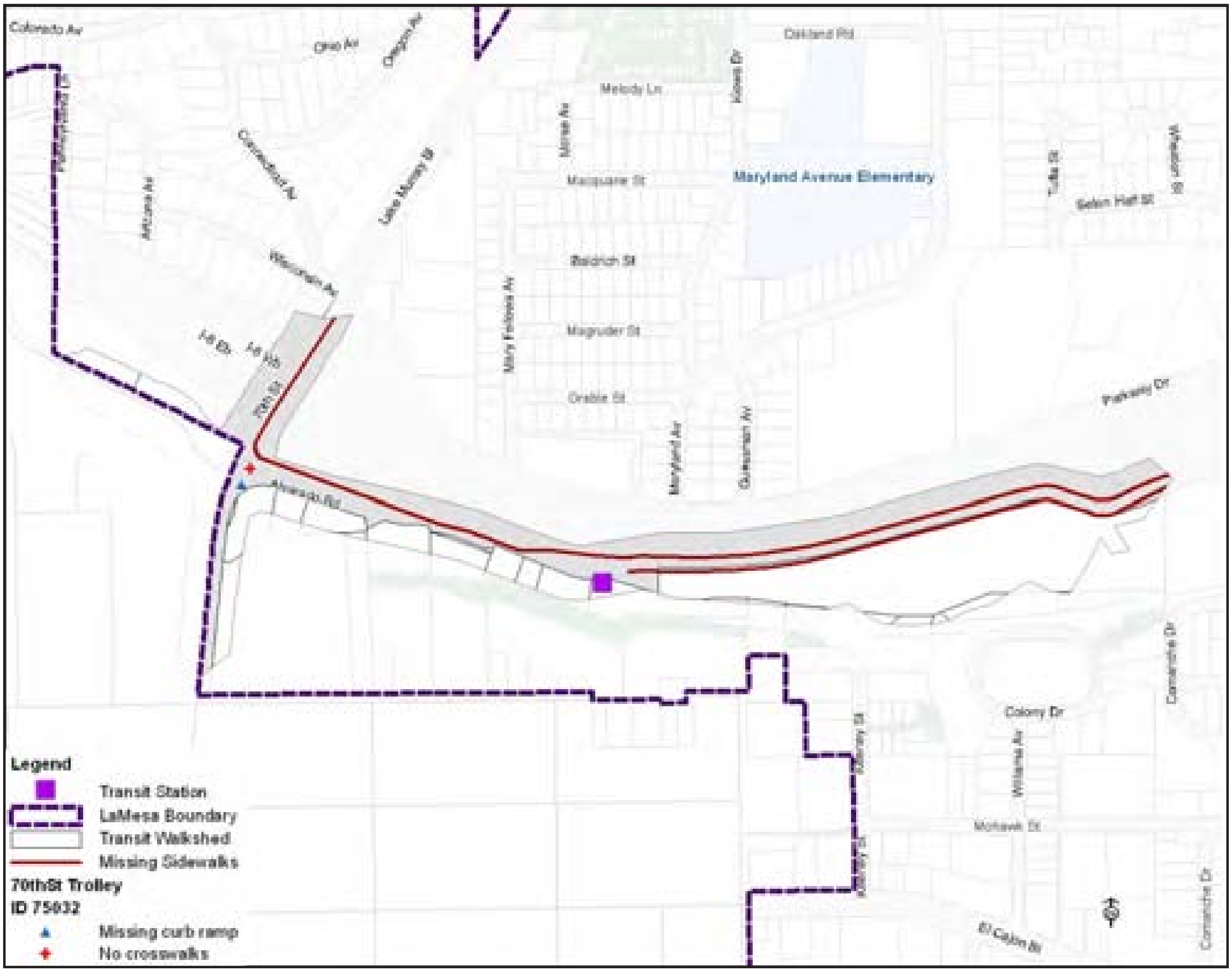
70032 - Spring Street Transit Station				
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	2	EA	$2,500	$5,000
Missing truncated domes	6	EA	$400	$2,400
Sidewalk improvements	24,524	SF	$7	$171,665
			Total for Accessibility Improvements	**$179,065**
			Sub-Total	**$179,065**
			Contingency (30%)	**$53,719**
			Grand Total Cost	**$232,784**

Rank: #4 Amaya Drive Transit Station



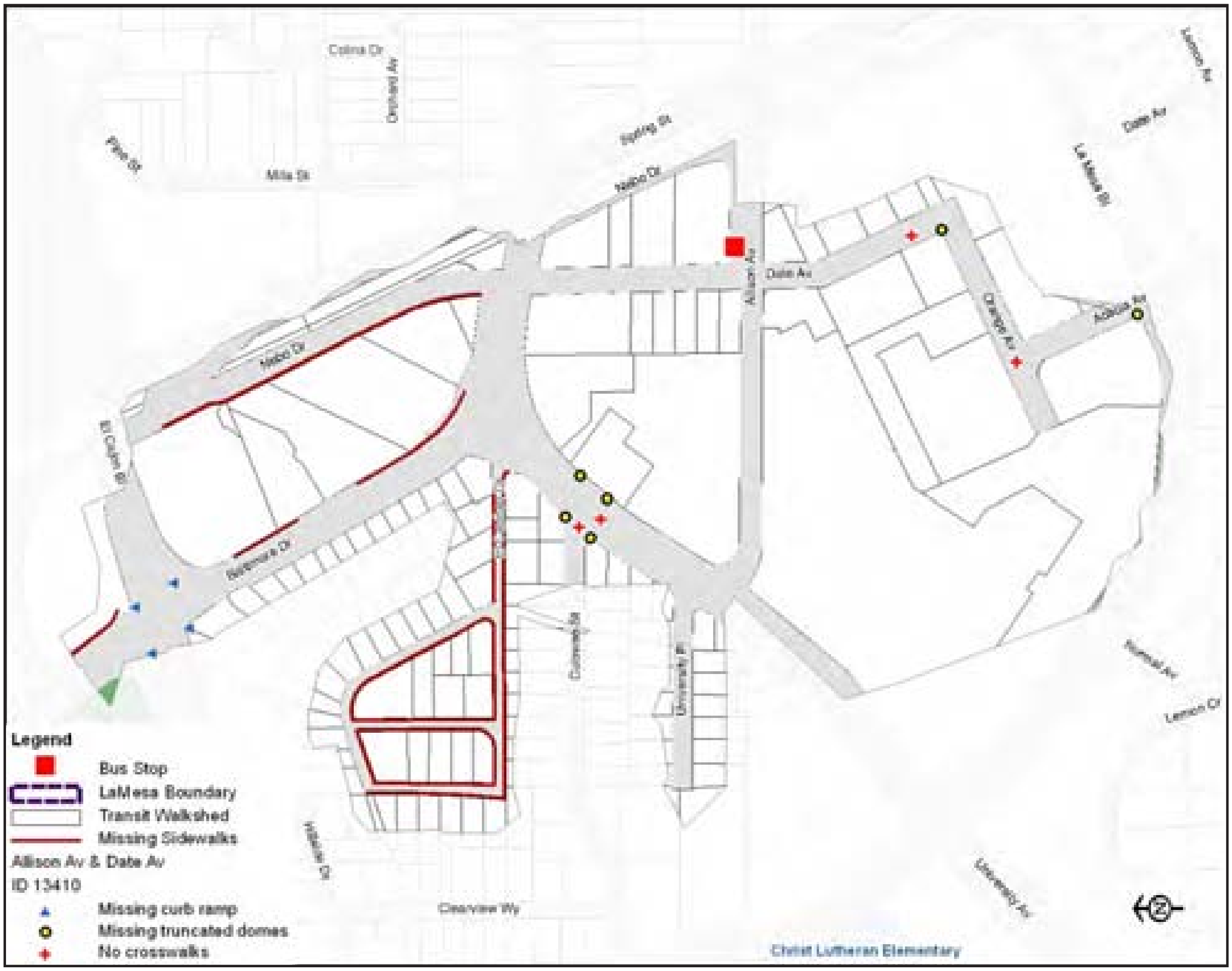
75028 - Amaya Drive Transit Station				
Barriers	Qty	Unit	Unit Cost	Total Cost
Missing curb ramp	4	EA	$2,500	$10,000
Missing truncated domes	18	EA	$400	$7,200
No crosswalks	1	EA	$500	$500
Uneven, trip hazard	6	EA	$350	$2,100
Sidewalk improvements	20,893	SF	$7	$146,249
Total for Accessibility Improvements				**$166,049**
Sub-Total				**$166,049**
Contingency (30%)				**$49,815**
Grand Total Cost				**$215,864**

Rank: #5 70th Street Transit Station



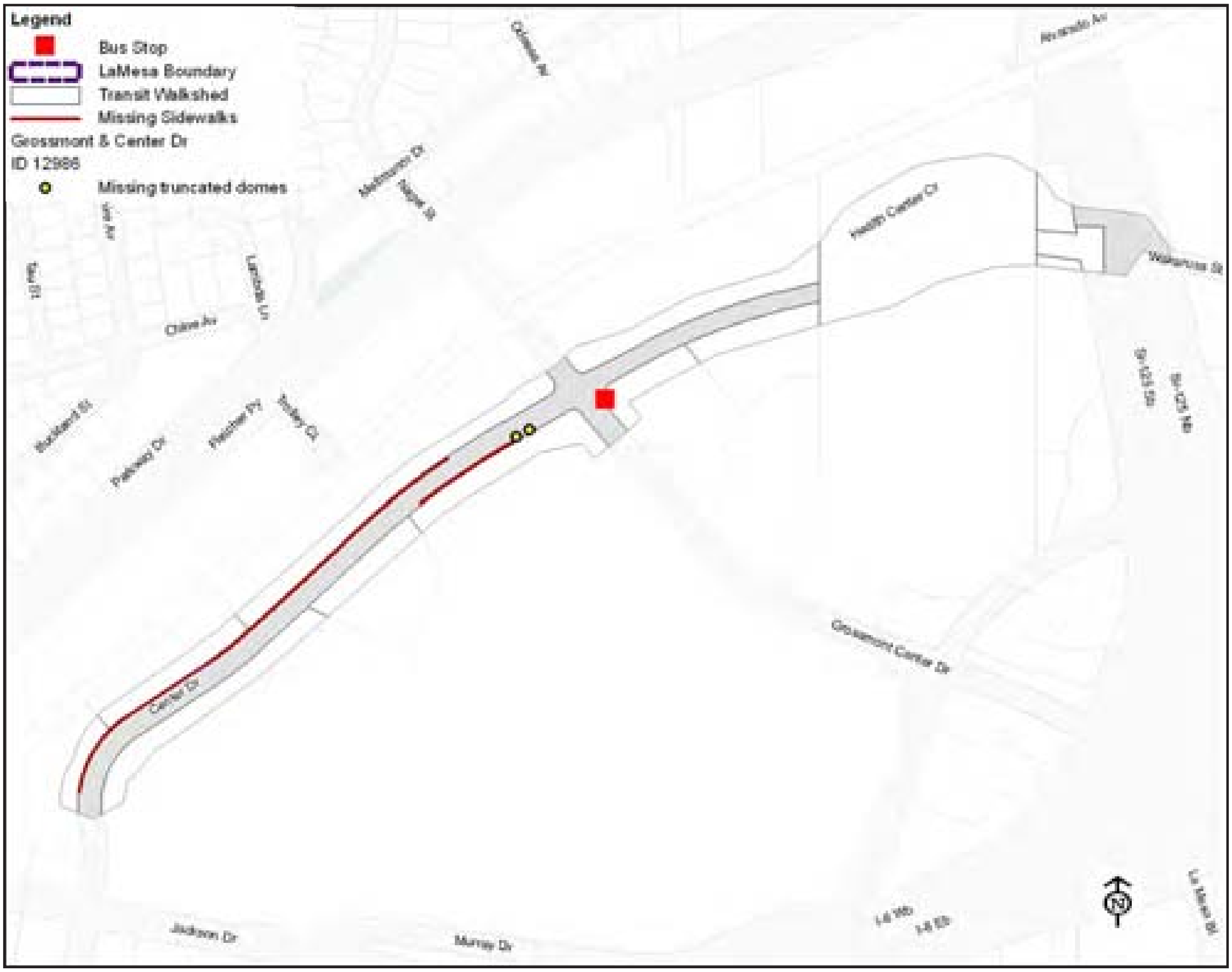
75032 - 70th Street Transit Station				
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	1	EA	$2,500	$2,500
Missing truncated domes	1	EA	$400	$400
No crosswalks	1	EA	$500	$500
Sidewalk improvements	36,662	SF	$7	$256,635
Total for Accessibility Improvements				**$260,035**
Sub-Total				**$260,035**
Contingency (30%)				**$78,011**
Grand Total Cost				**$338,046**

Rank: #6 Allison Ave and Date Ave



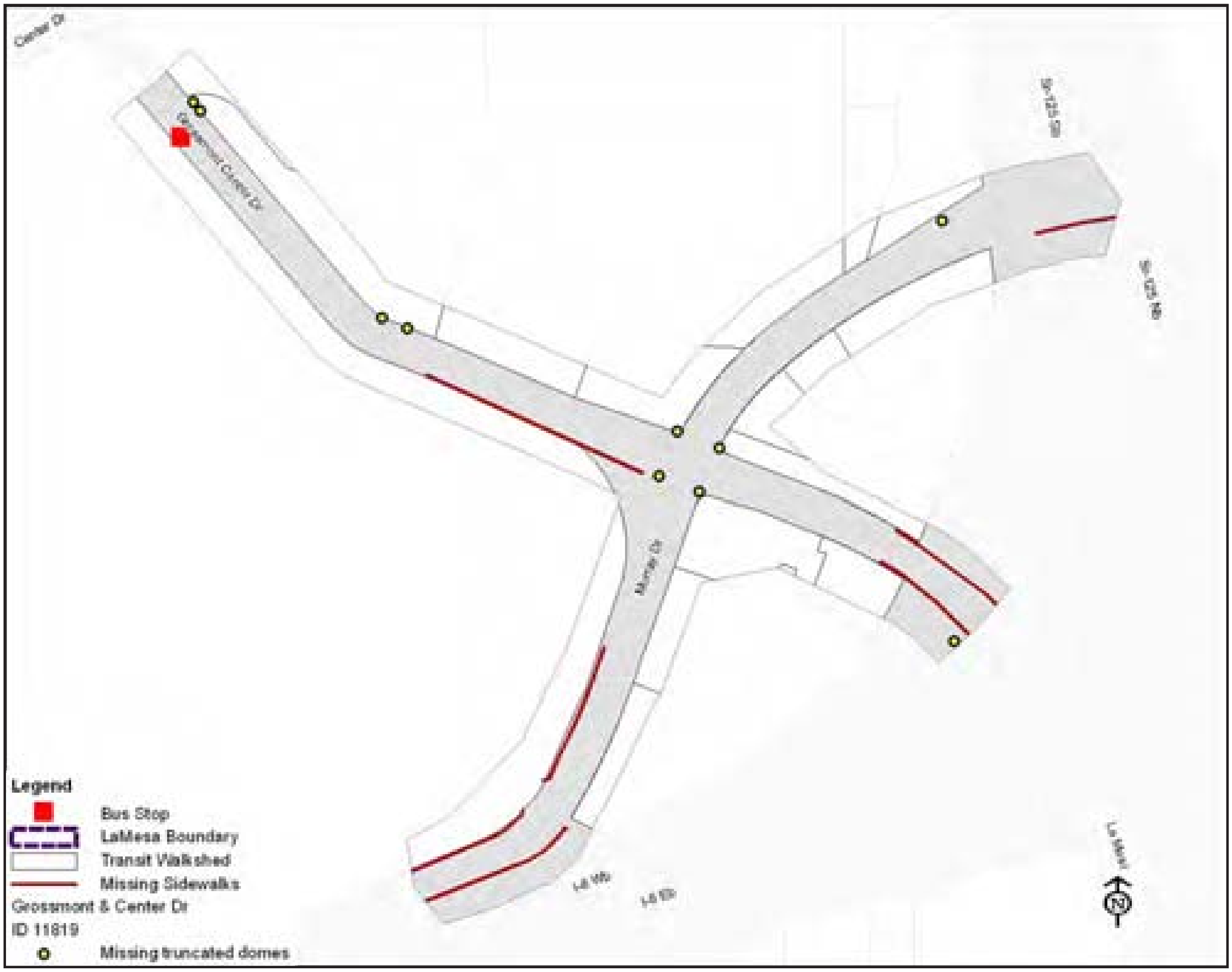
13410 - Allison Ave & Date Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Sidewalk/access paving	36	SF	$7	$252
			Total for Transit Amenities	**$252**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	4	EA	$2,500	$10,000
Missing truncated domes	6	EA	$400	$2,400
No crosswalks	4	EA	$500	$2,000
Sidewalk improvements	29,373	SF	$7	$205,608
			Total for Accessibility Improvements	**$220,008**
			Sub-Total	**$220,260**
			Contingency (30%)	**$66,078**
			Grand Total Cost	**$286,338**

Rank: #7 Grossmont Center Dr and Center Dr



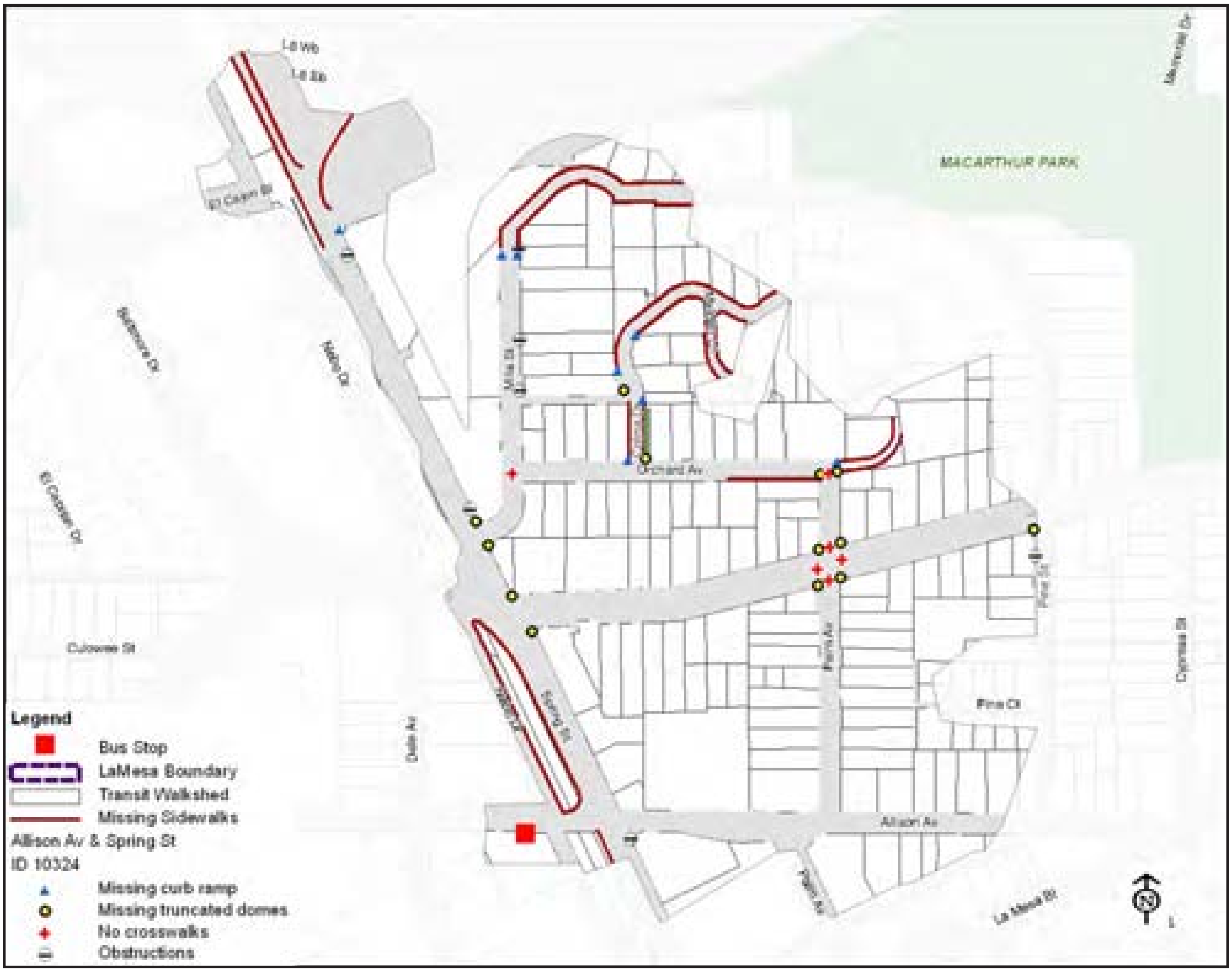
12986 - Grossmont Center Dr & Center Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Sidewalk/access paving	36	SF	$7	$252
			Total for Transit Amenities	**$252**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	2	EA	$400	$800
Sidewalk improvements	9,796	SF	$7	$68,573
			Total for Accessibility Improvements	**$69,373**
			Sub-Total	**$74,373**
			Contingency (30%)	**$22,312**
			Grand Total Cost	**$96,684**

Rank: #8 Grossmont Center Dr and Center Dr



11819 - Grossmont Center Dr & Center Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$4,500**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	10	EA	$400	$4,000
Sidewalk improvements	33,795	SF	$7	$236,567
			Total for Accessibility Improvements	**$240,567**
			Sub-Total	**$245,067**
			Contingency (30%)	**$73,520**
			Grand Total Cost	**$318,587**

Rank: #9 Allison Ave and Spring St

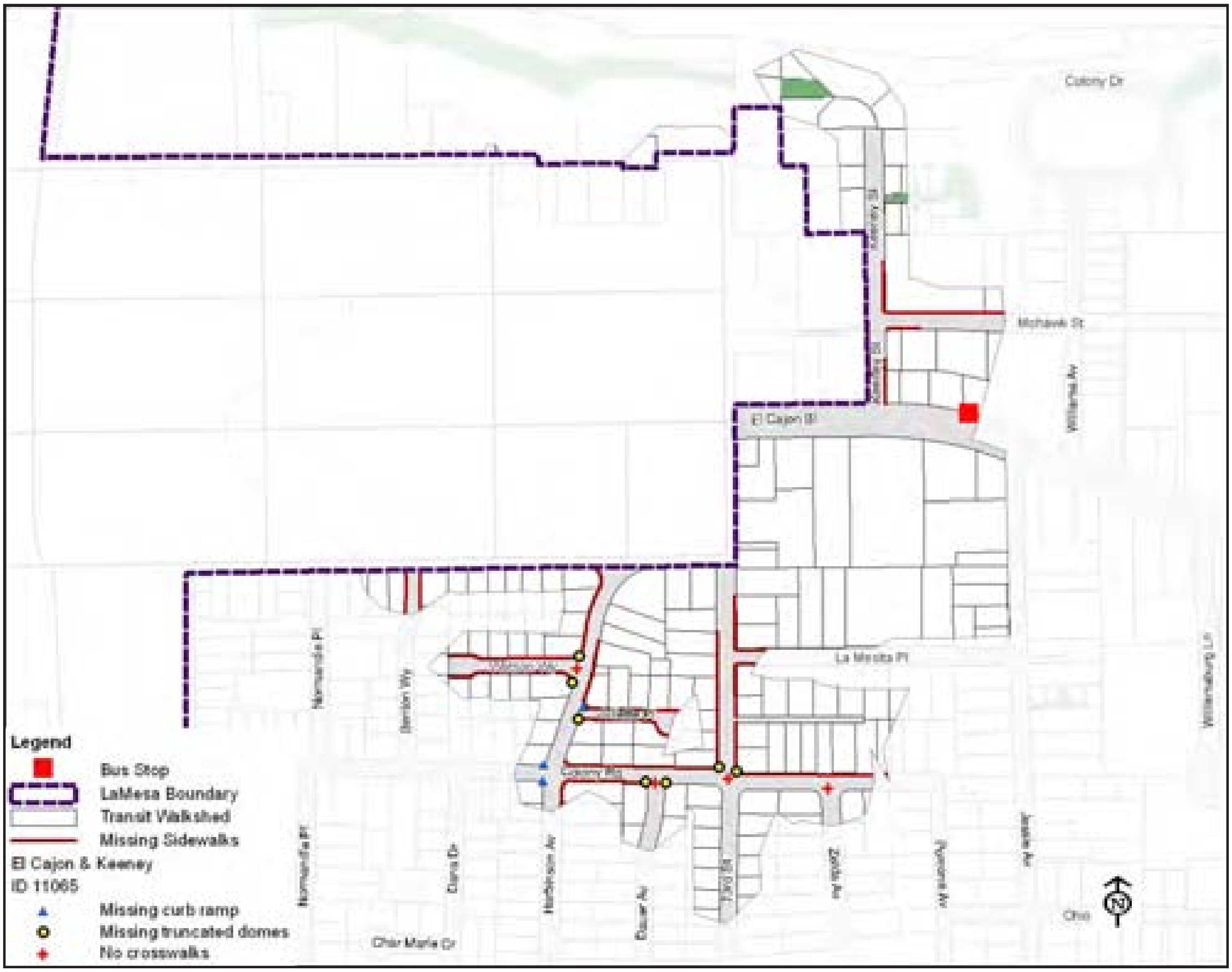


10324 - Allison Ave & Spring St				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Sidewalk/Access Paving	36	SF	$7	$252
			Total for Transit Amenities	**$252**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	8	EA	$2,500	$20,000
Missing truncated domes	13	EA	$400	$5,200
No crosswalks	6	SF	$4	$24
Obstructions, blocked by poles, utility boxes, plants, etc.	7	EA	$1,400	$9,800
Sidewalk improvements	47,372	SF	$7	$331,601
			Total for Accessibility Improvements	**$366,625**
			Sub-Total	**$366,877**
			Contingency (30%)	**$110,063**
			Grand Total Cost	**$476,940**

Rank: #10 El Cajon Blvd and Jessie Ave

10306 - El Cajon Blvd & Jessie Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
13' Shelter with bench	1	EA	$5,500	$5,500
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
Total for Transit Amenities				**$11,250**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	10	EA	$2,500	$25,000
Missing truncated domes	1	EA	$400	$400
No crosswalks	2	EA	$500	$1,000
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
Uneven, trip hazard	1	EA	$350	$350
Sidewalk improvements	64,796	SF	$7	$453,571
Total for Accessibility Improvements				**$481,721**
Sub-Total				**$492,971**
Contingency (30%)				**$147,891**
Grand Total Cost				**$640,863**

Rank: #11 El Cajon Blvd and Keeney St

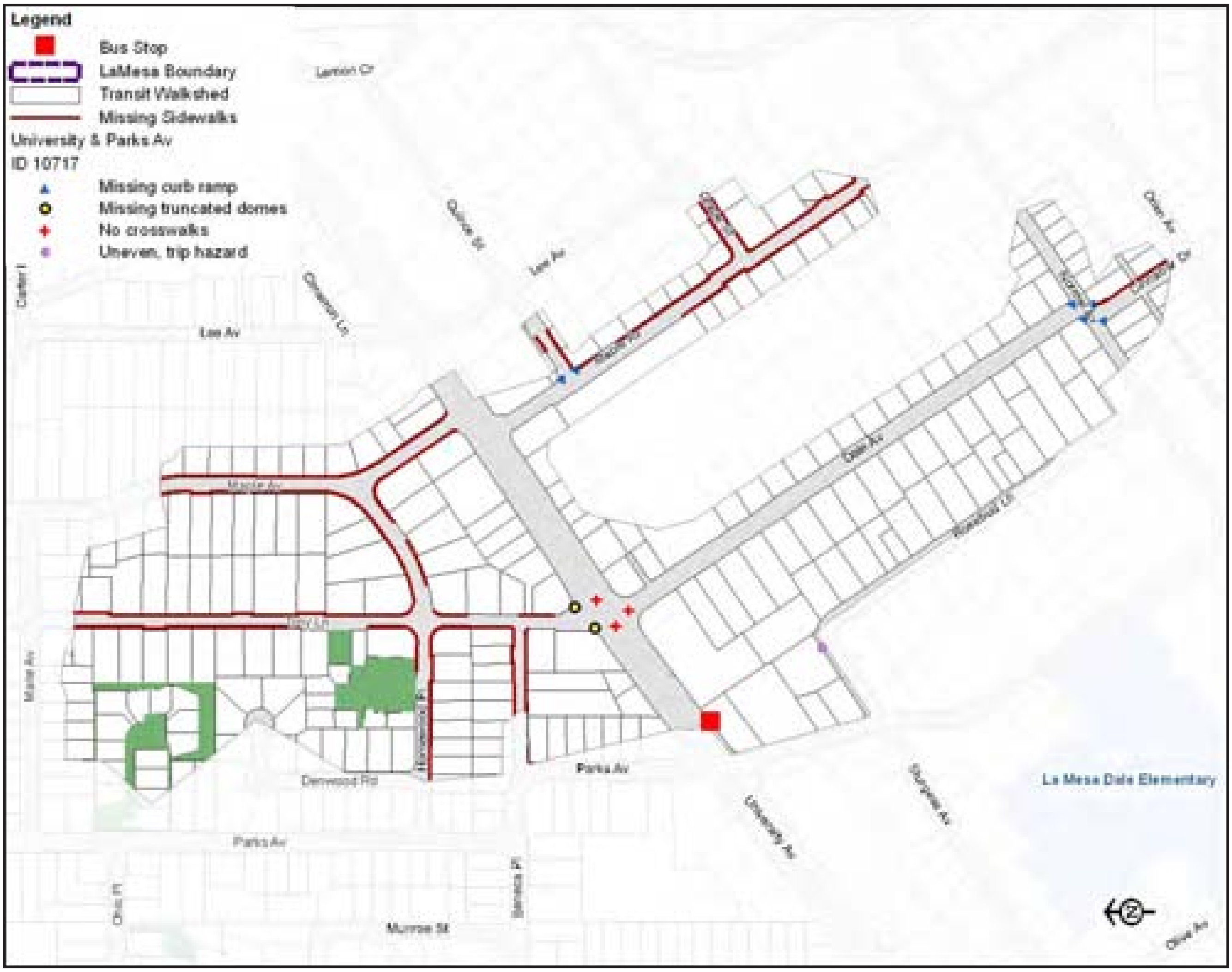


11065 - El Cajon Blvd & Keeney St				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
13' Shelter with bench	1	EA	$5,500	$5,500
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$11,250**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	3	EA	$2,500	$7,500
Missing truncated domes	7	EA	$400	$2,800
No crosswalks	4	EA	$500	$2,000
Sidewalk improvements	39,189	SF	$7	$274,322
			Total for Accessibility Improvements	**$286,622**
			Sub-Total	**$297,872**
			Contingency (30%)	**$89,362**
			Grand Total Cost	**$387,234**

Rank: #12 La Mesa Blvd and University Ave

13170 - La Mesa Blvd & University Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	4	EA	$2,500	$10,000
Missing truncated domes	4	EA	$400	$1,600
No crosswalks	11	EA	$500	$5,500
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
Uneven, trip hazard	2	EA	$350	$700
Sidewalk improvements	38,737	SF	$7	$271,162
			Total for Accessibility Improvements	**$290,362**
			Sub-Total	**$301,012**
			Contingency (30%)	**$90,304**
			Grand Total Cost	**$391,316**

Rank: #13 University Ave and Parks Ave

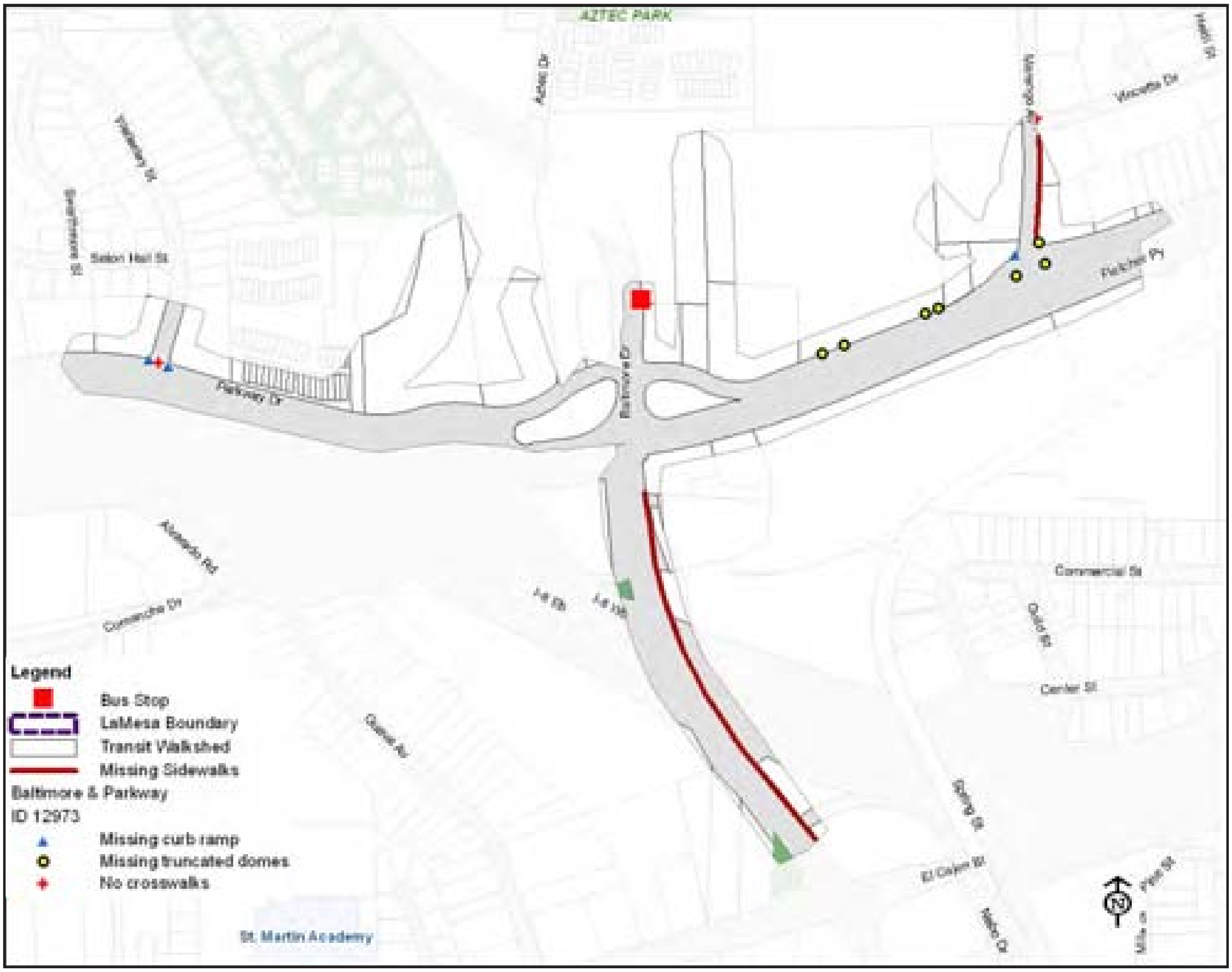


10717 - University Ave & Parks Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	6	EA	$2,500	$15,000
Missing truncated domes	2	EA	$400	$800
No crosswalks	3	EA	$500	$1,500
Sidewalk improvements	52,075	SF	$7	$364,525
Uneven, trip hazard	1	EA	$350	$350
			Total for Accessibility Improvements	**$382,175**
			Sub-Total	**$392,825**
			Contingency (30%)	**$117,847**
			Grand Total Cost	**$510,672**

Rank: #14 El Cajon Blvd and Parks Ave

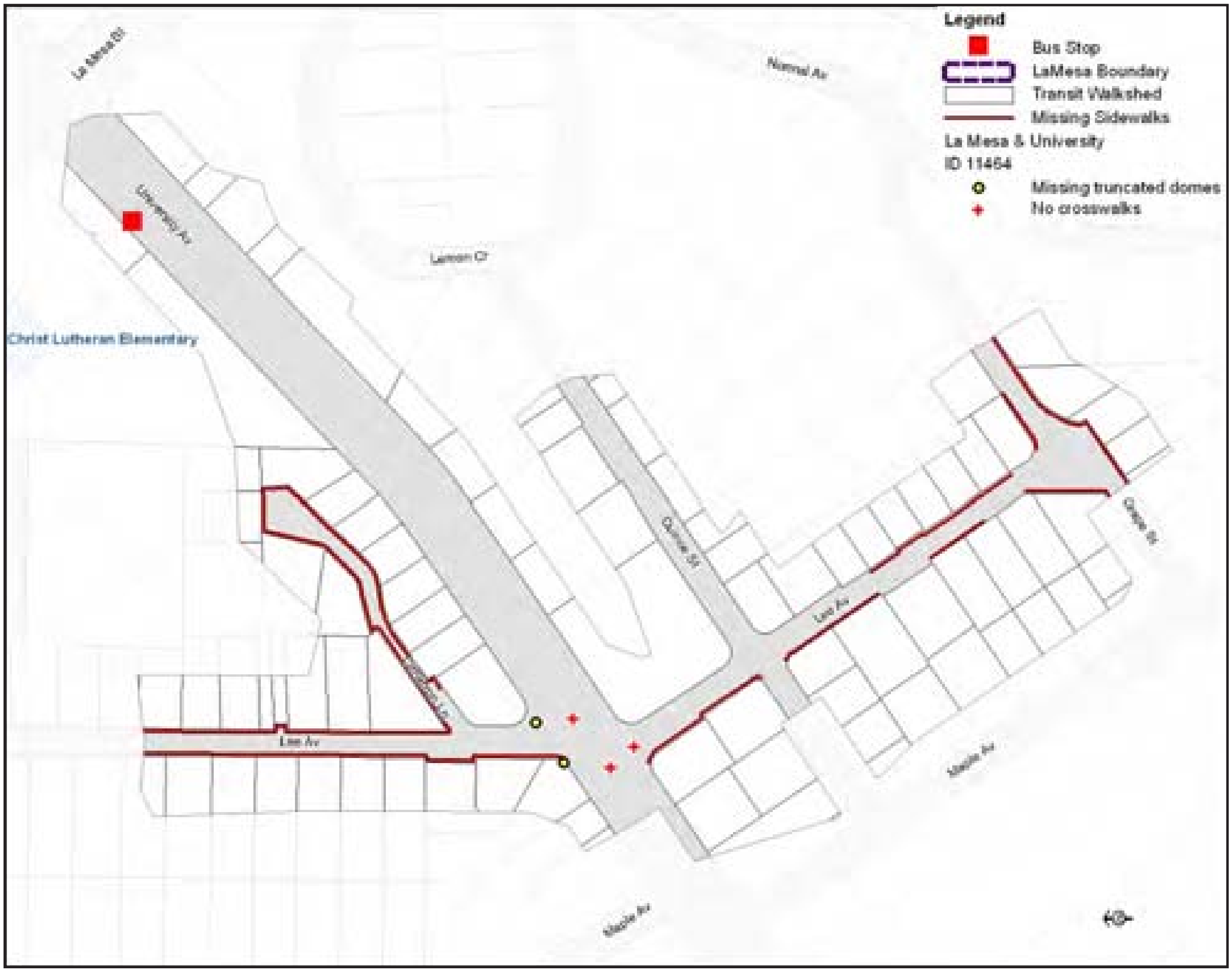
10310 - El Cajon Blvd & Parks Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Shelter installation	1	EA	$1,500	$1,500
Total for Transit Amenities				**$7,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	2	EA	$2,500	$5,000
Missing truncated domes	4	EA	$400	$1,600
No crosswalks	1	EA	$500	$500
Sidewalk improvements	26,462	SF	$7	$185,235
Total for Accessibility Improvements				**$192,335**
Sub-Total				**$199,985**
Contingency (30%)				**$59,995**
Grand Total Cost				**$259,980**

Rank: #15 Baltimore Dr and Parkway Dr



12973 - Baltimore Dr & Parkway Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$4,500**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	3	EA	$2,500	$7,500
Missing truncated domes	7	EA	$400	$2,800
No crosswalks	2	EA	$500	$1,000
Sidewalk improvements	9,360	SF	$7	$65,517
			Total for Accessibility Improvements	**$76,817**
			Sub-Total	**$81,317**
			Contingency (30%)	**$24,395**
			Grand Total Cost	**$105,712**

Rank: #16 University Ave and La Mesa Blvd

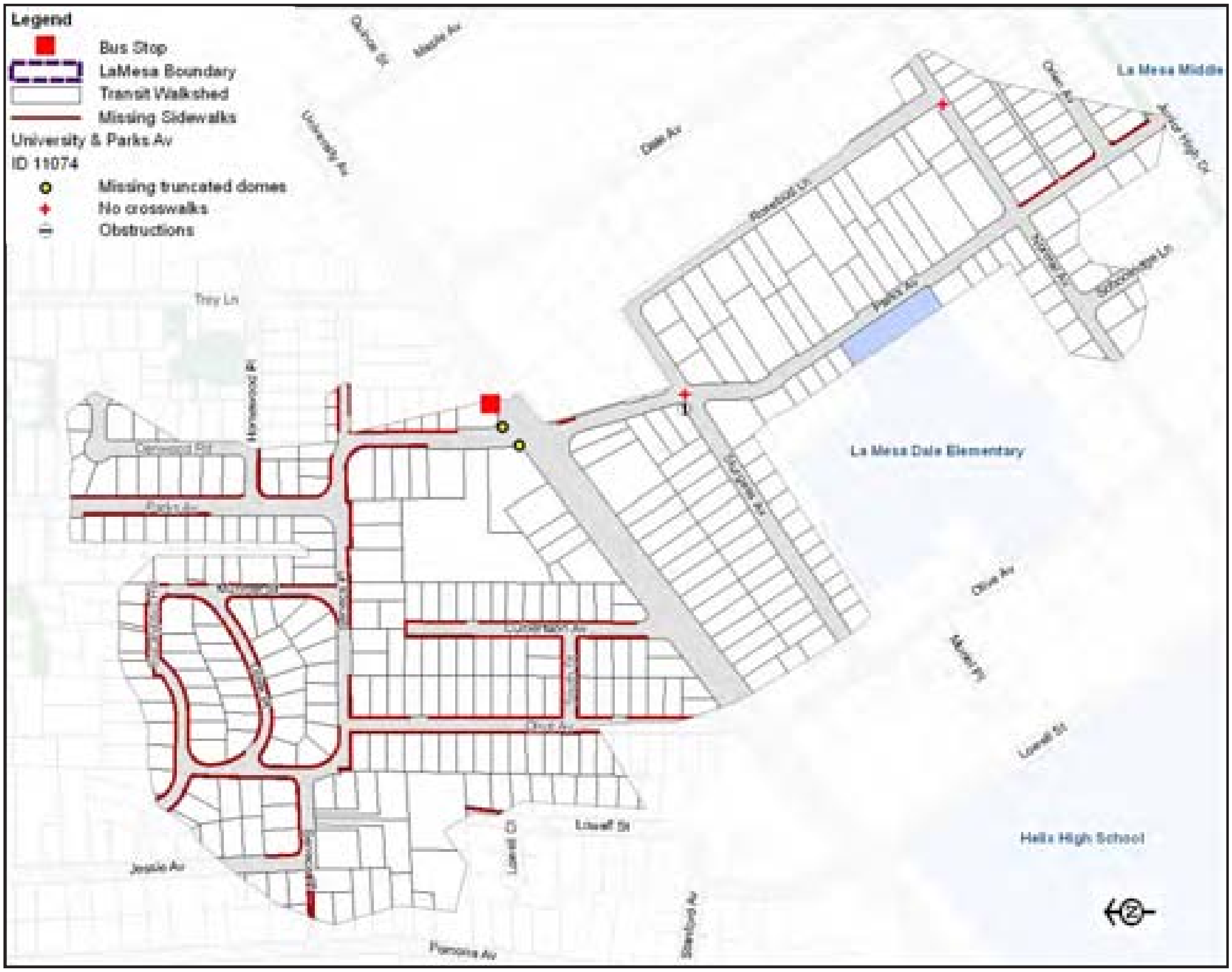


11464 - University Ave & La Mesa Blvd				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	2	EA	$400	$800
No crosswalks	3	EA	$500	$1,500
Sidewalk improvements	25,159	SF	$7	$176,110
			Total for Accessibility Improvements	**$178,410**
			Sub-Total	**$189,060**
			Contingency (30%)	**$56,718**
			Grand Total Cost	**$245,777**

Rank: #17 University Ave and Pomona Ave

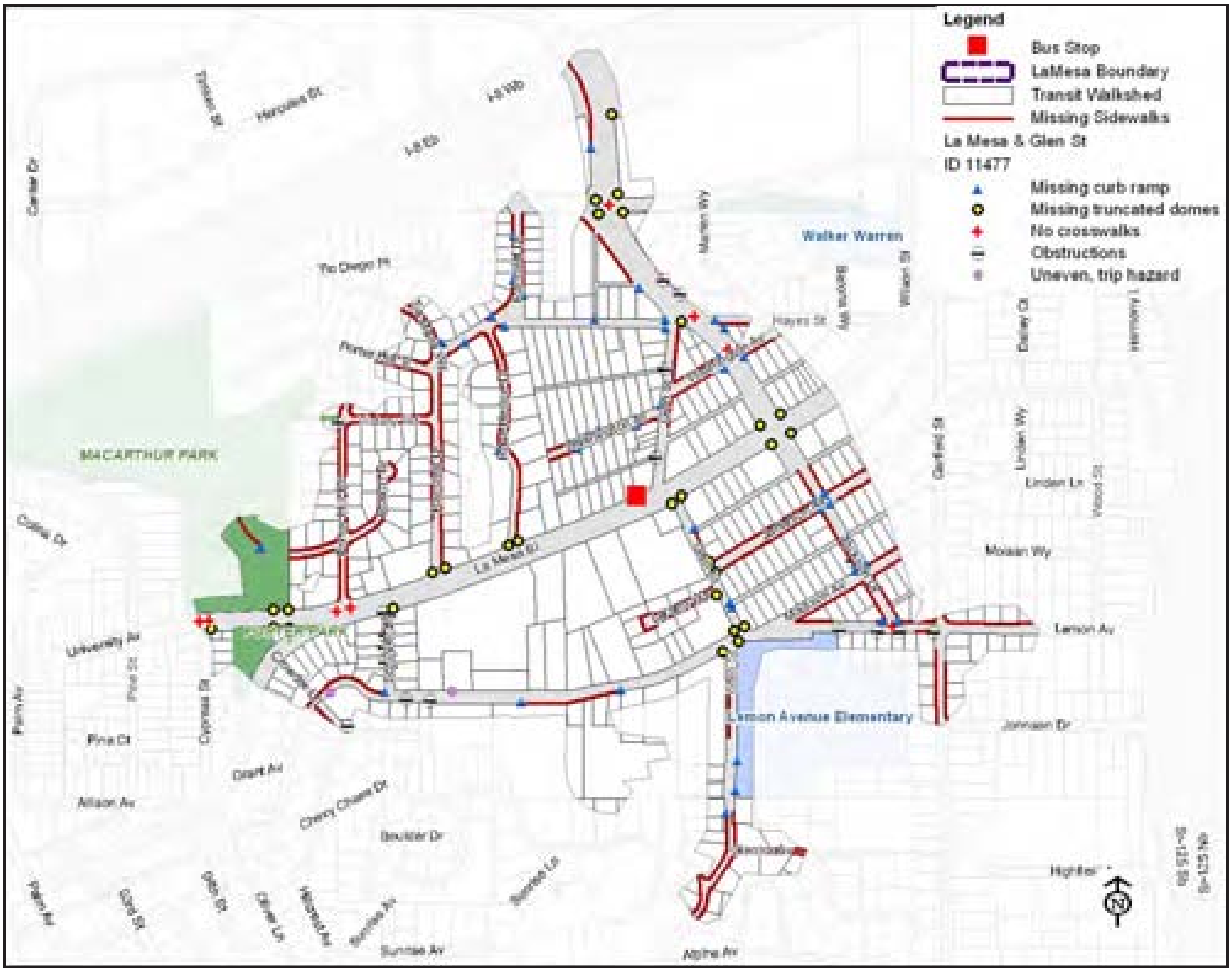
13521 - University Ave & Pomona Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	3	EA	$400	$1,200
No crosswalks	2	EA	$500	$1,000
Sidewalk improvements	113,085	SF	$7	$791,598
			Total for Accessibility Improvements	**$793,798**
			Sub-Total	**$804,448**
			Contingency (30%)	**$241,334**
			Grand Total Cost	**$1,045,782**

Rank: #18 University Ave and Parks Ave



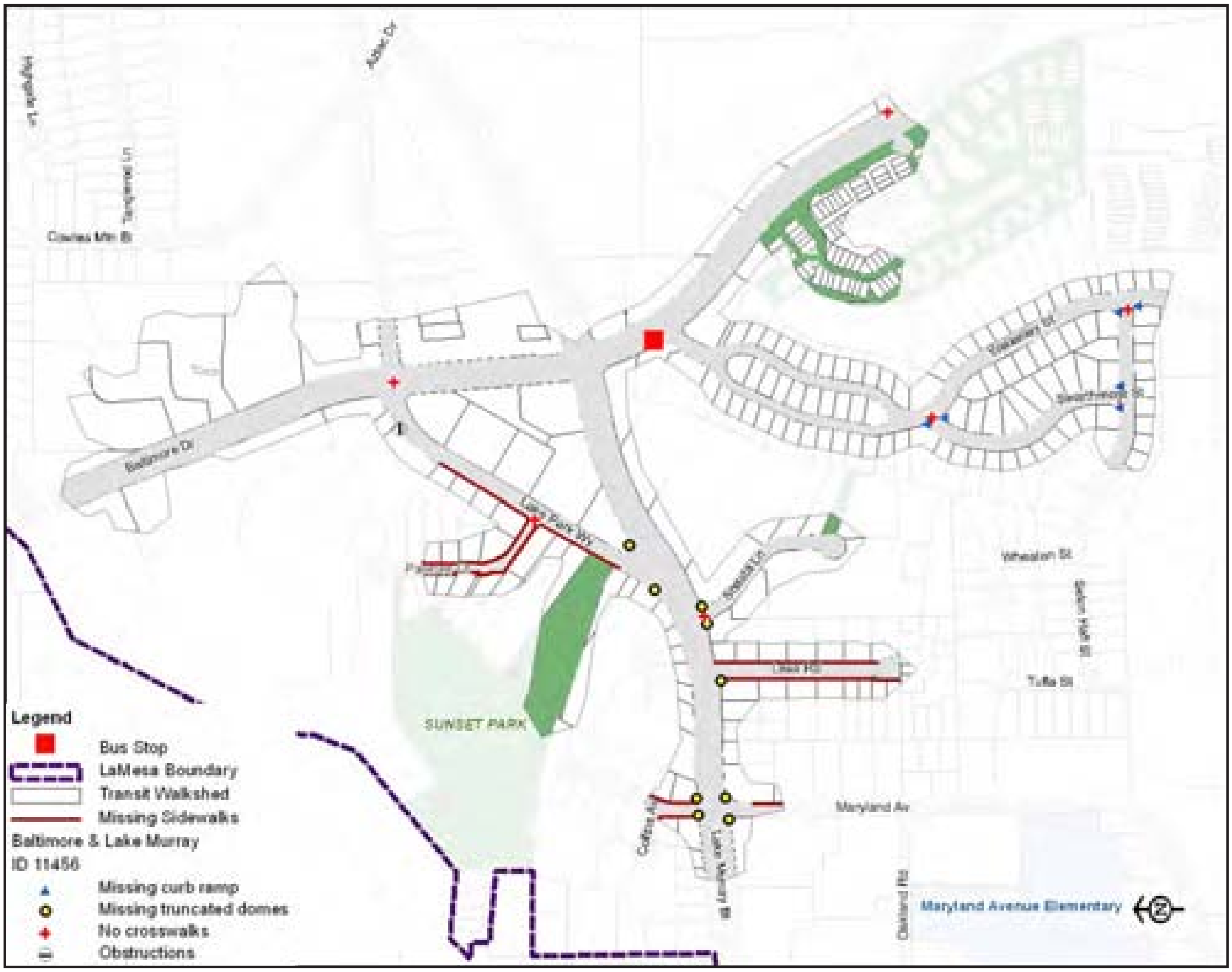
11074 - University Ave & Parks Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	2	EA	$2,500	$5,000
No crosswalks	2	EA	$400	$800
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
Sidewalk improvements	71,891	SF	$7	$503,235
			Total for Accessibility Improvements	**$510,435**
			Sub-Total	**$521,085**
			Contingency (30%)	**$156,325**
			Grand Total Cost	**$677,410**

Rank: #19 La Mesa Blvd and Glen St



11477 - La Mesa Blvd & Glen St				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	45	EA	$2,500	$112,500
Missing truncated domes	29	EA	$400	$11,600
No crosswalks	8	EA	$500	$4,000
Obstructions, blocked by poles, utility boxes, plants, etc.	17	EA	$1,400	$23,800
Sidewalk improvements	138,252	SF	$7	$967,764
Uneven, trip hazard	2	EA	$350	$700
			Total for Accessibility Improvements	**$1,120,364**
			Sub-Total	**$1,131,014**
			Contingency (30%)	**$339,304**
			Grand Total Cost	**$1,470,318**

Rank: #20 Baltimore Dr and Lake Murray Blvd

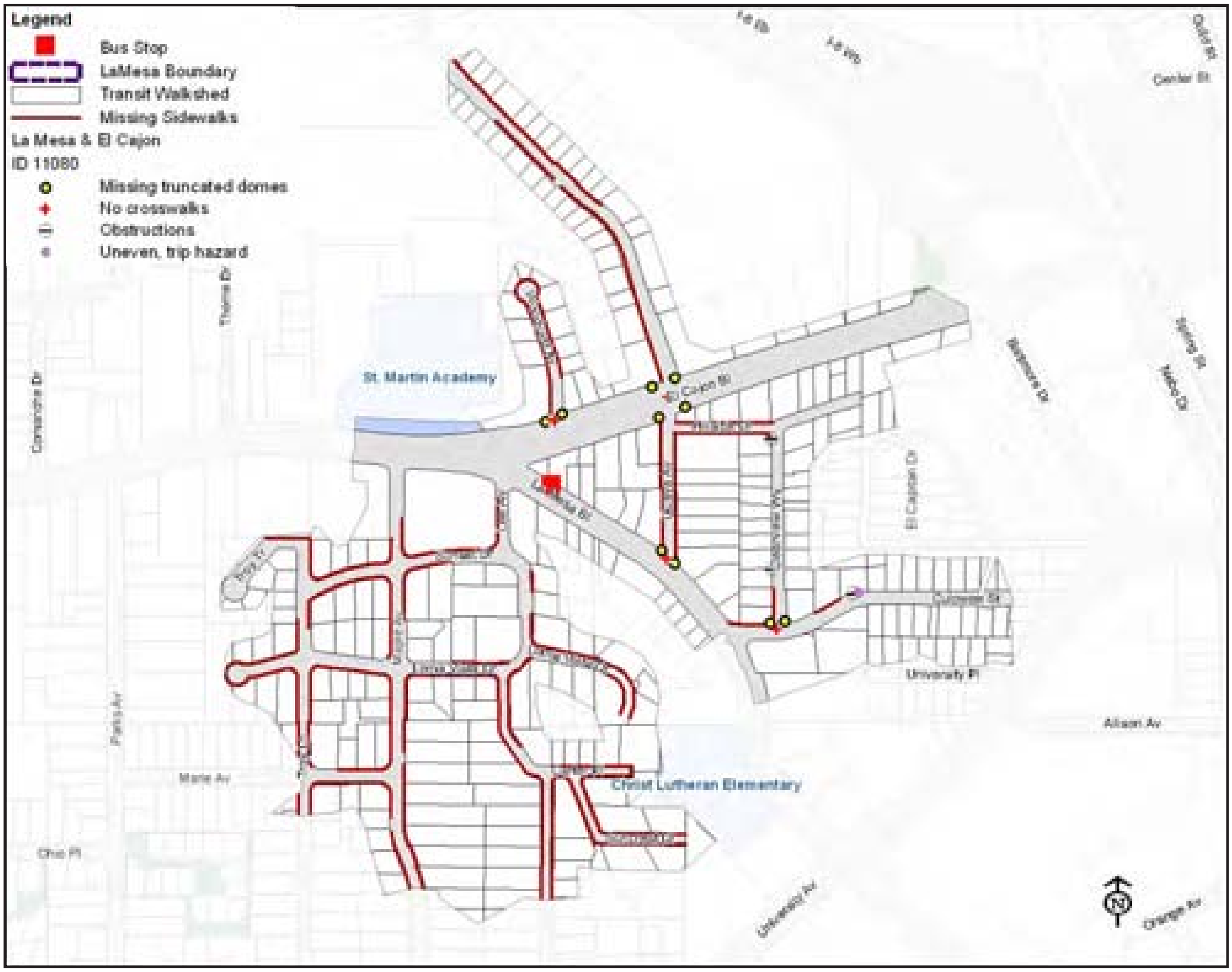


11456 - Baltimore Dr & Lake Murray Blvd				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
			Total for Transit Amenities	**$3,000**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	6	EA	$2,500	$15,000
Missing truncated domes	9	EA	$400	$3,600
No crosswalks	7	EA	$500	$3,500
Sidewalk improvements	24,472	SF	$7	$171,307
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
			Total for Accessibility Improvements	**$194,807**
			Sub-Total	**$197,807**
			Contingency (30%)	**$59,342**
			Grand Total Cost	**$257,149**

Rank: #21 El Cajon Blvd and Comanche Dr

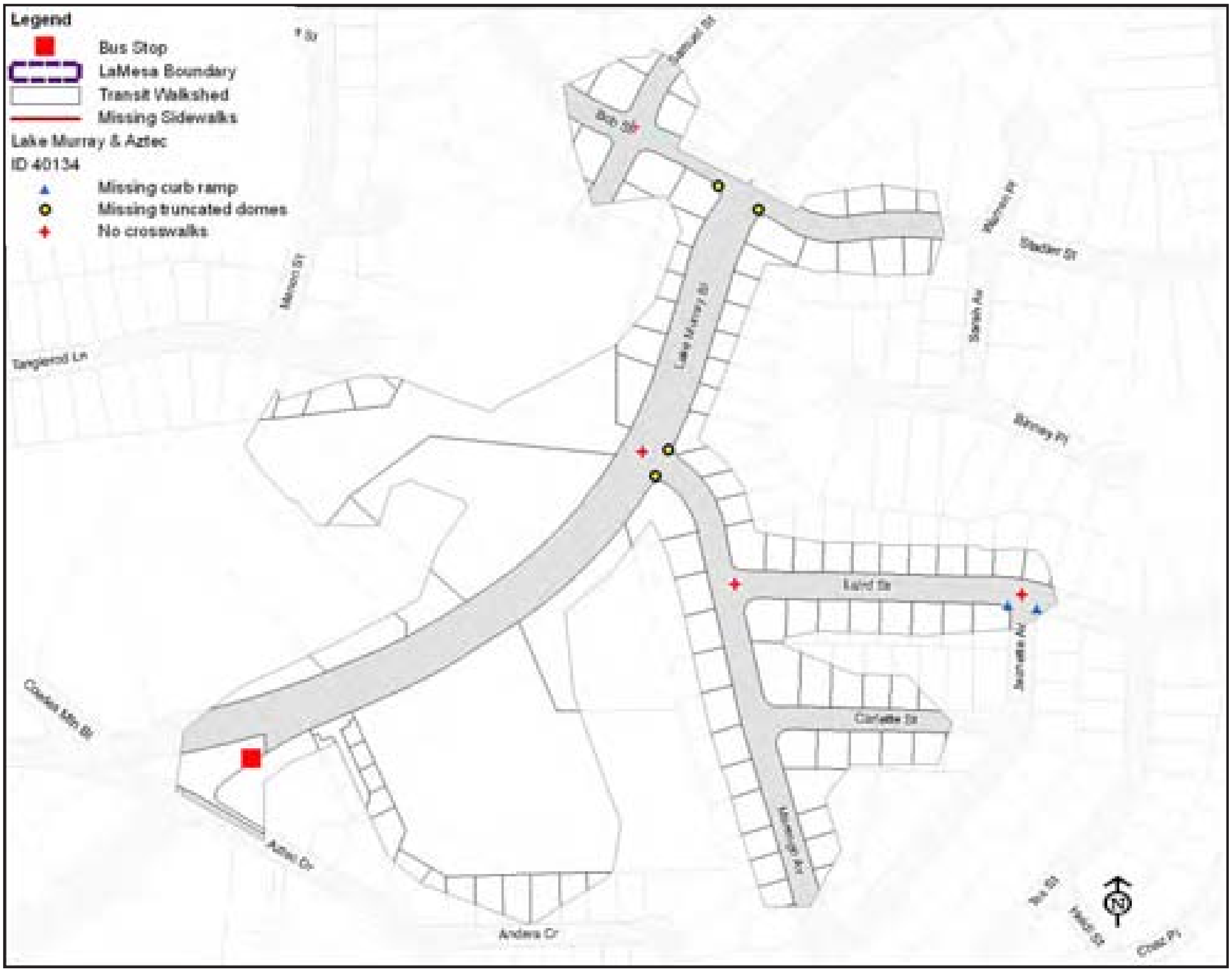
11073 - El Cajon Blvd & Comanche Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
Total for Transit Amenities				**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	2	EA	$2,500	$5,000
Missing truncated domes	3	EA	$400	$1,200
No crosswalks	2	EA	$500	$1,000
Sidewalk improvements	55,343	SF	$7	$387,404
Total for Accessibility Improvements				**$394,604**
Sub-Total				**$405,254**
Contingency (30%)				**$121,576**
Grand Total Cost				**$526,830**

Rank: #22 La Mesa Blvd and El Cajon Blvd



11080 - La Mesa Blvd & El Cajon Blvd				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	10	EA	$2,500	$25,000
No crosswalks	4	EA	$400	$1,600
Obstructions, blocked by poles, utility boxes, plants, etc.	3	EA	$1,400	$4,200
Sidewalk improvements	89,280	SF	$7	$624,959
Uneven, trip hazard	1	EA	$350	$350
			Total for Accessibility Improvements	**$656,109**
			Sub-Total	**$666,759**
			Contingency (30%)	**$200,028**
			Grand Total Cost	**$866,786**

Rank: #23 Lake Murray Blvd and Aztec Dr

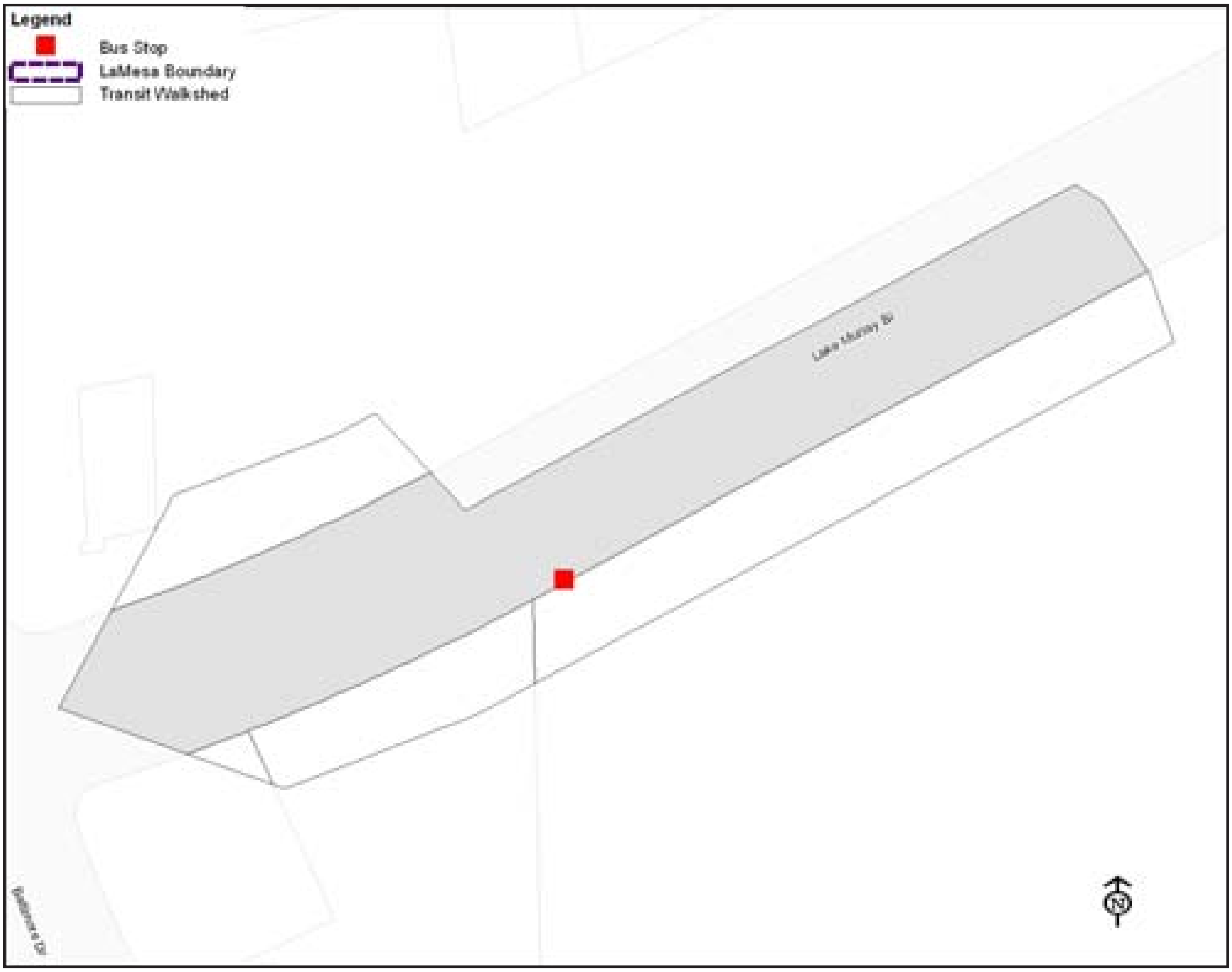


40134 - Lake Murray Blvd & Aztec Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	2	EA	$2,500	$5,000
Missing truncated domes	4	EA	$400	$1,600
No crosswalks	4	EA	$500	$2,000
			Total for Accessibility Improvements	**$8,600**
			Sub-Total	**$19,250**
			Contingency (30%)	**$5,775**
			Grand Total Cost	**$25,025**

Rank: #24 Baltimore Dr and Parkway Dr

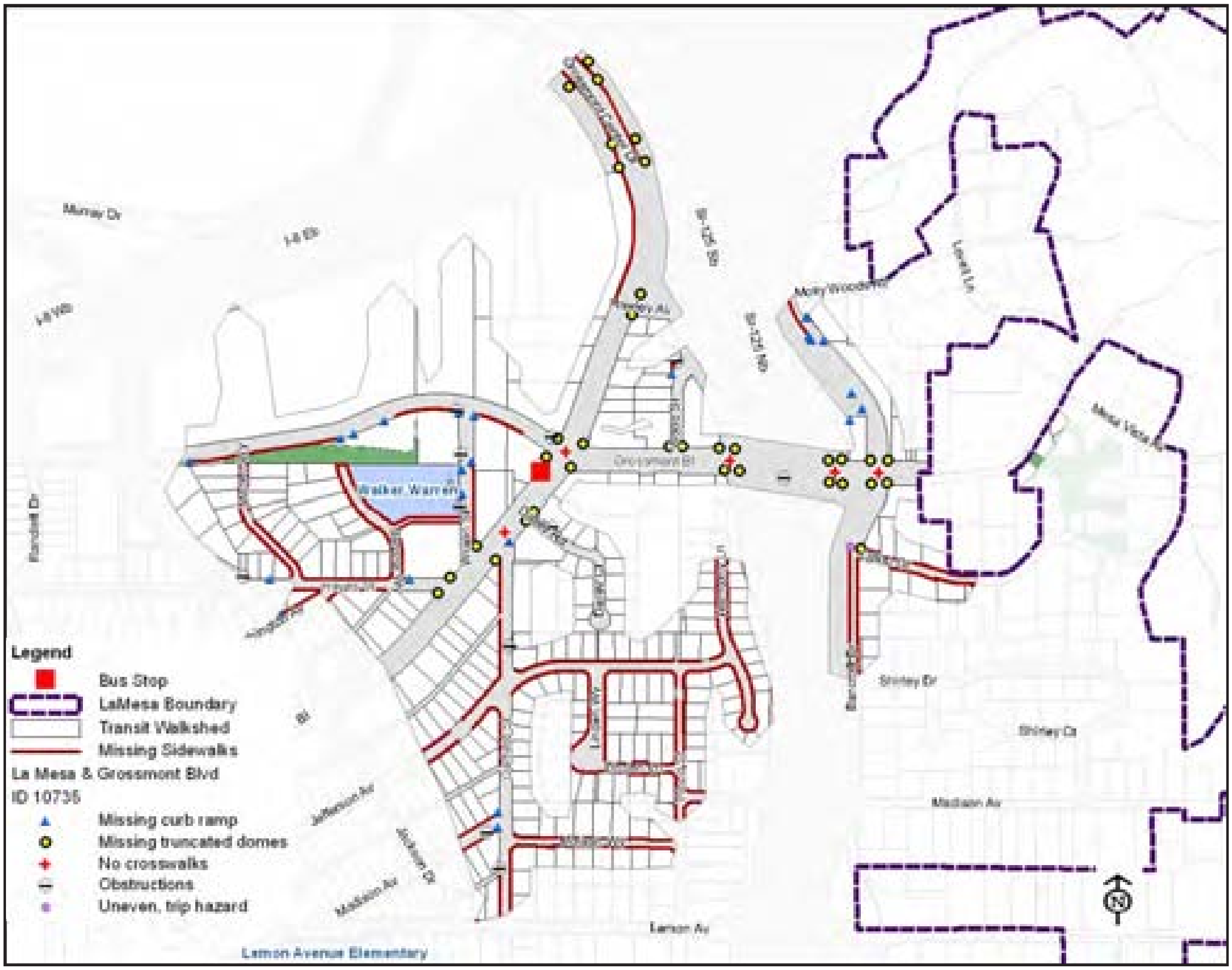
11804 - Baltimore Dr & Parkway Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
Total for Transit Amenities				**$4,500**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing truncated domes	4	EA	$400	$1,600
No crosswalks	1	EA	$500	$500
Total for Accessibility Improvements				**$2,100**
Sub-Total				**$6,600**
Contingency (30%)				**$1,980**
Grand Total Cost				**$8,580**

Rank: #25 Lake Murray Blvd and Baltimore Dr



40132 - Lake Murray Blvd & Baltimore Dr				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
Total for Transit Amenities				**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
No Barriers	-	-	-	-
Total for Accessibility Improvements				-
Sub-Total				**$10,650**
Contingency (30%)				**$3,195**
Grand Total Cost				**$13,845**

Rank: #26 La Mesa Blvd and Grossmont Blvd

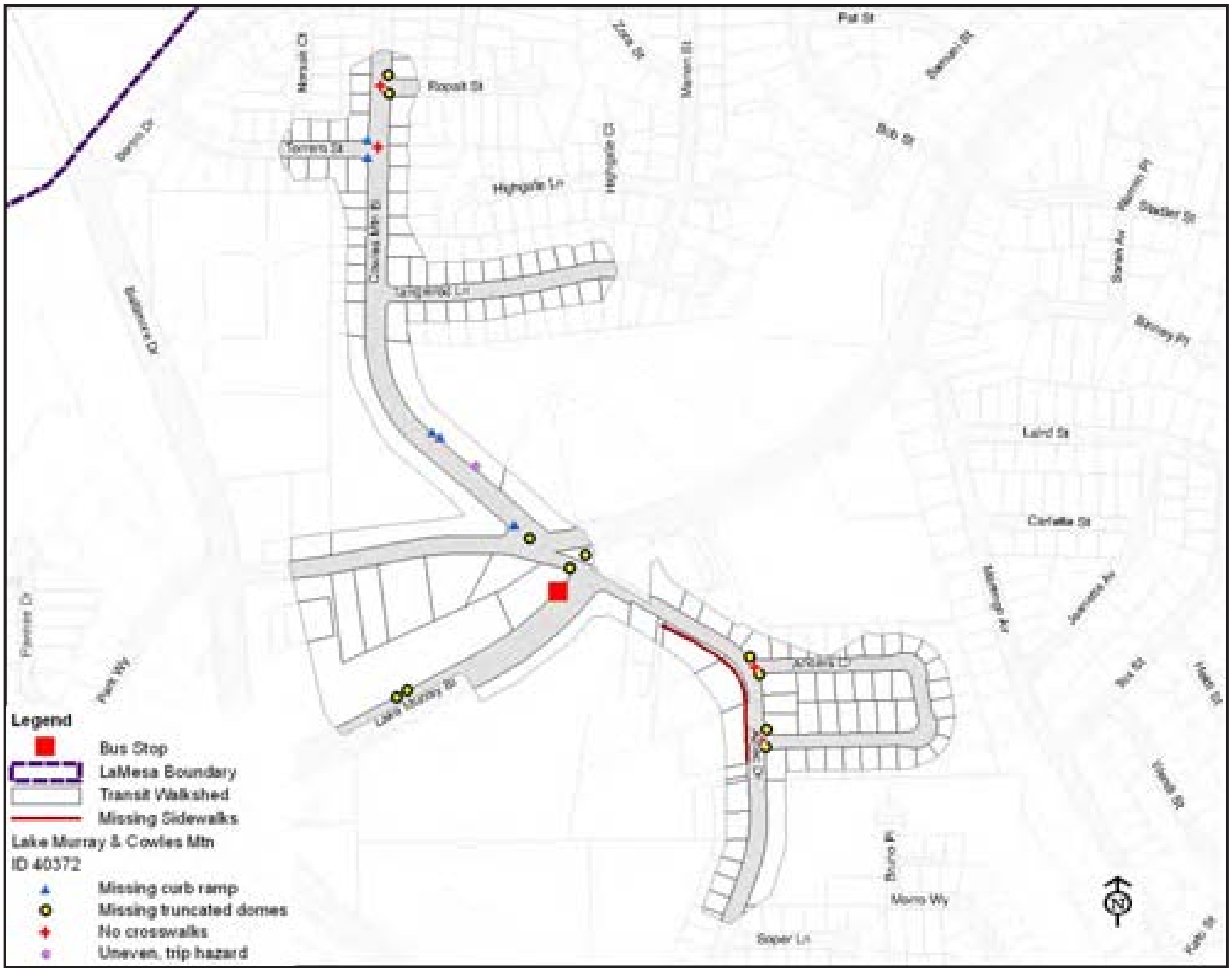


10735 - La Mesa Blvd & Grossmont Blvd				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
			Total for Transit Amenities	**$3,000**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	23	EA	$2,500	$57,500
Missing truncated domes	34	EA	$400	$13,600
No crosswalks	5	EA	$500	$2,500
Obstructions, blocked by poles, utility boxes, plants, etc.	12	EA	$1,400	$16,800
Sidewalk improvements	131,342	SF	$7	$919,396
Uneven, trip hazard	1	EA	$350	$350
			Total for Accessibility Improvements	**$1,010,146**
			Sub-Total	**$1,013,146**
			Contingency (30%)	**$303,944**
			Grand Total Cost	**$1,317,090**

Rank: #27 University Ave and Yale Ave

11447 - University Ave & Yale Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	10	EA	$2,500	$25,000
Missing truncated domes	2	EA	$400	$800
No crosswalks	3	EA	$500	$1,500
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
Sidewalk improvements	136,027	SF	$7	$952,187
			Total for Accessibility Improvements	**$980,887**
			Sub-Total	**$991,537**
			Contingency (30%)	**$297,461**
			Grand Total Cost	**$1,288,999**

Rank: #28 Lake Murray Blvd and Cowles Mountain Blvd

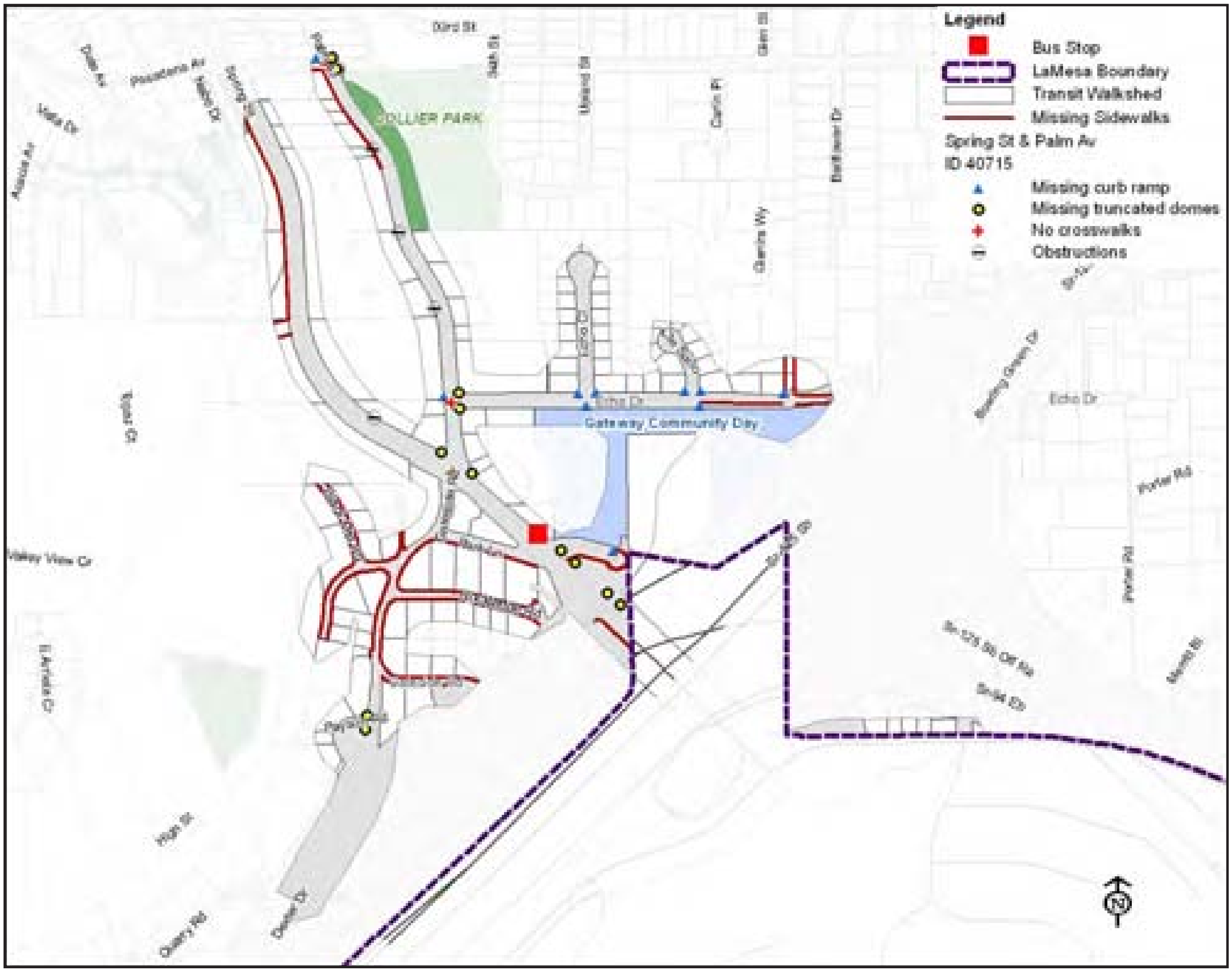


40372 - Lake Murray Blvd & Cowles Mountain Blvd				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$4,500**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	5	EA	$2,500	$12,500
Missing truncated domes	11	EA	$400	$4,400
No crosswalks	4	EA	$500	$2,000
Uneven, trip hazard	1	EA	$350	$350
Sidewalk improvements	2,983	SF	$7	$20,881
			Total for Accessibility Improvements	**$40,131**
			Sub-Total	**$44,631**
			Contingency (30%)	**$13,389**
			Grand Total Cost	**$58,021**

Rank: #29 Lake Murray Blvd and El Paso St

40142 - Lake Murray Blvd & El Paso St				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$1,500	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	14	EA	$2,500	$35,000
Missing truncated domes	25	EA	$400	$10,000
No crosswalks	10	EA	$500	$5,000
Obstructions, blocked by poles, utility boxes, plants, etc.	1	EA	$1,400	$1,400
Uneven, trip hazard	4	EA	$350	$1,400
			Total for Accessibility Improvements	**$52,800**
			Sub-Total	**$63,450**
			Contingency (30%)	**$19,035**
			Grand Total Cost	**$82,485**

Rank: #30 Sprint St and Palm Ave



40715 - Spring St & Palm Ave				
Transit Stop Improvements	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
9' Shelter with bench	1	EA	$4,900	$4,900
Trash receptacle	1	EA	$1,250	$1,250
Solar powered illumination and installation	1	EA	$3,000	$3,000
Shelter installation	1	EA	$2,000	$1,500
			Total for Transit Amenities	**$10,650**
Barriers	**Qty**	**Unit**	**Unit Cost**	**Total Cost**
Missing curb ramp	10	EA	$2,500	$25,000
Missing truncated domes	12	EA	$400	$4,800
No crosswalks	3	EA	$500	$1,500
Obstructions, blocked by poles, utility boxes, plants, etc.	4	EA	$1,400	$5,600
Sidewalk improvements	59,499	SF	$7	$416,495
			Total for Accessibility Improvements	**$453,395**
			Sub-Total	**$464,045**
			Contingency (30%)	**$139,213**
			Grand Total Cost	**$603,258**

Table 5.9 Improvements for Remaining Bus Stops 31-81

Transit Stops				Costs								
Rank	Stop ID	Transit Stop	Total Boarding & Alightings*	Shelter	Paving	Trash Receptacle	Solar Lighting	Lighting Installation	Shelter Installation	Sub-Total Cost	Contingency (30%)	Grand Total
31	10320	University Ave & Allison Ave	22	-	-	$375	-	$0	-	$375	$113	**$488**
32	40157	Grossmont Center Dr & Healthcare Dr	20	-	-	-	-	-	-	-	-	-
33	12240	La Mesa Blvd & Lee Ave	20	$4,900	-	-	$1,500	$1,500	$1,500	$9,400	$2,820	**$12,220**
34	10331	La Mesa Blvd & Glen St	20	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
35	40262	Lake Murray Blvd & El Paso St	16	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
36	11068	University Ave & Lowell St	16	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
37	10696	University Ave & Lois St	16	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
38	40390	La Mesa Blvd & Wilson St	14	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
39	11794	Lake Murray Blvd & Connecticut Ave	14	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
40	11075	El Cajon Blvd & Thorne Dr	14	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
41	10308	University Ave & Lowell St	14	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
42	40605	Lake Murray Blvd & Marengo Ave	13	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
43	13140	Baltimore Dr & Aztec Dr	13	-	-	$375	$1,500	$1,500	-	$3,375	$1,013	**$4,388**
44	99291	La Mesa Blvd & University Ave	12	-	$252	-	-	-	-	$252	$76	**$328**
45	11480	La Mesa Blvd & Grossmont Blvd	12	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
46	11459	University Ave & Maple Ave	12	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
47	11089	La Mesa Blvd & Rosehedge Dr	12	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
48	10336	La Mesa Blvd & Garfield St	12	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
49	10333	La Mesa Blvd & Jackson Dr	12	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
50	99122	Lake Murray Blvd & Baltimore Dr (Vons)	11	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
51	40510	Lake Murray Blvd & Bob St	11	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
52	40703	Lake Murray Blvd & Marengo Ave	9	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
53	40274	Campo Rd & Kenwood Dr	9	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
54	40383	Allison Ave & Pine St	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
55	13161	La Mesa Blvd & Culowee St	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
56	13022	Baltimore Dr & Aztec Dr	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
57	11461	La Mesa Blvd & Culowee St	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
58	11446	Lake Murray Blvd & Kiowa Dr	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
59	10710	University Ave & Olive Ave	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
60	10328	La Mesa Blvd & University Ave	8	-	-	-	-	-	-	-	-	-
61	10326	Allison Ave & Palm Ave	8	-	-	-	-	-	-	-	-	-
62	10314	University Ave & Maple Ave	8	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
63	11450	Lake Murray Blvd & Maryland Ave	6	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**

Transit Stops				Costs								
Rank	Stop ID	Transit Stop	Total Boarding & Alightings*	Shelter	Paving	Trash Receptacle	Solar Lighting	Lighting Installation	Shelter Installation	Sub-Total Cost	Contingency (30%)	Grand Total
64	11440	University Ave & Massachusetts Ave	6	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
65	10700	University Ave & Massachusetts Ave	6	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
66	10327	Allison Ave & Pine St	6	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
67	40704	Lake Murray Blvd & Stadler St	5	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
68	40616	Spring St & Palm Ave	4	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
69	11453	University Ave & Culbertson Ave	4	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
70	10733	La Mesa Blvd & Randlett Dr	4	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
71	13056	Baltimore Dr & Wellesley St	3	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
72	40277	Campo Rd & Merritt Blvd	2	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
73	40267	La Mesa Blvd & Cypress St	2	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
74	12979	La Mesa Blvd & Grant Ave	2	$4,900	$252	$375	$1,500	$1,500	$1,500	$10,027	$3,008	**$13,035**
75	12573	70th St & Saranac St	2	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
76	12234	Lake Murray Blvd & Parkway Dr	2	$4,900	$252	$375	$1,500	$1,500	$1,500	$10,027	$3,008	**$13,035**
77	12232	70th St & Saranac St	2	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
78	10317	University Ave & La Mesa Blvd	2	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
79	13020	Baltimore Dr & Lake Murray Blvd	1	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
80	10711	Lake Murray Blvd & Shasta Ln	1	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
81	10703	Lake Murray Blvd & Kiowa Dr	1	$4,900	-	$375	$1,500	$1,500	$1,500	$9,775	$2,933	**$12,708**
										Total Cost for Projects 31-81	**$577,208**	

Source: 2010 MTS Data

CITY OF LA MESA
JEWEL of the HILLS

6. Universal Access

Following the specific requirements of federal and state legislation for accessibility is a focal point of this chapter. However, all improvements to the walking environment that these regulations require have many benefits for making the walking environment better for all users, with or without physical challenges for access.

6.1 Goals and Policies

Goal: To improve pedestrian access for people with disabilities through compliance with local, state and federal standards and recommendations for accommodation.

Objective: Ensure that pedestrian facilities meet local, state and federal access requirements. Utilize "Universal Access" principles since all pedestrians benefit from this approach.

Policy 1.1

The City will routinely ensure that pedestrian facilities comply with the Americans with Disabilities Act (ADA).

Policy 1.2

The City will utilize state and federal guidelines and standards for traffic operations, signal timing, geometric design, Universal Access (ADA) and roadway maintenance that facilitate walking and bicycling at intersections and other key crossing locations.

Policy 1.3

The City will encourage sidewalk widths that go beyond the minimum ADA standards in areas with high pedestrian activity.

Policy 1.4

The City will promote accessibility and mobility for all people including children, disabled, and the elderly.

Policy 1.5

The City will seek funding to systematically retrofit curb ramps, pedestrian crossings and transit stops that do not meet accessibility requirements.

Policy 1.6

The City will encourage private businesses to make accessibility upgrades through the use of regulation or incentives.

6.2 Assessment of Infrastructure Needs

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.

State of California Title 24 Summary

The Federal ADA Accessibility Guidelines and California Title 24 differ in several technical respects, but the most important distinction between the two is that the ADA is civil rights legislation and Title 24 is a building code. Another important difference is that ADA applies to existing facilities, while Title 24 only applies when alterations, additions or new construction takes place. Therefore, if remedial work is performed to eliminate a physical barrier, the more stringent of ADA Accessibility Guidelines or Title 24 applies.

The ADA and Title 24 are also enforced differently. The ADA can be enforced only in a court of law when no other resolution is possible, and Title 24 is enforced by state and local building departments, either when a building permit is obtained or when a citizen complaint is filed in regard to an existing facility. Title 24 is the regulation that most directly affects the built environment in La Mesa and provides the state leverage for implementing the federal ADA through the building review, approval and inspection process.

City of La Mesa Walkability Plan

The purpose of the Walkability Plan is to create a broad, community based vision and action plan to make La Mesa a more walkable community. This plan is intended to achieve the goals and vision of the General Plan to allow residents of the City to get around without a motor vehicle. The Walkability Plan provides essential details related to walking to make La Mesa a town for working, living, recreating and shopping. This plan provides a high level of detail on street design, building placement, connectivity, compactness, land use policies and other issues that help define the way a community develops over time.

ADA issues are discussed in Chapter 3 of the Walkability Plan regarding signal timing and signage at intersections and ADA Deficiencies. Some of the common problems include pedestrian clearance where the crossing time given was too short and there are non-functioning pedestrian push buttons.

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 issues that are potentially in need of additional design treatments to accommodate a disabled person or those with limited mobility.

The existing issues include:

- 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 allow
- Other features identified by ADA as impediments to access and mobility

Universal Access

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.

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 five summary characteristics of ADA design-compatible design were the focus of the field inspections.

- Grades
- Walkways
- Pedestrian Ramps and Curb Cuts
- Driveway Design
- Surfaces

The following sections present summaries of ADA design guidelines for each of these topic areas and illustrate existing issues found within La Mesa.

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. La Mesa has many steep and narrow streets and are fortunate to have sidewalks on some of these streets. Wherever possible and warranted, sidewalk improvements should be considered.

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 (three feet) except at doors. However, current transportation industry guidelines generally exceed the 36-inch minimum and provide a minimum of 48 inches (four feet) of unobstructed walkway. The minimum width should be expanded when there is either a vertical barrier fronting the walkway or a vehicle travel lane.

Pedestrian Curb Ramps and Curb Cuts

Pedestrian 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, the following lists some basic guidance for curb ramps.

- Curb ramps should be located where the crosswalk grade exceeds 5.33 percent, but may be a maximum ratio of 1:12 or 8.33 percent
- The maximum rise for any single run should be 30 inches
- Where grades exceed 5.33 percent, hand rails are required with the exception of curb ramps and some other special conditions

Two common curb ramp types exist in La Mesa: 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 La Mesa 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. Fortunately, the City of La Mesa has been improving their curb ramps and examples of perpendicular ramps can be found at Baltimore Drive and Bertro Drive, Jackson Drive at El Paso Drive, Trolley Court at Fletcher Parkway and University Avenue at Yale Avenue.

Electrical pole obstructing a pedestrian path on Normal Ave. Photo Credit: Joe Punsalan

An incomplete sidewalk on Murray Dr. Photo Credit: Catrine Machi

Perpendicular curb ramps at Trolley Ct. Photo Credit: Joe Punsalan

Diagonal curb ramp at Date Ave. Photo Credit: Catrine Machi

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. At crossings, curb ramps or full cut-thrus that are 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. Bulb-outs 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.

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 and 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 two percent. A design greater than a two percent change in cross slope, compromises balance and stability for people in wheelchairs and walkers and can also increase tripping hazards for pedestrians.

Pedestrian Crossings (Intersection or Mid-block)

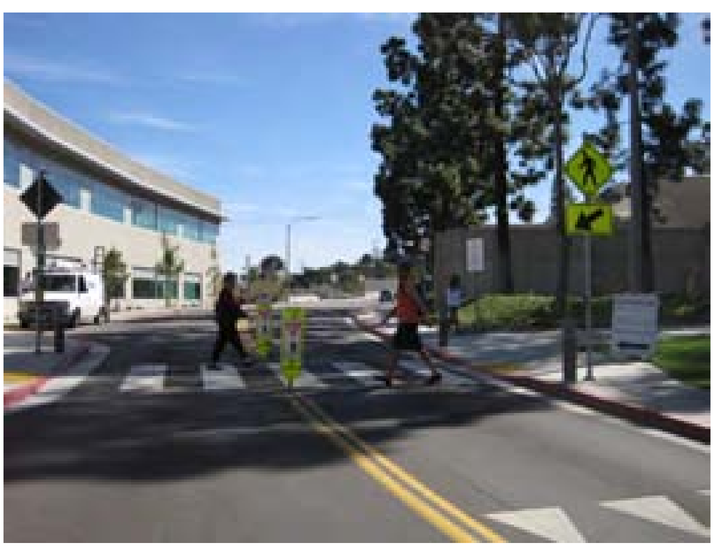
To comply with ADA and California Title 24 language, the following conditions should be met:

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 domes, 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. Pedestrians that jaywalk or are in a crosswalk after the walking phase is complete, create problems with both safety and traffic flow efficiency.

Since 2002, the use of truncated domes has become the predominant tactile cue in use at crossings and curbs ramps throughout the region. There are numerous improved crossings in La Mesa that feature truncated domes, but La Mesa should continue to retrofit existing crossings with this beneficial design treatment.

Examples of a mid-block crossing can be found on Center Drive at the Grossmont Medical Center. Examples of pedestrian refuges can be found at Jackson Drive at El Paso Drive and Lemon Avenue at Grant Avenue.



Midblock crossing on Center Drive. Photo Credit: Joe Punsalan

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.

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.

6.3 Solutions that Address Accessibility Issues

Tables 6.1 and 6.2 have been developed to describe the typical accessibility issues associated with public rights-of-way that require walking or non-vehicular access.

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.

To fully meet and address ADA issues, the development of an ADA Transition Plan is recommended. An ADA Transition Plan helps to set the priorities for improvements of the public right of way, considering limited financial ability to address all shortcomings. The highest priority should be given to improving areas that have accessibility issues as well as safety issues and other connectivity and walkability issues.

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.

Cobblestone paving in Downtown La Mesa. Photo Credit: Joe Punsalan

Figure 6.1 Accessibility Issues

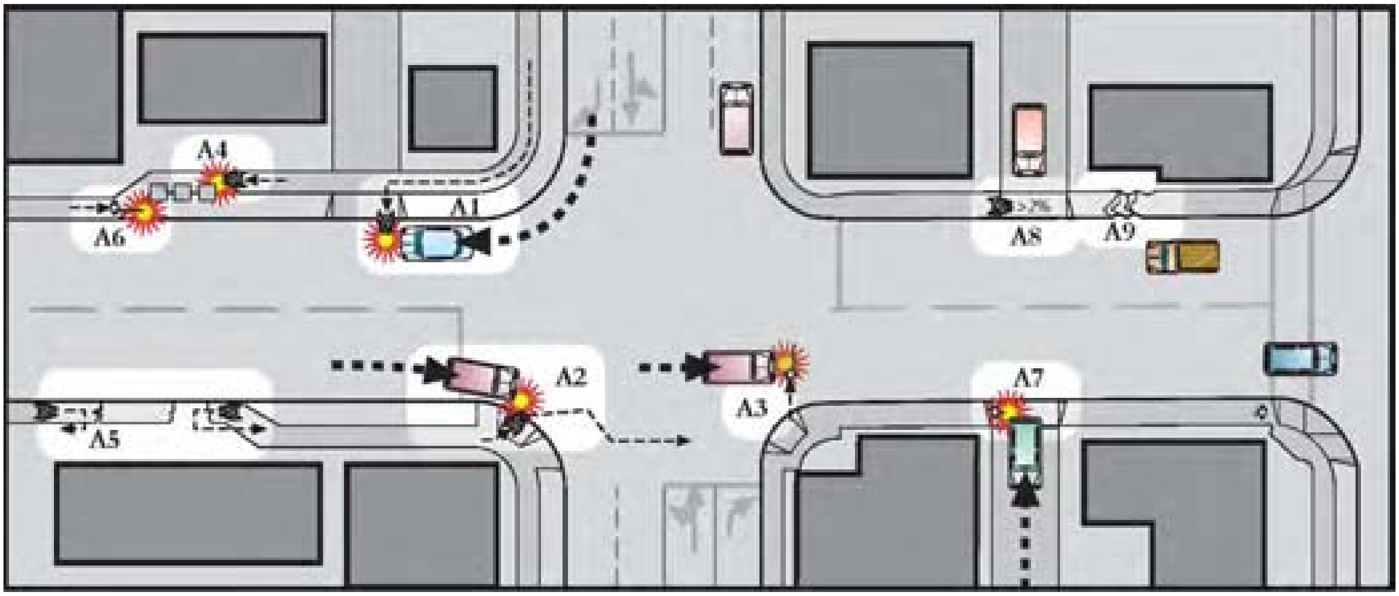


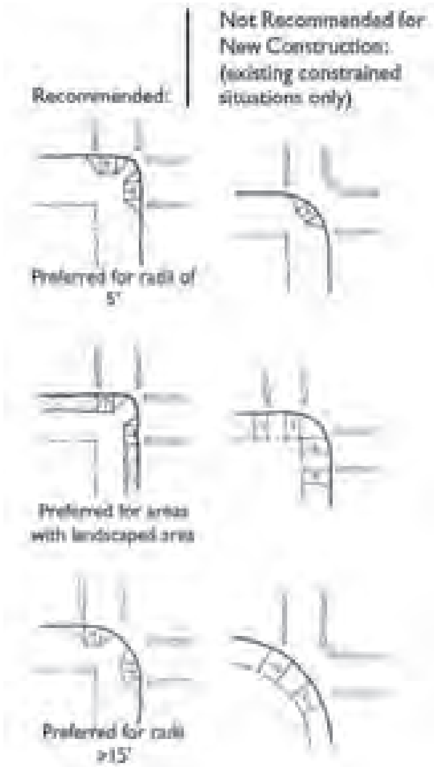
Table 6.1 Accessibility Issues

Accessibility Issues	Possible Solutions
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**

Table 6.2 Possible Accessibility Solutions

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

* These tables and graphics are for illustrative purposes only and are not to be used for engineering analysis or design. 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.



1A) Match the right ramp to the right circumstance. Source: Planning & Designing for Pedestrians, SANDAG, June 2002

1A) Apex ramps (single ramp on corner), should be avoided on high volume streets with travel lanes at the curb. Photo credit: Dan Burden

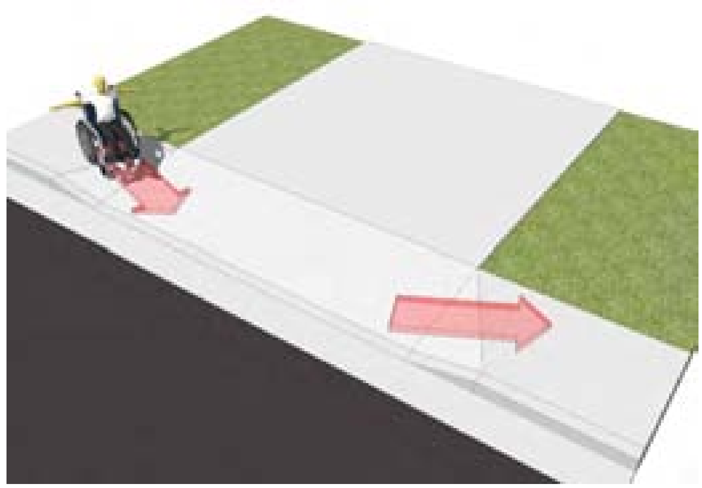
2A) Pole mounted pedestrian signal actuator placed in accessible area next to the curb ramp. Photo credit: Michael Ronkin

1A) Curb ramp meeting latest tactile strip and truncated dome requirements. Photo credit: Joe Punsalan

2A) Pedestrian actuator (Polara). Photo credit: ITE Pedestrian Bike Council

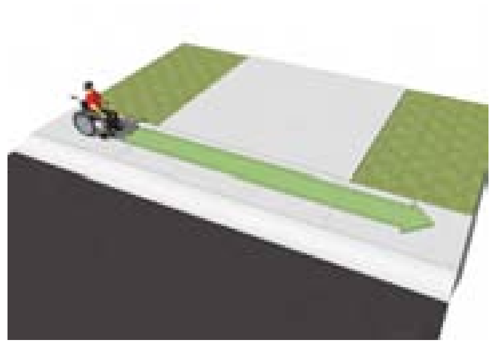
3A) Some of La Mesa's sidewalks are either in disrepair or missing.   This creates both trip hazards as well as accessibility issues. Shared cost programs to repair and re-place damaged sidewalks do exist. Photo credit: Joe Punsalan

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) The cross slope and transition area for many driveways are excessive for those in wheel chairs or those with other walking disabilities. Illustration credit: Michael Johnston

5A) A walkway separated from the curb with a parkway strip is the preferred solution. Illustration credit: Michael Johnston



5A) A mountable curb can resolve existing situations. Illustration credit: Michael Johnston

5A) A modified right of way can also solve the issue. Illustration credit: Michael Johnston

7A) Repair, slice or patch lifts on walk surfaces and/or reset ground level utility boxes to be flush. Photo credit: Joe Punsalan

7. Complete Streets and Street Classification

A Complete Street is one that enables a safe and viable transportation access to all types of roadway users. They allow bicycles, pedestrians, seniors, transit riders and individuals with disabilities to move through a roadway. Complete Streets addresses the safety and mobility needs of non-vehicular users while balancing efficiency of vehicular traffic.

Roadway segments are different so complete street design treatments will be unique as well. Adjacent land uses, transportation infrastructure and demographics play a key role in the design of a complete street. Typical amenities can include bike lanes, paved and hard surface paths, wide sidewalks, parkway strip, special bus lanes, pedestrian curb extensions, accessible pedestrian and bicycle signals and median islands. Complete streets in rural areas will look different than those in urban core areas but can operate in the same way with a balance of convenience and safety designs.

Complete Streets offer many benefits for the surrounding community:

- Wide, attractive sidewalks and well defined bike routes encourage healthy and active lifestyles among residents of all ages
- Opportunities for children to reach nearby destinations in a safe and supportive environment
- Transportation options allow everyone, particularly people with disabilities and older adults, to be mobile and stay connected to the community
- Multi-modal transportation networks help communities provide alternatives to sitting in traffic
- Integration of land use and transportation creates an attractive combination of buildings, houses, offices, shops and street designs
- Improved pedestrian facilities including sidewalks, raised medians, convenient bus stop placement, traffic-calming measures, and treatments for travelers with disabilities can all increase the convenience and safety of users
- Preserving resources through livable and walkable communities can also help reduce carbon emissions and are an important part of a climate change strategy
- Reductions in household transportation costs and travel time as well as lower public investment in infrastructure can allow for increased spending in other areas and can result in economic revitalization
- Integrating sidewalks, bike lanes, transit amenities, and safe crossings into the initial design of a project can lower the expense of retrofits later
- Walkable and bicycle friendly communities have been cited as maintaining higher property values. In addition, walkable downtown and retail areas have been found to generate more sales tax revenue.

Bicycle and pedestrian policies in Chapters 2 & 3 provide the framework for the City to move forward in developing Compete Streets. These policies combined provide guidance for the development of Complete Streets throughout the City.

7.1 Regional Standards for Complete Streets

Each roadway is unique in the different amenities that make a complete street. The following sections describe the different street types and their use zones that assist in the development of a complete street scheme. The intention of each use zone is to provide guidance to accomplish the overall objective of providing safe, functional, multimodal streets that serve all users and abilities.

While the sections in this chapter describe how to utilize the various street types within the City, it's important to remember that any given street will traverse several types of land use and therefore require different treatments along its route. This section should be used as a guide to assist City staff when opportunities to develop a complete street present itself.

The street types that are described in this section are arterial, collectors and local streets, correspond with the Street Classification section. The derivatives of each road type have been combined since the classifications are similar. The information in these sections are detailed but not entirely prescriptive. They give general treatment methods based on national, state, SANDAG and local policies and measures.

Block Length

Block length is a critical component of the street network. In general, the shorter the block length, the denser the street network. Defining typical and maximum lengths for blocks does not always imply a grid network. However, it does allow the possibility of different block and lot configurations. Varying block geometry adds flexibility for mixing housing and lot sizes and developing constrained or oddly shaped parcels. A dense street network provides:

- Capacity for vehicle traffic
- Multiple route options
- Shorter trip options
- Future development flexibility
- More dispersed traffic flows
- More opportunities for traffic calming

Block length also affects pedestrian safety; for example by reducing the likelihood of jaywalking. It decreases the motivation for jaywalking by limiting the out of direction travel needed to reach distant intersection crossings. A shorter block length increases the opportunities for safe crossings at intersections by providing more intersections per square mile. A pattern of short blocks provides pedestrians a choice of which block to utilize. Shorter blocks create connectivity to help ensure that vehicular traffic does not become focused on only one or two streets. Shorter blocks also create a better walking environment, by providing numerous direct and indirect routes throughout neighborhoods and between land uses. In the local street network, frequently spaced intersections created by shorter blocks can also serve as a form of traffic calming. Future street closures should be evaluated carefully to ensure that the alternative travel environment is not negatively affected.

Tables 7.1 though 7.3 provides guidance to improve the existing conditions of the existing street classifications within La Mesa. Figure 7.1 through 7.3 depict the cross sections of what each street classification could look like once improvements have been made.

Figure 7.1 Arterial Parkways and Arterials

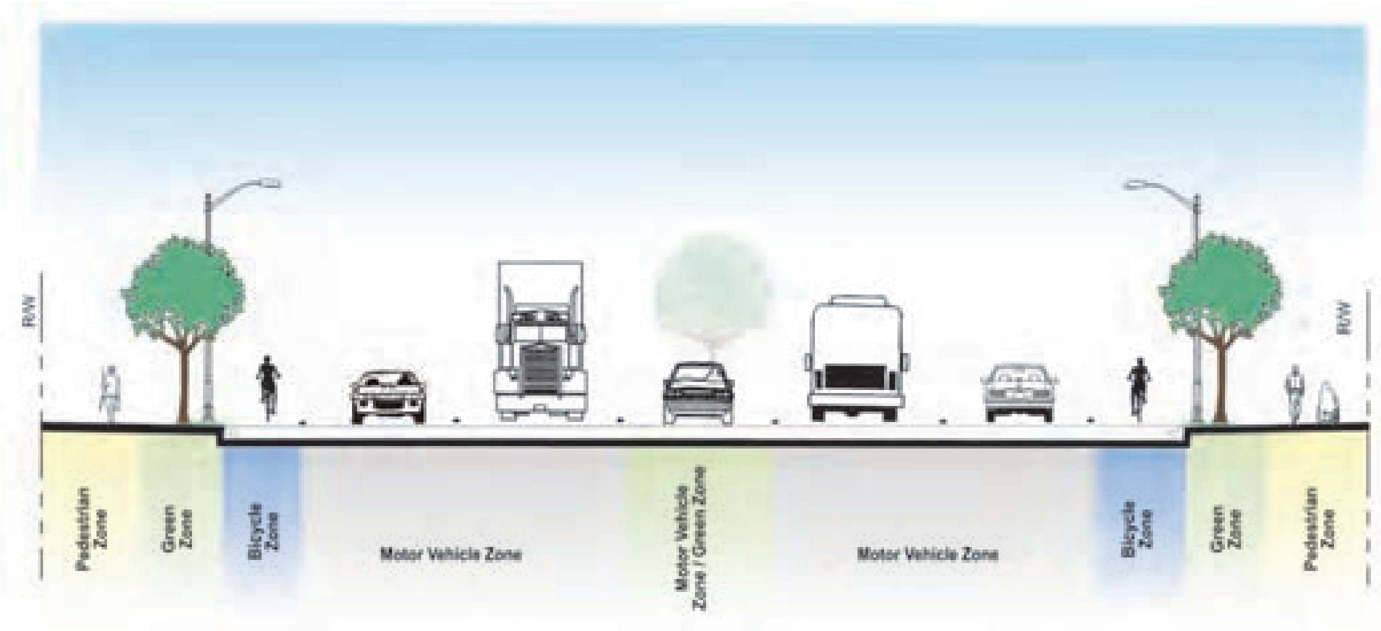


Table 7.1 Arterial Parkways and Arterials

Pedestrian Zone	The primary purpose of arterials is for high volume vehicular traffic. Pedestrian priority tends to come second to vehicular priorities. Pedestrians need to be able to feel comfortable walking along these arterials, especially with high speed vehicles. This zone should always have sidewalks of adequate width for the adjacent and surrounding land uses and should include horizontal offsets between moving vehicles and pedestrians. Parking, bike lanes, wide sidewalks and parkways all provide this effect.
Green Zone	Higher speeds and volumes tend to discourage pedestrian activity along arterials. This zone should always have a landscaped buffer between pedestrians and vehicles. This landscaped zone can include groundcover, dense shrubs and it is essential that it includes trees since they provide a safety buffer for errant vehicles. Where there is a parking zone on a parallel street, a Green Zone should be established between the parking and pedestrian zones.
Parking Zone	Since the emphasis is on traffic flow for arterial, parking is usually discouraged. Parking should be placed on a parallel or connecting non-arterial street.
Bicycle Zone	With high speeds and vehicular traffic, emphasis should be given to increase cyclist's safety. Five feet is the minimum width for bike lanes but on these types of streets, six feet is preferred. Enhancements can include a two-foot diagonally striped painted buffer between the bike lane and the travel lane. Painted bike lanes crossing intersections and freeway on-ramps are examples of other potential enhancements. If right-of-way is available, a Class 1 Bike Path parallel to the Motor Vehicle Zone can be installed but will require barriers and turning vehicle control measures.
Motor Vehicle Zone	Motor vehicle flow is the primary emphasis of this zone. The number of lanes will vary by capacity and surrounding land uses. On very wide streets, medians may be necessary to lower the perceived scale to calm traffic and to provide a pedestrian refuge.
Intersection Crossings	Highly visible marked crosswalks, countdown timers, pedestrian bulb-outs, median refuge, advance pedestrian crossing phases, adequate street lighting are all essential elements for crossing the high speed and high vehicular volume intersections.

Figure 7.2 Arterials Major and Local Collectors

Table 7.2 Arterials Major and Local Collectors

Pedestrian Zone	Pedestrian travel should be very comfortable on collector streets. This zone should have unobstructed sidewalks with appropriate widths for adjacent land uses. Walkways should be a minimum 8-10'.
Green Zone	In order to make pedestrian travel comfortable along collectors, a landscaped buffer should be installed with grass, dense shrubs and even shade trees. In some cases, it can be intermixed with hardscaped amenities. On some collectors, there maybe landscaped medians in the Motor Vehicle Zone.
Bicycle Zone	Traffic and speed can sometimes be too high on collector streets depending on the adjacent land use, number of driveways and configuration of the roadway. These factors may still deter cyclists from travelling on this street. Bike lanes are the preferred treatment. Five feet is the minimum width for a bike lane and 6' is recommended if parallel parking is present. A Class 3 Bike Route can be installed if vehicular speed is less than 40 MPH. Shared Lane Markings or "Sharrows" can be installed along with Class 3 signage. If right-of-way is available, a Cycle Track or Class 1 Bike Path are options adjacent to the roadway as long as appropriate buffers, barriers and turning warning indicators have been included.
Parking Zone	The need for a Parking Zone varies on collectors. Typically, speed, traffic volume and adjacent land uses determine the need for on-street parking. Parking should be considered for its traffic calming and pedestrian buffer benefits.
Motor Vehicle Zone	Motor vehicle flow is the primary emphasis of this zone. The number of lanes can vary between two and four depending on the connections from adjacent land uses and other street types. In some cases, this zone can be mixed with bicycles if speed is less than 35 MPH.
Intersection Crossings	Highly visible marked crosswalks, countdown timers, pedestrian bulb-outs, median refuge, advance pedestrian crossing phases, adequate street lighting are all essential elements for crossing the high speed and high vehicular volume intersections.

Figure 7.3 Local and Residential Streets

Table 7.3 Local and Residential Streets

Pedestrian Zone	Whether the sidewalk is attached to the Travel Zone or detached, adequate sidewalk width is important for the comfort and walkability of the neighborhood. Sidewalk widths should be wide enough to allow pedestrians to walk side by side or to pass each other comfortably. A minimum of 5' is required to accommodate the side to side use, but depending on expected volumes and adjacent land uses, 8-10' maybe more appropriate.
Green Zone	This zone is very important for pedestrian comfort and livability. Landscape buffers with groundcover, shrubs and shade trees add aesthetics to the neighborhood and act as traffic calming. Typically in neighborhoods, this zone adds character to the street. This zone should also include street furnishings such as benches, trash receptacles, bike racks and should also contain any above ground utilities.
Shared Travel Zone	This zone is typically low speed (25 MPH) local or residential roads. Parking, bicycles and motor vehicles can share this zone because of the low traffic volume. Parking on this street will occur more frequently because of the residential land use. This zone usually has narrow street where bike lanes cannot be installed. A Class 3 Bike Route can be installed along with Shared Lane Markings or "Sharrows".

The following table summarizes some basic improvements that can be done for existing and planned streets. The City of La Mesa can update street standards that have drifted too far towards wide roadways and can reintroduce elements that can enhance existing streets.

Table 7.4 Complete Streets Guidance

Complete Street Standards

			Arterial Parkways	Arterials	Major Collector	Local Collector	Local Street
Street Characteristics	Average Daily Trips (ADTs)		> 25,000	12,000 - 25,000	8,000 - 12,000	2,000 - 8,000	< 2,000
	Total No. of Travel Lanes		6	4	2,3 or 4	2	2
	Curb-to-curb width (ft)		82'-106'	58'-82'	64'-72'	40'-64'	38'-42'
	Posted Speed (MPH)		45-55	35-45	35-45	25-35	25
Travel Lane Elements	Raised Median		✓	✓			
	On Street Parking Width (ft)			8'	7'	7'	7'
	Maximum Block Length (ft)		300' x 300'	300' x 300'	300' x 300'	300' x 200'	200' x 200'
	Transit Accomodations, ADA compliant	Bus Stop		✓	✓	✓	✓
		Enhanced Bus Stop	✓	✓			
Pedestrian Elements	Minimum Sidewalk Width (ft)	Contiguous				6'	5'
		Non-contiguous	8'-12'	8'-10'	6'-8'	5'-8'	5'
	Marked Crosswalks		✓	✓	✓	✓	
	Planting Strip Width (ft)		8'	8'	6-8'	6-8'	6-8'
	Curb extensions		✓	✓	✓		
	Median Refuge		✓	✓			
	Intersection Street Lighting		✓	✓	✓	✓	✓
	Mid-block Lighting		✓	✓	✓		
Bicycle Elements	Class 1 Bike Path		If space is available	If space is available			
	Class 2 Bike Lane	Standard (ft)	6'	6'	5'-6'	5'	If space is available
		Experimental Painted Lane	At high volume and freeway intersections	At high volume and freeway intersections	At high volume and freeway intersections		
	Class 3 Bike Route with Sharrows				If speed is <40 MPH	✓	✓

References:

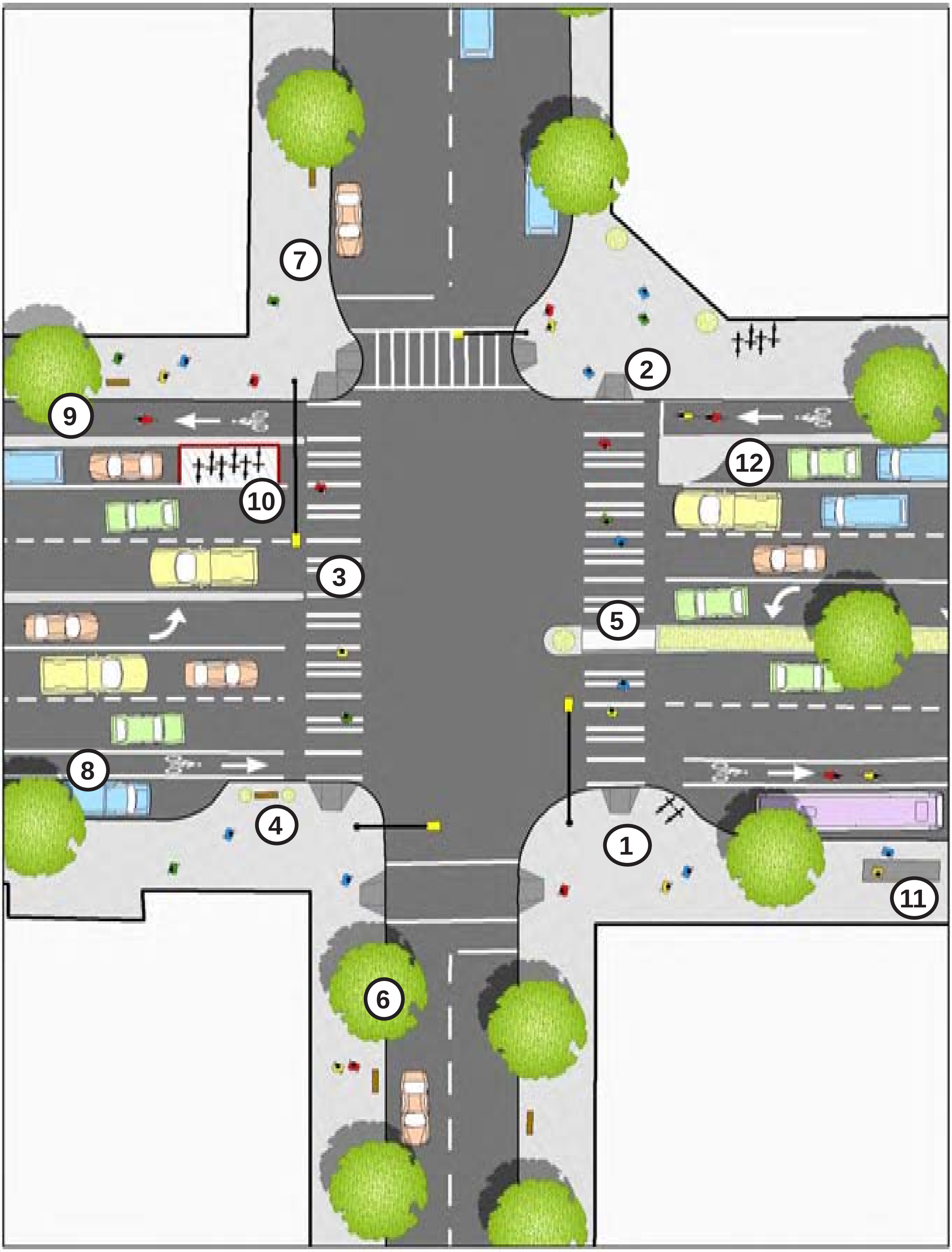
SANDAG Policy NO. 031, 2008

Urban Street Design Guidelines, City of Charlotte, 2007

Best Practices for Complete Streets, Sacramento Transportation & Air Quality Collaborative, 2005

City of La Mesa General Plan, City of La Mesa, 1996

Figure 7.4 Complete Street Intersection



7.2 Complete Streets at Intersections

Figure 7.4 displays some of the improvements that can be implemented to make intersections safer for bicycles and pedestrians. There are many different solutions for any given issue and Figure 7.4 shows some of the basic improvements that can be installed. The following treatments correspond to the numbers on Figure 7.4.

1. Curb Extensions

When on-street parking and/or shoulders are present, curb extensions should be considered for intersections. Curb extensions reduce pedestrian crossing times and exposure to motor vehicles, increase visibility and encourage appropriate motor vehicle speeds. Additionally, curb extensions create public space and allow placement of street furniture and essential elements for an active pedestrian environment. Curb extensions are also important for accessibility because they provide space for curb ramps, crossing actuators, and a safe waiting area. All curb extensions should extend into the street no further than the edge of the travel or bike lane.

2. ADA Accessible Curb Ramps

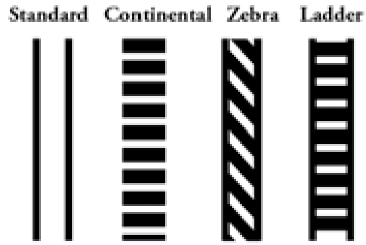
New curb ramps must comply with the requirements of the State of California Code of Regulations Title 24 and the Americans with Disabilities Act Accessibility Guidelines. This includes the installation of detectable warning methods such as truncated domes on curb ramps, at hazardous vehicular ways, and on all transit boarding platforms. Curb ramps should be oriented to direct pedestrians to the opposite corner and to provide a direct connection between the sidewalk through passage zone and the crosswalk. Signalized intersections on arterial streets should have one curb ramp per marked crosswalk at each corner.

3. Crosswalk Striping

A crosswalk is an area of roadway designated for pedestrian crossings and is a continuation of the sidewalk across an intersection. In addition to marked crosswalks, unmarked crosswalks are legally recognized at most intersections of streets that have sidewalks and meet at right angles. The placement of marked crosswalks at a given intersection is a balancing act that requires consideration of:

- Crossing distance
- Visibility between pedestrians and motorists
- Ramp placement

The most effective crosswalk placement is one that minimizes crossing distance while maintaining good visibility and that allows the ramp to be placed entirely within the crosswalk. Smaller curb radii are ideal for crosswalk placement as they support minimal setbacks and encourage motorists to operate at speeds adequate for recognizing pedestrians in the crosswalk. High contrast crosswalk striping also helps people with visual impairments to cross streets. Striping should correspond to the width and location of sidewalks. The crosswalk striping pattern in Figure 7.4 is a modified Continental layout which is most visible to motorists and to those with low vision and cognitive impairments. The gaps in the striping through the travel lanes are intended for vehicle tires to pass through without crossing over any markings. The modified Continental layout has the same visual effect as a traditional Continental layout but with less markings and therefore less maintenance.



Crosswalk striping options

Crosswalks may be further marked with distinctive paving materials, colors or textures. Concrete is preferred over brick for its durability and can be stained or embossed with patterns to give crossings in a particular area a unique feel. The crosswalk textures should be selected to provide a smooth travel surface and good traction.

In most urban settings, traffic signals should be designed with pedestrian signage and actuators, in conformance with the California MUTCD. When pedestrian indications are not provided, the signal should be programmed to allow adequate time for pedestrians to cross. Traffic signal timing can be designed to control vehicle speeds and to provide differing levels of protection for crossing pedestrians. They should also incorporate specialized indications for bicycles, transit buses and emergency vehicles as warranted.

4. Furnishing Zone

Street furniture includes benches, mailboxes, trash and recycling receptacles, bike racks, newspaper boxes, kiosks, parking meters, artwork, signs, and other items used by pedestrians. Street furniture should be placed in the furnishings zone so they provide a buffer between the sidewalk and adjacent motor vehicle travel lanes. They add a frame of reference to the roadway and encouraging the driver to proceed at appropriate speeds.

5. Median Refuge

Median refuges are located in crosswalks in the middle of streets to provide a safe waiting area for pedestrians. They may include curbs, truncated domes and bollards to ensure the safety of waiting pedestrians. By allowing pedestrians to cross only half of the street and then wait, the refuge island increases the number of gaps in traffic that are safe for crossing. The median refuge area should be in line with the crosswalk and as wide as the crosswalk so that persons with disabilities are able to pass through without obstruction. In some cases, pedestrian actuated signals can be installed in these refuges to activate the crosswalk signals.

6. Lighting Levels

The presence of street lighting increases the visibility of pedestrian and cyclists especially on busy roadways and intersections. The increased lighting also helps deter crime and provides a sense of security for those on the street. Lighting should provide both safety illumination of the travel way and intersections, as well as pedestrian-scaled decorative light standards. There are many lighting options and the design should be coordinated with landscaping design to ensure its effectiveness. The following are some basic guidance for street lighting:

- Ensure pedestrian walkways and crossways are sufficiently lit
- Consider adding pedestrian-level lighting in areas of higher pedestrian volumes, downtown, and at key intersections
- Install lighting on both sides of streets in commercial districts
- Use uniform lighting levels

7. Wide Sidewalks and Pavement Treatments

Sidewalks are the framework of the pedestrian environment and are an essential component of most complete streets. Newer suburban street design often take a minimalistic approach to sidewalks, which can result in sidewalks as narrow as four or five feet in width with little or no buffer from adjacent travel lanes, obstacles such as sign posts, and poorly designed and located ramps and in some cases no sidewalks at all.

Wider sidewalks provide separation between pedestrians and adjacent travel lanes and create space for people to congregate. They also allow the placement of street furnishings such as street trees, lighting, benches, etc. In areas of high pedestrian traffic, or where building facades and other elements are at the edge of the sidewalk, or if the street is one of high volume or high speed, extra design considerations should be taken to make the sidewalk as wide as reasonably possible. For streets that currently do not have sidewalks, it may not be feasible from a cost standpoint to install sidewalks for the entire length of the street. When cost is an issue, the focus should be on connecting the most critical links first and filling in the rest of the sidewalk network over time as funding becomes available or new development can provide the facilities.

Sidewalk paving can bring a whole new aesthetic element to a street. It provides a unique setting and can provide valuable wayfinding cues for people with visual impairments. Paving materials should be consistent, durable, smooth enough for passage but not slippery accessible to people using mobility impairments. Concrete paving is recommended for arterial, collector, and local sidewalks. The concrete can be textured for safety and designed to match existing patterns. In areas of high pedestrian activity, painted curbs should be textured to ensure traction. Special paving can be installed at neighborhood commercial areas, schools, and parks to give them a distinctive identity. Typical materials include brick or concrete pavers, stained or scored concrete, decorative tile, rubberized sidewalk coatings, stone, slate, and granite if they provide a consistently smooth travel surface and good traction. Unique sidewalk paving can be found in Downtown La Mesa.

8. Bike Lanes

Bicycle facilities provide safe, comfortable mobility opportunities for a range of users and are considered an integral part of a complete street. Additionally, bike lanes contribute to the buffer between motor vehicle travel lanes and the adjacent sidewalk. The installation of bike lanes depends on the available street width, existing on-street parking and traffic volume/traffic speed. On wide two-lane streets, bike lanes act as a traffic calming measure by narrowing with motor vehicle lane and providing space to cyclists. Whenever possible, wider bike lanes (5'-6' with 2' diagonally striped buffer) are recommended to avoid the path of an open car door.

Bike lanes adjacent to head-in angled parking are generally discouraged because of the lack of visibility between cyclists and drivers backing out of spaces. Converting from angled to parallel parking provides width for bike lanes.

Where possible on one-way streets or two lane streets, head-in angled parking can be modified to a reverse (back-in) angled parking, which improves driver visibility of cyclists.

Bicycle travel on sidewalks should be generally discouraged, even if the sidewalk width meets the width requirements of a shared multi-use or bike path. Bicycles on sidewalks tend to travel at higher speeds than pedestrians creating safety conflicts. Cyclists might collide with obstacles on sidewalks such as street furniture, trees, sign posts, etc. Additionally, drivers do not expect cyclists on sidewalks, creating conflicts at intersections and driveways. Therefore, it is important to provide convenient alternatives that will limit the attractiveness of sidewalk riding. While on-street facilities that meet requirements are preferred, bicycle routes on parallel streets or a separated off-street multiuse path may be an alternative.

There are innovative treatments for bicycles at intersections such as bike boxes, painted bike lanes, bicycle boulevards, green-striped shared lane and bicycle signals. Many of these treatments need special requirements and further study when the demand warrants them. See Appendix D: Bicycle Facility Design Guidelines for further discussion on some these treatments.

9. Cycle Tracks

Cycle tracks are a variation of a bike lane but are protected by an adjacent travel lane by treatments such as on-street parking, bollards, a median, raised buffer or combination of each. This treatment increases comfort for cyclists, but it creates additional considerations at intersections, which must be addressed through design. Cycle tracks are best installed along longer blocks with limited or no driveways and with controls at each intersection. Shorter block lengths and numerous driveways limit the advantage of cycle tracks because of the amount of intersection treatments needed for safer crossing. Special design treatments are required for left turns out of cycle tracks.

In the US, cycle tracks tend to be one way but are sometimes two-way depending on the street configuration, adjacent land use, collision rates and demand. See Appendix D: Bicycle Facility Design Guidelines for further discussion on this treatment.

10. On-Street Bike Parking/Bike Corral

On-street bicycle corrals make use of a parking stall for bicycle parking in areas with high demand. Corrals typically have 6 to 12 bicycle racks in a row and can park 10 to 20 bicycles. Typical design standards include signage, protective barriers such as permanent bollards, reflective bollards, curbs, custom paving or even just striping. It is desirable for the placement of these bike corrals to be closer to an intersection for visibility of bicycles moving in and out of a corral. Bike corrals placed mid-block can be hidden by other parked vehicles reducing the visibility of both motorists and cyclists operating in and out of the bike corral.

On-street bicycle parking provides many benefits where bicycle-use is high and growing:

Businesses: Corrals provide a 10 to 1 customer to parking space ratio and advertise "bike-friendliness." They also allow more outdoor seating for restaurants by moving the bicycle parking off the sidewalk. Local businesses can also sponsor or adopt a bike corral to improve bicycle parking in front of their business.

Pedestrians: Corrals clear the sidewalks also serve as curb extensions

Cyclists: Corrals increase the visibility of bicycling and greatly expand the bicycle parking options

Motor vehicle drivers: Corrals improve visibility at intersections by eliminating the opportunity for larger vehicles to park at street corners

11. Bus Shelter

At stops where buses may need to lay over longer than the time it takes passengers to board and alight, and in areas where the impact of the bus blocking a travel lane creates unacceptable delay or potential hazard, the bus should not stop in the travel lane. These conditions warrant a turnout, paved shoulder, or other area of adequate curbside clearance.

Bus turnouts have both advantages and disadvantages:

Advantages:

- Allows traffic to proceed around the bus, reducing delay for general traffic
- Maximizes vehicular capacity of roads
- Clearly defines the bus stop
- Passenger loading and unloading can be conducted in a more relaxed manner
- Eliminates potential rear-end accidents

Disadvantages:

- More difficult to re-enter traffic, increasing bus delay and increasing average travel time for buses
- Uses additional space and may require right-of-way acquisition

General Guidelines:

- Provide a path that is free of obstacles to the bus. Keep sidewalks clear of obstruction by utility poles, signs, etc
- Provide paved surfaces that are stable, firm and slip-resistant
- Maximize visibility of the bus stop from all directions for both vehicles and pedestrians
- Locate bus stops to avoid momentary blockage of driveways, intersections and traffic lanes
- Comply with the accessibility requirements set by the Americans with Disabilities Act (ADA)
- Maximize use of landscaping for natural shade when prudent

12. On-Street Parking

On-street parking can be an important element of a complete street. It provides an additional buffer between the sidewalk and adjacent travel lanes and encourages lower motor vehicle speed. The preferred width of a parallel on-street parking lane is eight feet on commercial streets or where there is high parking turnover, and seven feet wide on residential streets. These dimensions are inclusive of the gutter pan.

Where sufficient curb-to-curb width is available on low-volume, low-speed streets in commercial areas, angled parking may be appropriate. Angled parking can create sight distance problems associated with vehicles backing out of parking spaces. The use of reverse (back-in) angled parking is desirable since it overcomes these sight distance concerns and is considered safer for cyclists traveling adjacent to angled parking.

The following are additional guidelines for on-street parking:

- On-street parking should conform to local and state accessibility requirements and provide an appropriate number of accessible spaces

- On-street parking should be located based on the characteristics of the street, needs of the adjacent land uses, applicable local policies and plans for parking management
- On-street parking should be primarily parallel parking on higher volume urban arterial streets. Angled parking may be used on low-speed and low-volume collector streets with ground floor commercial or those serving as main streets
- On-street parking should generally be prohibited on streets with speeds greater than 35 mph due to hazards such as door openings and maneuvering in and out of spaces
- Whenever appropriate, metered or time-restricted parking should be used to provide short-term parking for retail customers and visitors while discouraging long-term parking
- In developing and redeveloping areas, provide the amount of on-street parking for planned, rather than existing, land-use densities. If more parking is needed, consider public or shared parking structures, or integrate the design of parking facilities with adjacent land uses
- A minimum 1.5-foot-wide offset should be provided between the face of curb and edge of potential obstructions such as trees and street signs. This will allow car doors to open free of any obstruction
- Reverse (back-in) angled parking requires a wider roadside due to the longer overhang at the rear of most vehicles. This extra width can be compensated by the narrower travel lane needed adjacent to parking for maneuvering and less depth for the parking stall since the longer overhang is over the curb

13. Road Diets

Road diets are defined as reducing the number of vehicular lanes to accommodate other modes of transportation such as bike lanes and wider sidewalks. For example, reducing a four-lane road to three-lanes (two travel lanes and a center turn lane) provides space to add bike lanes. Reduced vehicular speeds improves safety for motorists and passengers, and providing left-turn pockets allows through traffic to proceed without shifting lanes or waiting behind turning vehicles.

The advantage of a road diet is that they are a human-scaled design. But not only do they accommodate pedestrians, studies have shown they also help reduce vehicular collisions. Advocates of road diets believe it is more important for pedestrians to cross safely than for cars to get through an intersection. Road diets reduce speeding and make vehicle movements more predictable while shortening crossing distances, usually through curb extensions or center median islands. Traffic flow is still maintained, cyclists have bike facilities and pedestrians get safer crossings.

Road diets are a highly-effective infrastructure improvement that can be implemented quickly and at low cost.

Road Diet Benefits

- Reduced vehicle speeds
- Reduced collision and injuries
- Reduced conflict points
- Improved sight distance

Benefits to all users

- Improved mobility and access
- Improved livability and quality of life
- Economic and community goals

7.3 Complete Streets Documentation

This section will summarize the existing documents and policies that pertain to the City of La Mesa. These documents guided this plan to comply with Complete Streets Act AB 1358, local and state legislature for accommodating facilities for all user types. For further Complete Streets documentation, refer to Appendix H: Complete Streets and Agency Publications.

Complete Streets Act AB 1358

"The Complete Streets Act of 2007 will ensure that the transportation plans of California communities meet the needs of all users of the roadway including pedestrians, bicyclists, users of public transit, motorists, children, the elderly, and the disabled.

AB 1358 requires the legislative body of a city or county, upon revision of the circulation element of their general plan, to identify how the jurisdiction will provide for the routine accommodation of all users of the roadway including motorists, pedestrians, bicyclists, individuals with disabilities, seniors, and users of public transportation.

The bill also directs the Office of Planning and Research to amend guidelines for the development of general plan circulation elements so that the building and operation of local transportation facilities safely and conveniently accommodate everyone, regardless of their mode of travel."

SANDAG policy No. 031, Accommodating Bicyclists and Pedestrians

"Section 4(E)(3) of the TransNet Ordinance reads:

All new projects, or major reconstruction projects, funded by revenues provided under this Ordinance shall accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the cost of including bikeways and walkways would be excessively disproportionate to the need or probable use. Such facilities for pedestrian and bicycle use shall be designed to the best currently available standards and guidelines."

This amendment to the TransNet Ordinance utilizes existing bicycle and pedestrian design standards from the California Highway Design Manual, Chapter 1000 regarding bicycle facilities and the American Association of State Highway Transportation Officials (AASHTO) publishes the Guide for the Planning, Design, and Operation of Pedestrian Facilities. This document provides reasonable and widely recognized designs standards that are proposed as the standard under this amendment.

The table, Appropriate Bicycle and Pedestrian Accommodation Measures simplifies the bicycle and pedestrian measures for each type of roadway. These guidelines were used in the Complete Streets Standards table in this chapter.

Caltrans Complete Streets, Deputy Directive 64-R1

"Deputy Directive 64-Revision #1: 'Complete Streets: Integrating the Transportation System' (DD-64-R1) was signed on October 2, 2008. The California Department of Transportation (Department) provides for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System (SHS). The Department views all transportation improvements (new and retrofit) as opportunities to improve safety, access, and mobility for all travelers and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery, maintenance, and operations. Developing a network of complete streets requires collaboration among all Department functional units and stakeholders."

Deputy Directive 64-R1 defines what Complete Streets are and creates an Implementation Action Plan Overview. The Implementation Action Plan projects are organized into seven categories: 1) Highest Focus Areas; 2) Guidance, Manuals, and Handbooks; 3) Policy and Plans; 4) Funding and Project Selection; 5) Raise Awareness; 6) Training; and 7) Research.

A Complete Streets Steering Committee will oversee implementation of the projects as well as track and report on action items, deliverables and policies. DD-64 designates roles and responsibilities for implementing Complete Streets.

7.4 Proposed Circulation Element Street Classification

A key feature of the Circulation Element is establishment of a street classification system. This system provides policy direction and design standards to support future decisions regarding improvements to the public rights-of-way. These classifications are also used to assist in the regulation of speed limits and other traffic safety control methods.

It is important to keep in mind that La Mesa is mostly developed. There are few opportunities to add new streets or change the function of the existing street network. Improvements to traffic flow and safety will be made through techniques such as changes to traffic signal timing at key intersections and improvements to transit services. Encouraging carpooling, walking and bicycling are other ways to increase mobility throughout the City.

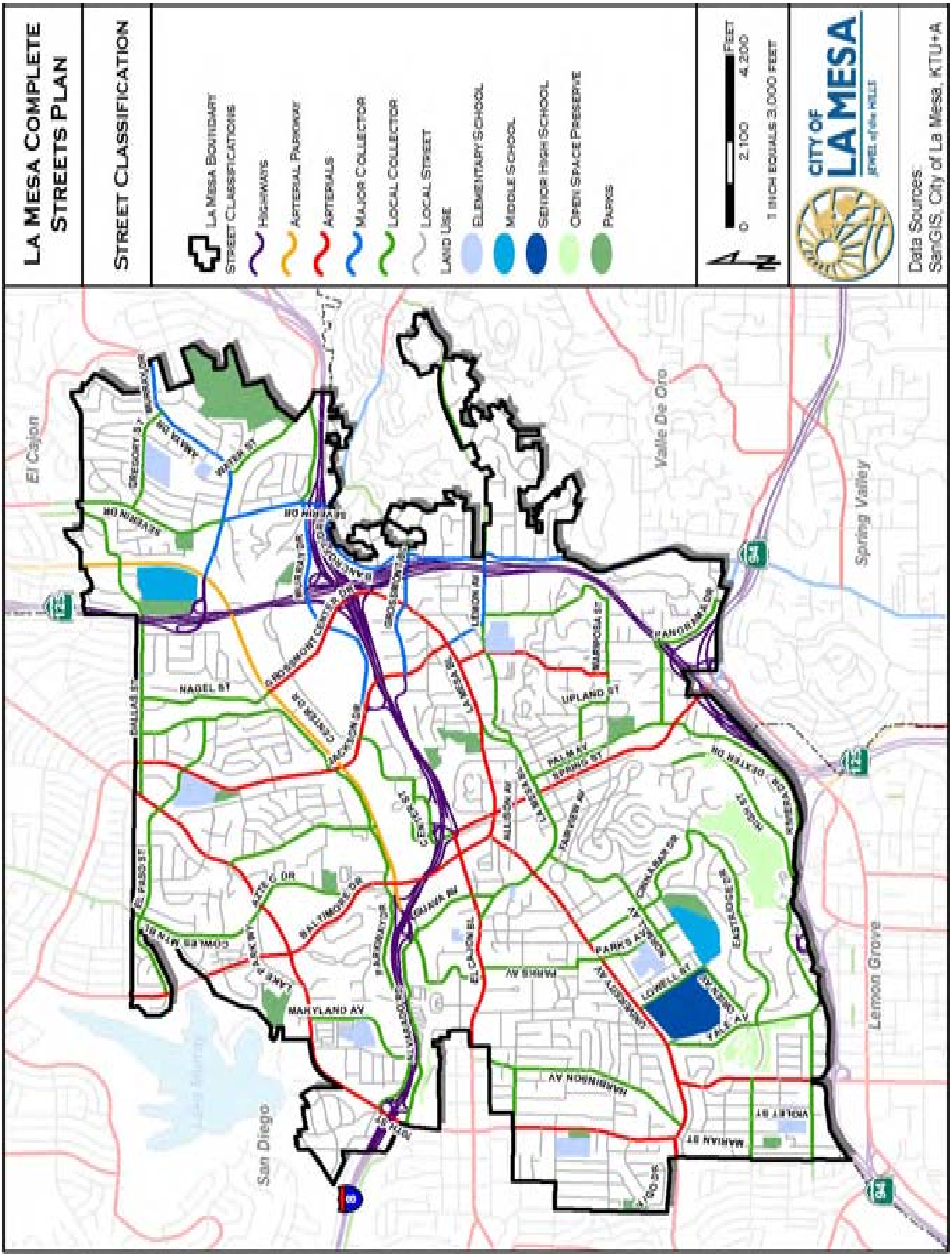
The streets of most concern are the transition streets linking low volume local streets with high volume specialized streets. Collector and arterial streets demand the most attention and investment to balance circulation functions with other uses of the street.

Figure 7.5 shows the locations of the street classifications within the City and Table 7.5 summarizes the lengths of each.

Table 7.5 Existing Street Classification Summary

Summary of Street Classification		
Street Classification	**Miles**	**Percent of City**
Alley	13.7	8%
Arterial	14.5	8%
Arterial Parkway	2.5	1%
Freeway	7.7	4%
Local	107.0	59%
Local Collector	30.7	17%
Major Collector	6.1	3%
Totals	**182.2**	

Figure 7.5 Street Classifications



A brief description of the purpose and general characteristics for each of the street classifications used in the Circulation Element is outlined below. The following figures and charts provide details and illustrations of the typical cross-sections for these classifications.

Table 7.6 Freeway Classification

Freeways	
Description	These are controlled access divided roadways designed to carry large volumes of traffic at high speeds. Intersections and interchanges are grade separated, with interchanges located no closer together than one half mile. Freeways are designed, constructed and maintained by the State through Caltrans.
Width, Right of Way	Varies
Width, Curb to Curb	Varies
Number of Lanes	6+
Average Daily Trips	> 100,000
Speed Limits	65 -75 MPH
On Street Parking	None
Land Use	Varies
Non-Motorized Transportation Elements	Extra wide bike lanes >6' if the freeway is the only connecting option. A separated Class 1 Bike Path is preferred. Facilities for non-motorized travel need to be included at the interface between freeway entrances and exits and nearby city streets.

Figure 7.6 Freeway Section

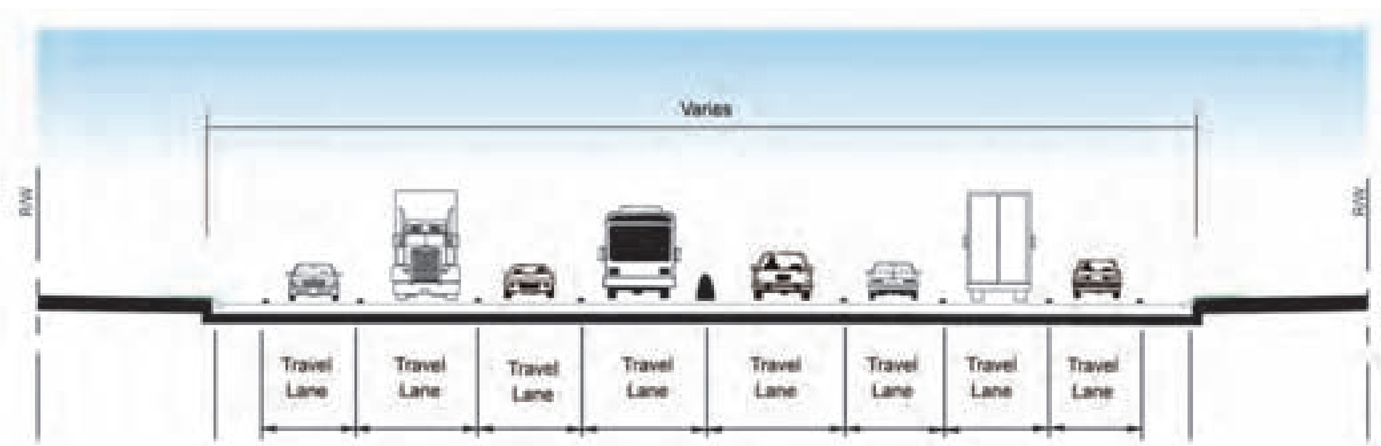


Table 7.7 Arterial Parkway Classification

Arterial Parkways	
Description	This designation is for Fletcher Parkway, a four to six lane divided roadway within a 126 foot right-of-way. Access is restricted and parking is prohibited. Traffic signals are synchronized to maximize traffic flow within the parkway corridor. The median dividing the travel lanes is a landscape feature which softens the impact of the wide corridor and high traffic volumes.
Width, Right of Way	110' - 126'
Width, Curb to Curb	80' - 106'
Number of Lanes	4 - 6
Average Daily Trips*	> 25,000
Speed Limits	35 - 55 MPH
On Street Parking	None
Land Use	Regional Commercial, Industrial, Multi-family residential, Office, Open Space, Schools (high school and above)
Non-Motorized Transportation Elements	Bike lanes, 5' minimum width. Preferred 6' width with 2 foot buffer between travel lane if space is available. A wide sidewalk with landscaped separation from the travel lane is preferred. Including sidewalks and bike lanes at the intersection of Fletcher Parkway and the Freeway.

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.7 Arterial Parkway Section

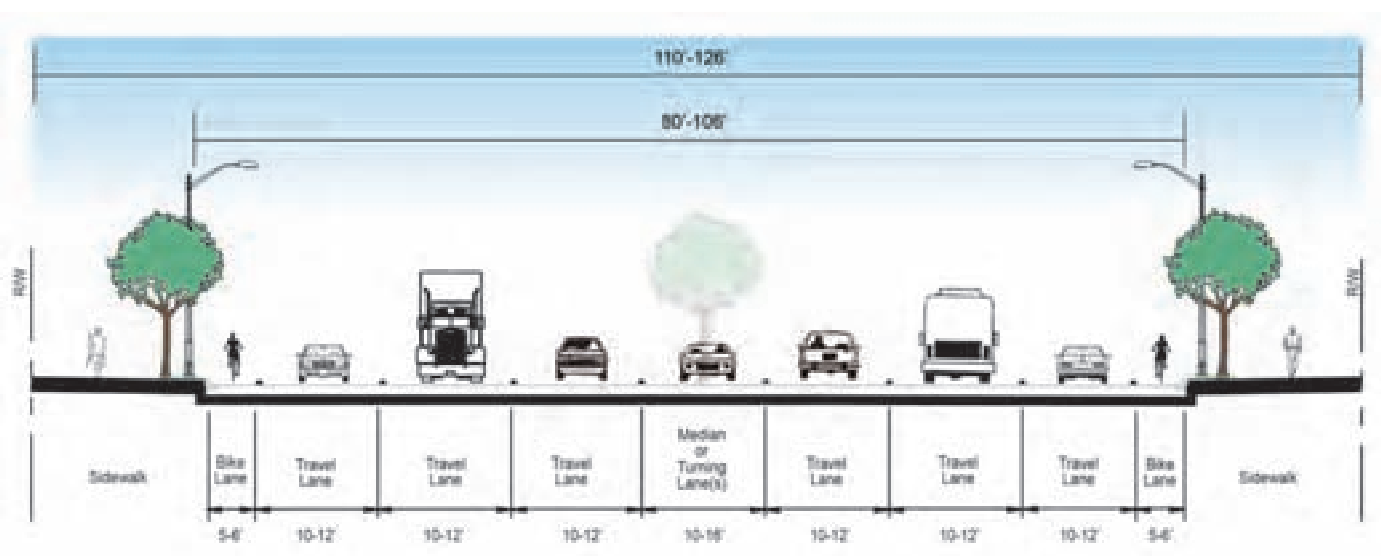


Table 7.8 Arterial Classification

Arterials	
Description	This designation applies to roads which carry a large percentage of the traffic between neighborhoods, to shopping districts and employment centers, and as connections to freeways. These streets maintain relatively high speed and uninterrupted traffic flow. Limitation may be placed on access, parking and loading to attain this functional objective. The bus route network is located along the arterial streets.
Width, Right of Way	78' - 102'
Width, Curb to Curb	60' - 80'
Number of Lanes	2 - 4
Average Daily Trips*	12,000 - 25,000
Speed Limits	25-45 MPH
On Street Parking	Yes, but can be restricted to enhance safety.
Land Use	Regional Commercial, Neighborhood Commercial, Industrial, Office, Multi-family Residential, Single Family Residential, Open Space, Schools (middle school and above)
Non-Motorized Transportation Elements	Bike lanes, 5' minimum width. Preferred 6' width with 2 foot buffer between travel lane if space is available. 8-12' sidewalks with shelters or benches at bus stops. Include sidewalks and bike lane at the intersections of Arterials and the Freeway.

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.8 Arterial Section

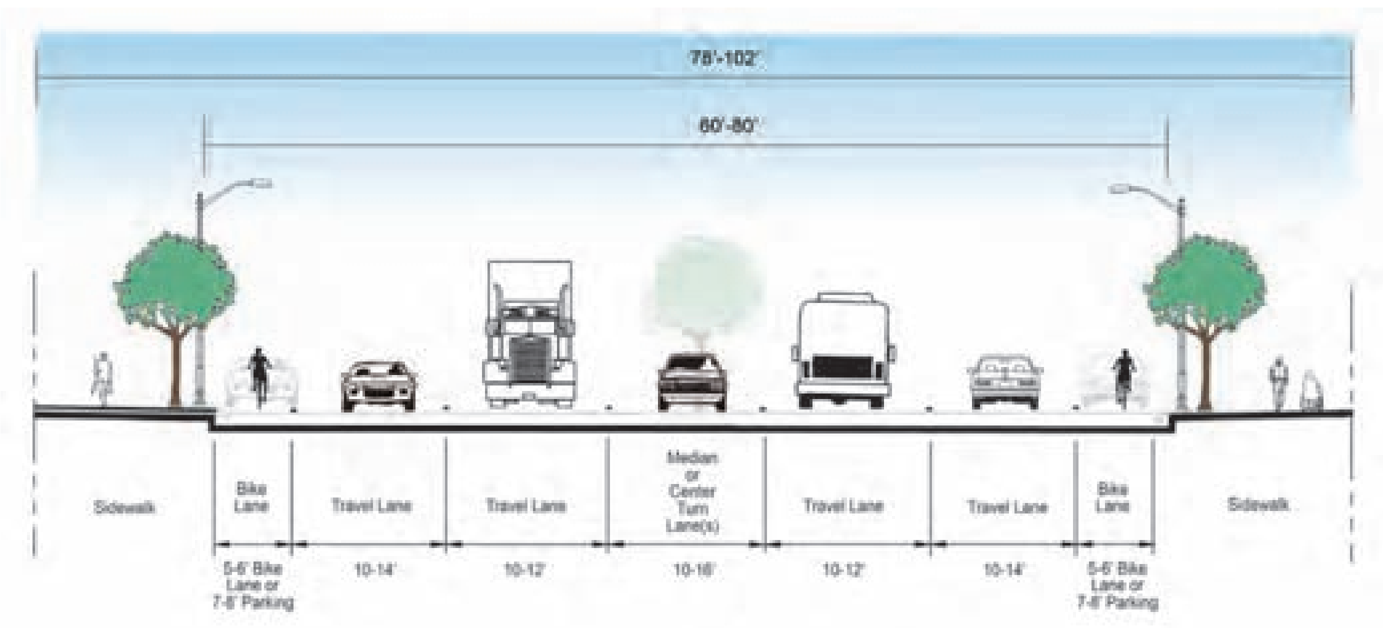


Table 7.9 Major Collector Classification

Major Collectors	
Description	These streets collect and distribute moderate volumes of traffic from freeways and community traffic generators to local streets.
Width, Right of Way	84' - 120'
Width, Curb to Curb	64' - 104'
Number of Lanes	2 - 4
Average Daily Trips*	8,000 - 12,000
Speed Limits	25-45 MPH
On Street Parking	Yes
Land Use	Neighborhood Commercial, Industrial, Office, Multi-family Residential, Single Family Residential, Open Space, Schools (middle school and above)
Non-Motorized Transportation Elements	Bike lanes, 5' minimum width and sidewalks. If right-of-way is sufficient, wider walk-ways with travel lane separation are preferred. Include sidewalks and bike lanes at the intersection of major collectors and the Freeway.

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.9 Major Collector Section

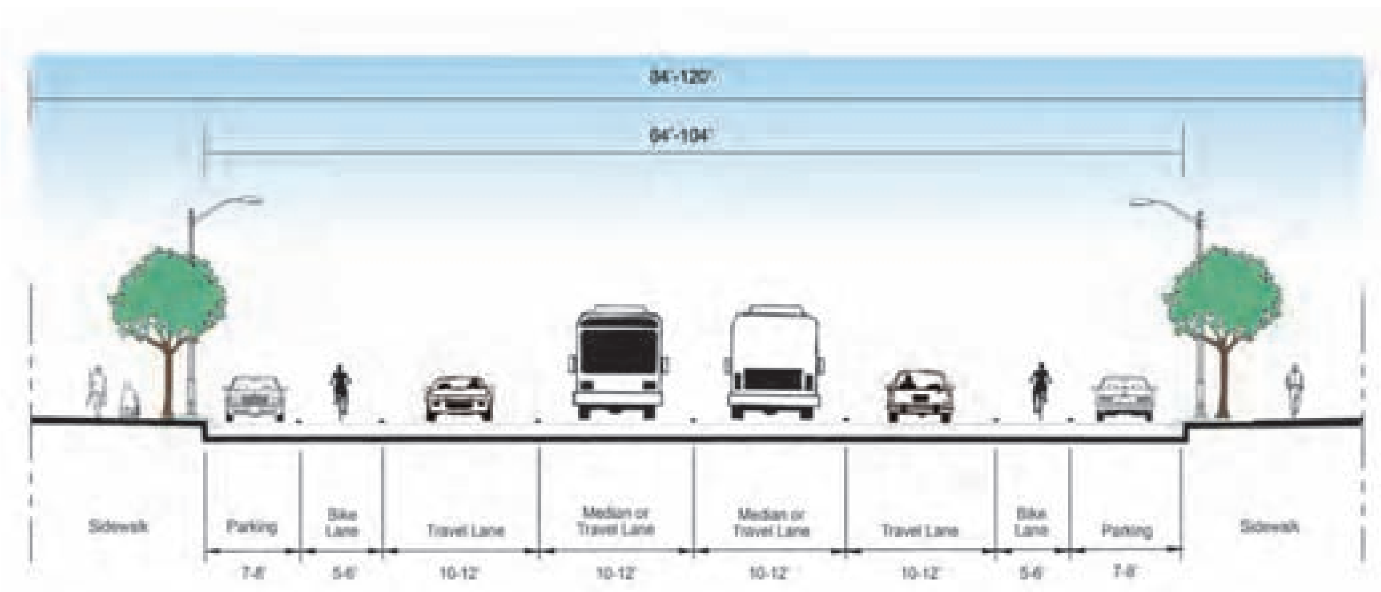


Table 7.10 Collector Classification

Collectors	
Description	These commercial and residential streets assemble local traffic and feed it to the arterials and major collectors. Rights-of-way vary considerably due to terrain and existing development restrictions.
Width, Right of Way	60' - 84'
Width, Curb to Curb	46' - 64'
Number of Lanes	2
Average Daily Trips*	2,000 - 8,000
Speed Limits	25-45 MPH
On Street Parking	Yes, parallel and diagonal
Land Use	Neighborhood Commercial, Industrial, Office, Multi-family Residential, Single Family Residential, Open Space, Schools (elementary school and above)
Non-Motorized Transportation Elements	Bike lanes, 5' minimum width and sidewalks. Wider walkways with travel lane separation preferred. Class 3 Bike Route an option with Shared Lane Markings if the road is too narrow for bike lanes. If diagonal parking is preferred, back-diagonal parking is recommended when adjacent to bike facilities.

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.10 Collector Section

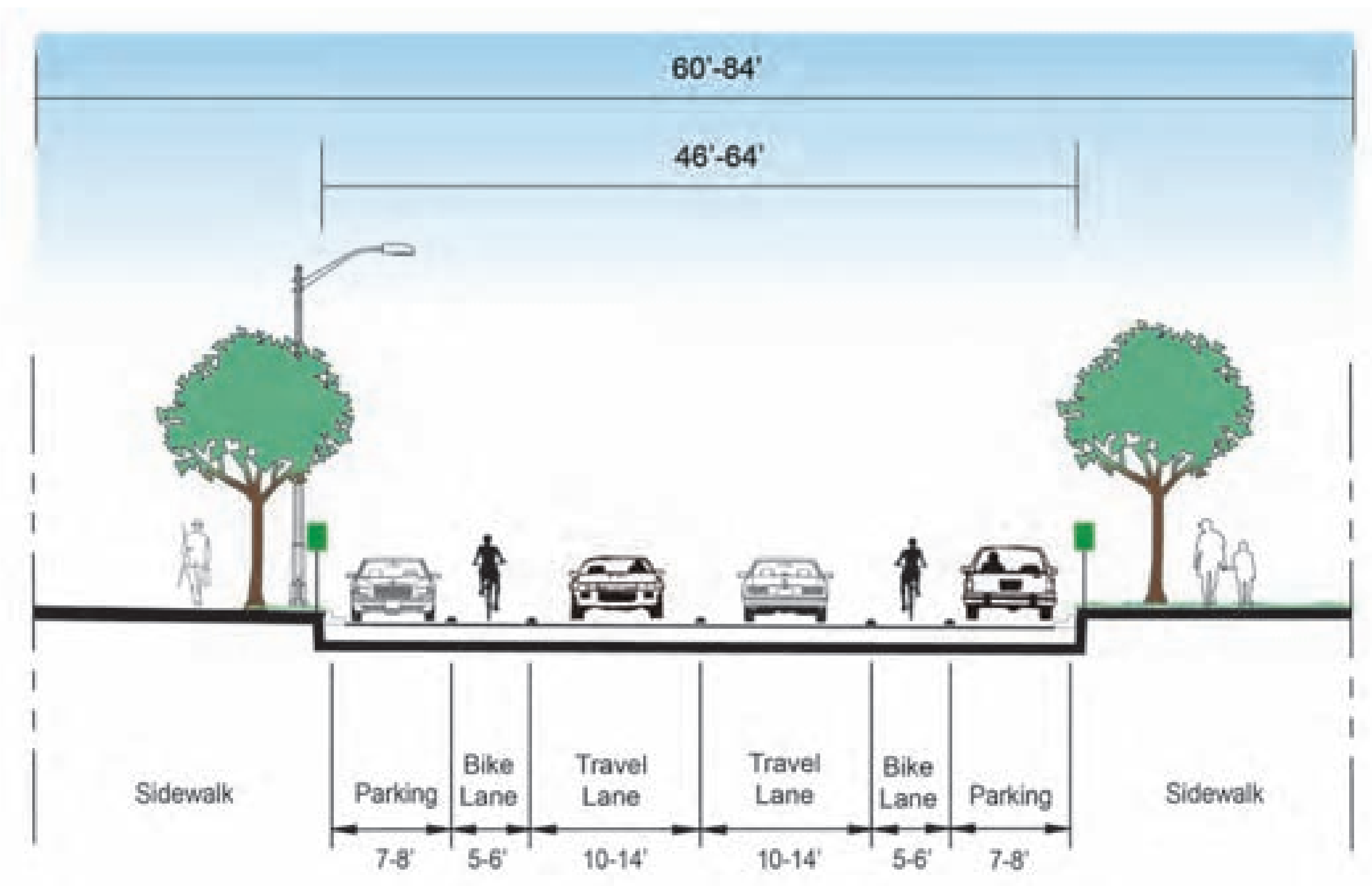


Table 7.11 Local Street Classification

Local Streets	
Description	These commercial and residential streets assemble local traffic and feed it to the arterials and major collectors. Rights-of-way vary considerably due to terrain and existing development pattern.
Width, Right of Way	40' - 56'
Width, Curb to Curb	34' - 44'
Number of Lanes	2
Average Daily Trips*	< 2,000
Speed Limits	25 MPH
On Street Parking	Yes, parallel
Land Use	Industrial, Office, Multi-family Residential, Single Family Residential, Open Space, Schools (elementary school and above)
Non-Motorized Transportation Elements	Bike lanes, 5' minimum width and sidewalks. If right-of-way is sufficient, wider walkways with travel lane separation are preferred. Class 3 Bike Route an option with Shared Lane Markings if the road is too narrow for bike lanes.

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.11 Local Street Section

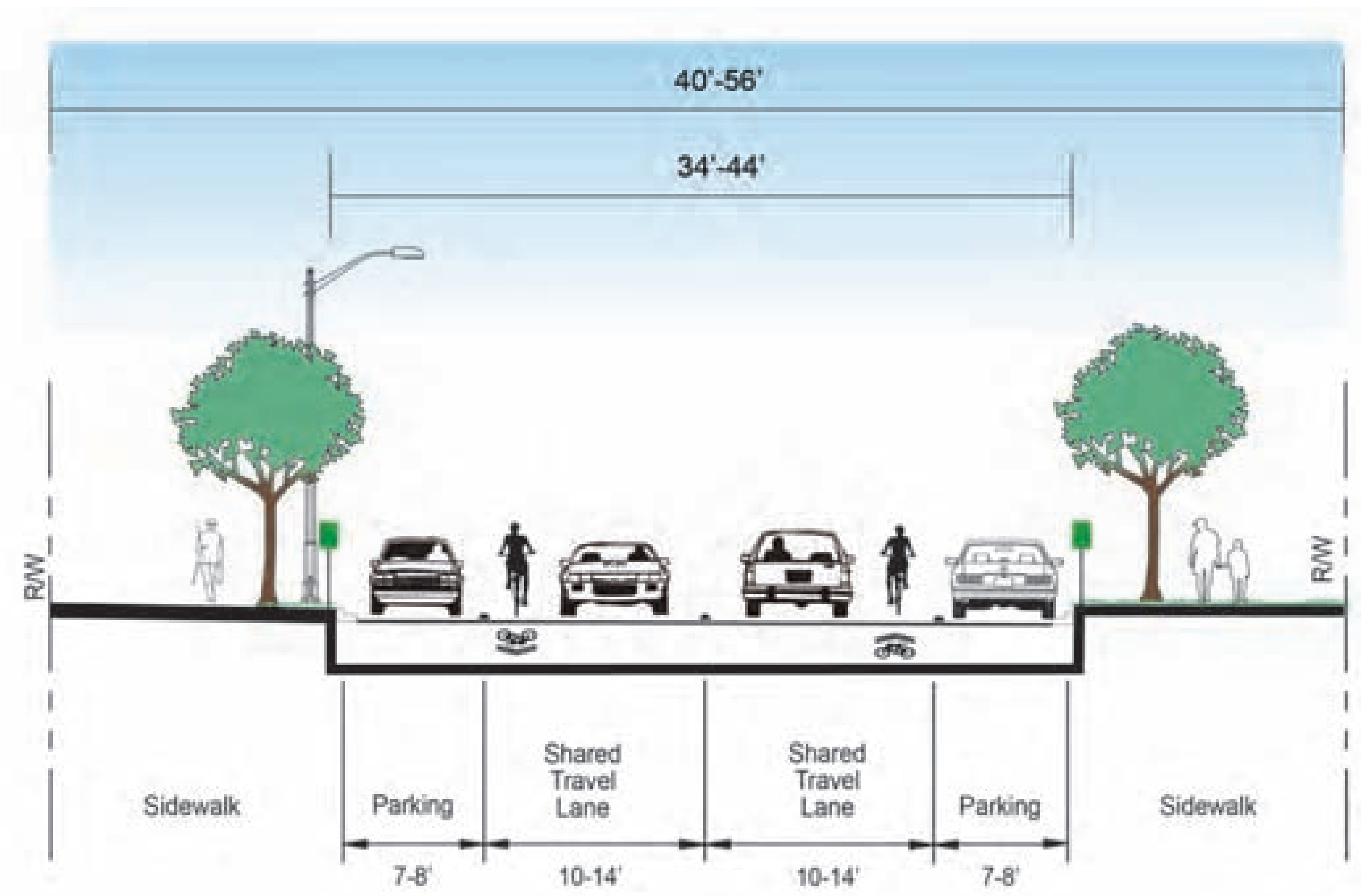


Table 7.12 Alley Classification

Alleys	
Description	Public alleys provide secondary access to properties in both residential and commercial neighborhoods. Utility corridors are often incorporated into alleys.
Width, Right of Way	20'
Width, Curb to Curb	20'
Number of Lanes	2
Average Daily Trips	N/A
Speed Limits	15
On Street Parking	No parking within alley right of way
Land Use	Residential and commercial districts in La Mesa's older neighborhoods
Non-Motorized Transportation Elements	All modes share the right of way

Figure 7.12 Alley Section

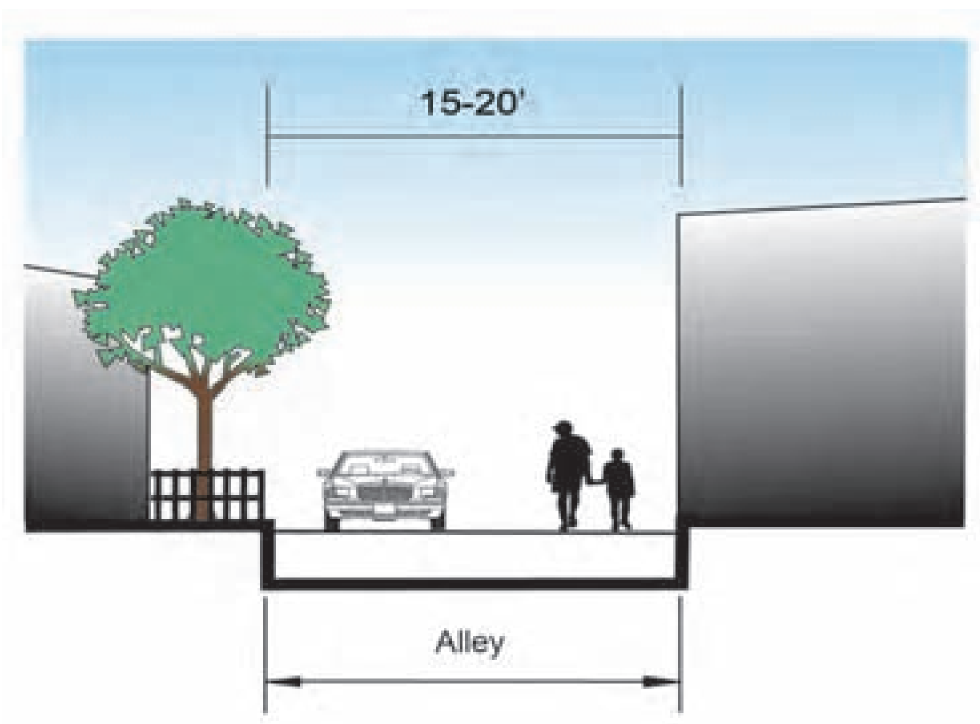
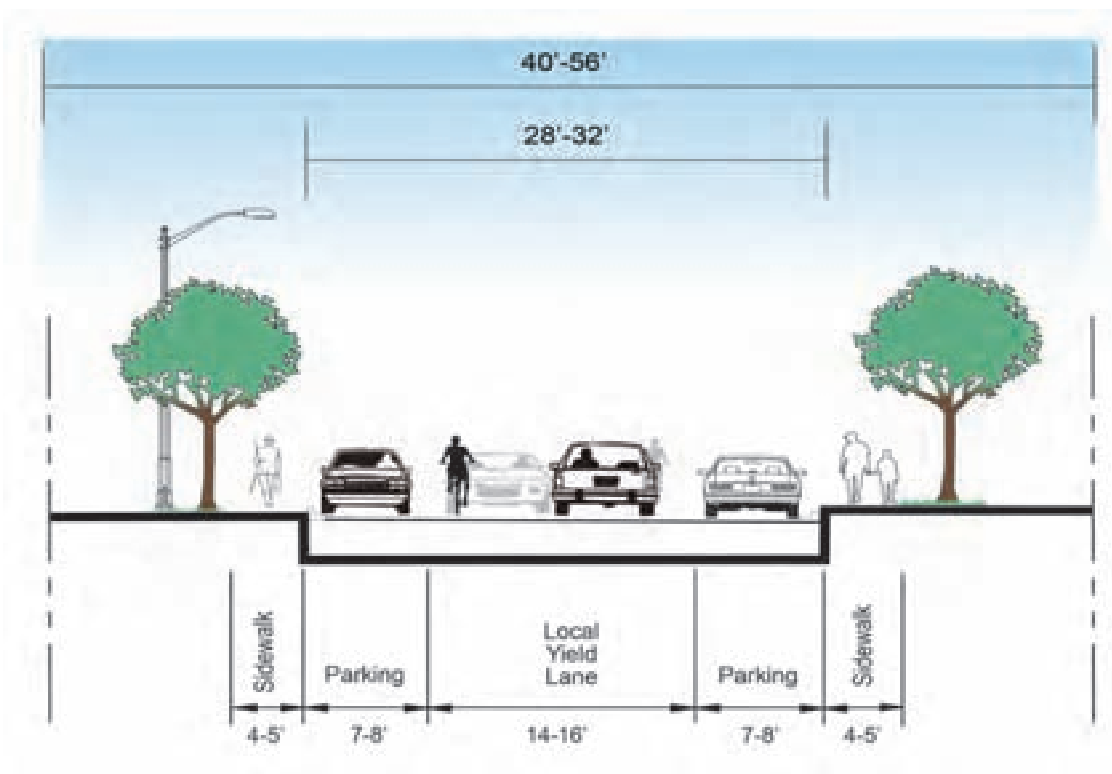


Table 7.13 Local Yield Classification

Local Yield	
Description	Local streets that are too narrow to meet local road standards, but are unlikely to be widened. Local Yield has a reduced travel lane but accommodates parking and sidewalks. Local No Parking has two full travel lanes and sidewalks but eliminates parking on one or both sides.
Width, Right of Way	40'-56'
Width, Curb to Curb	28'-32'
Number of Lanes	2
Average Daily Trips*	<600
Speed Limits	25 MPH
On Street Parking	Parallel parking can be restricted on one or both sides
Land Use	Single family neighborhoods especially in hillside areas.
Non-Motorized Transportation Elements	Minimum 4' sidewalk on at least one side

* Source: La Mesa 10-Year Traffic Count Program and 2010 Noise Study

Figure 7.13 Local Yield Section



Appendix A: 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.

See Chapter 2, Section 2.8 Bicycle Demand Assessment and Section 2.9 Projected Bicycle Demand

(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 2.3: Existing Land Use and Figure 2.4: Planned Land Use.

(c) A map and description of existing and proposed bikeways.

See Figure 2.1: Existing Bicycle Facilities, Figure 2.7: Recommended Class 2 Bike Lanes and Figure 2.8 Recommended Class 3 Bike Routes.

(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 Chapter 2, Figure 2.2: 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, rail vehicles or ferry vessels.

See Chapter 5, Figure 5.1: Transit Service and Figure 5.2 Transit Boarding and Alightings.

(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 Chapter 2, Figure 2.2: 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.

There is a "no bicycles on sidewalk" ordinance that is enforced in La Mesa, however, there are no special or targeted enforcement programs relating to pedestrian or bicyclist issues. Additionally, La Mesa's officers occasionally receive optional training regarding bicycle or pedestrian enforcement. Educational advertisements or messages are occasionally sent to the public on behalf of the police department. Bike rodeos are conducted in all of La Mesa's elementary schools. Extra helmets are provided to participants if needed.

(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.

See Chapter 1, Section 1.4 Community Input

(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 La Mesa has yet to implement some of the planned bikeway facilities in the General Plan 2001, the Walkability Plan and the Freeway Crossing Plan. Segments recommended in this update are intended to fill gaps in the existing system and look at alternatives to planned 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 La Mesa 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 2: Section 2.7 Prioritized Bicycle Projects

(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.

Over $2 million has been spent on intersection improvement though various grant sources such as TDA (Transportation Development Act) and HISP (Highway Safety Improvement Program).

An improvement along Water Street which includes a half-mile of bike lanes and sidewalk was completed for $350,000. Along Bancroft Drive, 1.5 miles of bike lanes was installed for $500,000.

La Mesa has done quite a bit to improve the cycling and pedestrian environment that past 16 years. Within the past year, La Mesa has actively participated in Safe Routes to School programs and received over $702,000 for school education as well as sidewalk and bikeway improvements. In total, there has been $1.2 million spent within the past ten years focusing on Safe Routes to School improvements and programs.

Appendix B: Bicycle and Pedestrian Suitability Model Overview

The Bicycle and Pedestrian Suitability Model was developed to determine the most likely areas within the City of La Mesa where cyclists are likely to ride to and come from. The model was created to prioritize areas and projects to benefit the largest number of cyclists possible. The Bicycle and Pedestrian Suitability Model identifies existing and potential bicycle activity areas citywide utilizing existing data within an extensive GIS database.

Bicycle and Pedestrian Suitability Model Description

The overall model is comprised of three basic models: the Attractor, Generator and Detractor Models. When these three interim models are combined, they create the Bicycle Suitability Model.

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.

Attractor Model Methodology

The Bicycle and Pedestrian Suitability Model identifies activity areas by utilizing cycling-related geographic features likely to attract cyclists. Typical bicycle and pedestrian commuter trips to nearby shopping centers, restaurants and work are very short, usually between 2-5 miles each way. More avid cyclists will commute over 20 miles round trip. School age children will normally ride or walk to school no more than a few miles round trip. The closer these attractors are to neighborhoods and primary cycling and pedestrian generators the more they are conducive for trips by bike or walking and are then given a higher weighting score. A one mile maximum distance in the model was given to encompass the majority of the shorter bicycle trips and maximum pedestrian trips. The many attractors are close enough that they would overlap within the mile.

The point scoring for the given attractors are based on a multitude of cycling and walking opportunities and bicycle amenities such as bicycle parking connections with other modes of transportation. For example, elementary schools are typically in neighborhoods to accommodate the younger population. Some elementary school aged children walk or rely on their bicycle as a mode of transportation to get to school compared to high school kids who hold a drivers license. See Table AB 1 for features used in the Attractor Model.

a. The nine features used are schools, parks and recreation facilities, neighborhood and community retail, neighborhood and neighborhood civic facilities (i.e. post offices, libraries, major attractions, and transit stations and stops.

b. Points were assigned to several categories in each feature type (See Table AB 1), recognizing certain features were more likely to attract cyclists than other features.

c. Once identified, distance buffers were applied to each location using the GIS street database to simulate the actual cycling distance and to develop an accurate distinction of cycling patterns. Each buffer increases in distance from the feature's center point. Distances can be found in Table AB 1.

d. Weighted distance values were assigned to each buffer. For example, a quarter mile network buffer is assigned a higher value than a half mile network buffer, since more people are likely to ride their bike to a destination a quarter of a mile away than half a mile. These weight allows flexibility of priority attractors over others identified by the City's unique attractions and by City staff, the consultant team and public input.

e. The values assigned to each feature type were multiplied by the weighted distance values for each network buffer.

f. Each of the individual buffered feature types with their multiplied weighted values were overlaid on the city-wide cell grid. These cells contain values based on the scoring criteria found in Table 1. For example, if a 1/4 mile cell of an elementary school (7.5 points) overlays with a park with a 1/2 mile cell (3 points) then the value of that particular cell is 10.5 (7.5 + 3). This methodology applies to all the sub-models (Attractors, Generators and Detractors) of the Bicycle Suitability Model,

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 with high concentrations of cells with high values were identified. These high concentration areas identify existing and potential high cycling activity areas throughout the City.

Table AB 1: Mobility Attractors

		Weighted Multiplier			
Mobility Attractors*	**Points***	**1/4 mile**	**1/2 mile**	**3/4 mile**	**1 mile**
Elementary Schools (Including Private)	5	7.5	5	3.75	2.5
Neighborhood and Community Retail	4	6	4	3	2
Senior Center or senior residential complex	4	6	4	3	2
Major Multi-Modal Transit Center (> 1,000 boardings and alightings per day)	3	4.5	3	2.25	1.5
Parks and Recreation (excludes non-useable open space)	3	4.5	3	2.25	1.5
Middle Schools	3	4.5	3	2.25	1.5
Major Transit Stops (100-1,000 boardings and alightings per day)	2	3	2	1.5	1
High Schools	2	3	2	1.5	1
Transit Stops (<100 boardings and alightings per day)	1	1.5	1	0.75	0.5
Neighborhood Civic Facilities (Libraries, Post Office & Religious Facilities)	1	1.5	1	0.75	0.5
* Priorities based on La Mesa Walkability Plan					

Generator Model Methodology

The Bicycle and Pedestrian Suitability Model also utilizes demographic data as indicators of potential volume of cyclists based on how many people live or work within the cycling activity areas identified in the Attractor Model. This particular component is called the Generator Model. Existing and projected total population and employment were used, as well as other demographic data such as age and use of public transportation. The weighted multiplier scores were derived from City staff input, previous applications of the model and the factors that most influence bicycle and walking trips within the City. Cycling and walking activity areas that contain a greater number of people living or working within them are more likely to walk or ride their bike to these areas. The model uses SANDAG-defined pseudo-Census blocks called SANDAG Geographic Reference Areas (SGRAs) citywide and U.S. Census Bureau Census Block Groups. SANDAG Smart Growth Areas was also used to determine areas of potential development that could have high cycling activity due to their mixed land use criteria.

a. The existing and future SGRA total population is divided by the SGRA area to determine existing and future population density.

b. The existing and future SGRA total employment is divided by the SGRA area to determine existing and future employment density.

c. The total population less than 16 years old is divided by the Census Block Group Area to determine the population density of this age classes.

d. The employment and population SGRA densities, as well as age densities, were categorized into density ranges and assigned points so that SGRAs with higher density ranges receive higher initial points. These density ranges derived from City staff and consultant team input and pervious models of cities similar in land use.

e. Bike to Work Densities, Age Densities and Public Transportation Density were based on Census Block Group data from the Long Form taken in the year 2000.

f. The points from the age densities and public transportation density were overlaid to make a city-wide cell grid.

See Table AB 2 for the features used in the Generator Model.

Detractor Model Methodology

Detractors discourage or detract people from riding their bikes. Relevant factors are more related to the vehicular intensity and perceived safety of the cycling environment. Streets with high traffic volumes and high speeds tend to detract people from cycling and walking due to the amount of traffic adjacent to their route. Known areas of high bicycle and pedestrian related collisions are also a deterrent since people may reroute their trip to avoid certain streets and intersections where safety may be a concern. The point system and weighted multipliers were derived from City input, public input through previous surveys, past applications of the model and available City data. Refer to Table AB 3 for the features used in the Detractor Model.

Composite Model

The Bicycle and Pedestrian Suitability Model then combines the Generators, Attractors and Detractors.

a. The Attractor, Generator, Barrier and Issues grid cell models were overlaid to produce the Bicycle and Pedestrian Suitability 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 the areas that have a higher cycling activity point total.

d. In some cases, the areas that have a high cycling activity score are areas that already have facilities, but further improvement can be made to enhance the cycling environment.

Refer to Figure 2.8: Bicycle and Pedestrian Suitability Model, to see the results of overlaying the four previous mapping efforts.

Table AB 2: Mobility Generators

Mobility Generators	Points	Weighted Multiplier	Final Score
Walking Mobility: People who walk to work*			
> .1	2	3	6
< .1	1		3
Cycling Mobility: People who bike to work*			
> .1	2	3	6
< .1	1		3
Non-Vehicular Transportation: People who walk or use public transportation to work*			
> .5	2	3	6
< .5	1		3
Population Density (People per acre)			
> 10	3	2	6
5 - 10	2		4
1 - 5	1		2
Employment Density (Employees per acre)			
> 10	3	2	6
5 - 10	2		4
< 5	1		2
Disability Density: Disabled per acre			
> 4	3	2	6
2 - 4	2		4
< 2	1		2
Age Density: Children per acre (under 16 years old)			
> 2	3	1	3
1 - 2	2		2
< 1	1		1
Household Income (Affects Transportation Options)			
< $34,500	3	1	3
$34,500 - $63,400	2		2
> $63,400	1		1
Smart Growth Areas			
Smart Growth Areas	1	1	1
* People per acre, 2000 Census			

Table AB 3: Mobility Detractors

Mobility Detractors	Points	Weighted Multiplier	Final Score
Collisions Per Year * ***			
2+	3		9
1	2	3	6
No collisions	0		0
Average Daily Trips as it Affects Crossing Wait Time, Safety & Visibility			
>20,000	4		8
10,000 - 20,000	3	2	6
5,000 - 10,000	2		4
1,000 - 5,000	1		2
Missing Sidewalks**			
	3	2	6
Speed as it Affects the Ability to Cross Safely			
45+	2		2
26-45	1	1	1
< 25 mph	0		0
Number of Lanes			
8+ lanes	3		3
6 lanes	2	1	2
4 lanes	1		1
Freeway Barriers related to Cycling Travel			
	2	1	2
Railroads			
	2	1	2
Intersections that are Difficult to Cross***			
	2	1	2
Slope & Canyons as Barriers to Cycling Travel			
Landform Feature with Slope > 25%	2		2
Landform, Walkway or Street Slope 10-25%	1	1	1
Walkway Slopes < 10%	0		0
* A 1/16 mile buffer was applied to each collision location			
** A 50 foot buffer was applied to eash missing sidewalk			
*** Priorities based on La Mesa Walkability Plan			

Appendix C: Bicycle and Pedestrian Project Scoring Criteria

Bicycle 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 along with the recommended projects subjects all of them to the same priority and implementation criteria. These projects were then itemized into Prioritized Projects, which are those that will have a significant impact on the existing bikeway system, such as closing major gaps and extending or developing bike paths, lanes or routes along major transportation corridors.

The following prioritization criteria were used to help identify which routes are likely to provide the most benefit to the City's 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 priorities of the City's capital improvement projects.

Bicycle Suitability Model (total of 4 points)

The Bicycle Suitability Model acquires the routes 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 smaller footprints to have the same scoring parameters as larger projects. The breakdown in points is as follows:

1. Scoring breakdown: 1 - 4 points

- High: >1,000 = 4 points
- Moderately high: 670-1,000 = 3 points
- Moderate: 340-670 = 2 points
- Low: <340 = 1 point

Mobility and Access (total of 9 points)

2. Provides access to major bicycle traffic generators: 1 - 3 points

- Provides access to areas of high bicycle traffic generation = 3 points

(Ex: Project is over a mile long and travels through single family and/or multi-family residential and high employment densities such as office parks)

- Moderately access to areas of high bicycle traffic generation = 2 points

(Ex: Project is less than a mile long and travels through or near single family residential, a school and moderate employment densities such as schools, commercial areas)

- Low access to areas of high bicycle traffic generation = 1 point

(Ex: Project near low or rural density residential land use and low to moderate employment densities)

3. Closes gap in significant route: 1 - 3 points

- Closes a gap in an existing high bicycle traffic facility = 3 points
- Closes a gap in a non-existent high bicycle traffic facility = 2 points
- Closes a gap to connect facilities with little bicycle use = 1 point

4. Adequate access to activity centers, schools and transit sites: 1 – 3 points

- Provides direct access to a major activity center, elementary school and/or transit center = 3 points
- Provides direct access to an activity center, middle and/or high school or bus stop = 2 points
- Route is not near an activity center, school and/or transit center but is important for connections = 1 point

Safety (total of 6 points)

5. Improves locations where bicycle crashes have occurred: 1 - 3 points

- Fatal collisions have occurred directly on this route = 3 points
- Injury and non-injury related bicycle collisions have occurred on or near this route = 2 points
- No collisions have occurred on this route = 1 point

6. Improves routes with high vehicular traffic volumes: 1 - 3 points

- Improves routes with high average daily trips (>15,000) = 3 points
- Improves routes with moderate average daily trips (5,000-15,000) = 2 points
- Improves routes with low average daily trips (<5,000) = 1 point

Existing Conditions (total of 6 points)

7. Route has a continuous bikeway: 1 – 3 points

- The route has very few stop signs and/or is continuous on one street = 3 points
- The route has moderate stop signs and/or continues on no more than two to three streets = 2 points
- The route has many stops signs and/or continues along numerous streets = 1 point

8. Roadway able to accommodate bikeways: 1 – 3 points (Class 2 Only)

- Roadway currently can accommodate the recommended facility with no construction and/or redesign = 3 points

(Ex: Add striping and signage)

- Roadway can accommodate the recommended facility with minimal to moderate construction and/or redesign = 2 points

(Ex: Median or curb removal or realignment, re-striping lanes, etc)

- Roadway will need extensive construction and/or redesign to accommodate the recommended facility = 1 point

(Ex: Parking removal, sidewalk/planting strip removal and reinstallation, roadway realignment, utility realignment, etc)

Regional Significance (total of 6 points)

9. Route has regional significance in the bikeway system: 1 – 3 points

- High significance, connects major bicycle facilities and activity centers = 3 points

(Ex: Part of the SANDAG Regional Bike Plan network, connections to adjacent City's bicycle facilities)

- Moderate significance, connects some routes and activity centers = 2 points

(Ex: Important internal connections to regional routes and major activity centers, schools and colleges)

- Little significance, does not directly connect to activity centers, etc, but is still important in the bikeway system = 1 point

(Ex: Project travels through neighborhoods and makes connections to other facilities)

10. Route has aesthetic attributes: 1 – 3 points

- Majority of the route has significant aesthetic attributes, such as visible open space, waterway corridors, parks, beaches, etc. = 3 points
- Parts of the route has moderate aesthetic attributes, such as visible open space, waterway corridors, parks, beaches, etc. = 2 points
- Little to none of the route benefits from open space, waterway corridors, parks, beaches, etc.= 1 point

The maximum possible score is 31 points for Class 2 facilities and 28 for Class 1 and Class 3 facilities. 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.

Pedestrian Facility Priority Criteria and Implementation

The following pages are the results of the pedestrian prioritization process. These worksheets are based on the criteria found in Chapter 3. These worksheets can be used to rank new projects when a series of pedestrian improvements are to be made.

There is no maximum score for a particular project since the pedestrian collision criteria is based on the actual number of collisions which varies. There is a total minimum of 4 points based on the lowest factors from the Pedestrian Model, Safety and Innovation Criteria. If the criteria from Accessibility, Connectivity and Walkability don't apply, then no points are assigned. The highlighted yellow boxes indicate the issues relating to the project and are assigned the highlighted score.

Table 1 North Spring Street and I-8

Project Name:	**North Spring Street and I-8**		
Issues Addressed:	Missing connections between Downtown La Mesa and industrial employment on Center Street		
Improvements Proposed:	Install wide pathways adjacent to the overpasses		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	**10**
Acres around the project site evaluated in the model:	**2.6**	High (601-900)	**6**
Model priority raw score:	**2,449**	Medium (301-600)	**4**
Normalized Score (model raw score / acres)	**942**	Low (<300)	**2**
SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**1**
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply collisions by priority, 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 at the area:			**1**
ACCESSIBILITY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**19**
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)=**	**14**
How will connections be added / improved or barriers removed between major destinations and 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 La Mesa:			**2**
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			**1**
		TOTAL SCORE:	**52**

Table 2 Grossmont Center Drive - Fletcher Parkway and I-8

Project Name:	**Grossmont Center Drive between Fletcher Parkway and I-8**
Issues Addressed:	High collision rates and pedestrian barriers
Improvements Proposed:	Installing ADA compliant curb ramps, greater crosswalk visibility under I-8, increase signage and pedestrian visibility

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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	**15**	High (601-900)	6
Model priority raw score:	**8,552**	Medium (301-600)	4
Normalized Score (model raw score / acres)	**570**	Low (<300)	2

SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)= 30
History of collisions between pedestrians and vehicles for the period 2006-2009?		(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=	14	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)= 3
How will connections be added / improved or barriers removed between major destinations and 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)= 0
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 La Mesa:	2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:	1
TOTAL SCORE:	**50**

Table 3 Baltimore Drive - I-8 and University Avenue

Project Name:	**Baltimore Drive from I-8 to University Avenue**		
Issues Addressed:	Missing walkways and public concerns		
Improvements Proposed:	Installing walkways and improving overall walking conditions based on La Mesa Walkability Plan and Freeway Crossing Plan		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	15	High (601-900)	6
Model priority raw score:	8,065	Medium (301-600)	4
Normalized Score (model raw score / acres)	538	Low (<300)	2
SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**6**
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiple 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)=**	**19**
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 standardc			3
Pedestrian facilities that are in conformance with earlier ADA standards, will be brought up to the current standardc			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 and 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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	**42**

Table 4 Lemon Avenue

Project Name:	**Lemon Avenue, Madison Avenue, Jackson Drive and Garfield Street**		
Issues Addressed:	Wide staggered intersections, missing walkways		
Improvements Proposed:	Shorten crossing distances and add missing walkways		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	14	High (601-900)	6
Model priority raw score:	6,990	Medium (301-600)	4
Normalized Score (model raw score / acres)	499	Low (<300)	2
SAFETY CRITERIA		**Ranked Score for this Criteria (high scores are better)=**	**2**
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply incidences 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)=**	**19**
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)=**	**12**
How will connections be added / improved or barriers removed between major destinations and 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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	**40**

Table 5 Murray Hill Road and Waite Drive

Project Name:	Murray Hill Road and Waite Drive		
Issues Addressed:	Missing sidewalks and pedestrian collisions		
Improvements Proposed:	Installing 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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	2	High (601-900)	6
Model priority raw score:	1,020	Medium (301-600)	4
Normalized Score (model raw score / acres)	510	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	2
History of collisions between pedestrians and vehicles for the period 2006-2009?			(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)=	17
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)=	9
How will connections be added / improved or barriers removed between major destinations and 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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	36

Table 6 University Avenue and Parks Street

Project Name:	**University Avenue and Parks Street**
Issues Addressed:	Major east-west connection with problematic intersections
Improvements Proposed:	Intersection redesigns (reference La Mesa Walkability Study and University Avenue Revitalization Plan)

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 and issue score of:				(circle one & enter score above)
Lineal Feet of improvement:			Very High (>900)	10
Acres around the project site evaluated in the model:	1		High (601-900)	6
Model priority raw score:	843		Medium (301-600)	4
Normalized Score (model raw score / acres)	843		Low (<300)	2

SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	6
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply (tallies) 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)=	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)=	11
How will connections be added / improved or barriers removed between major destinations and 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)=	0
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 La Mesa:		2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:		1
	TOTAL SCORE:	**36**

Table 7 University Avenue - Memorial Drive and La Mesa Boulevard

Project Name:	University Avenue, Memorial Drive and La Mesa Boulevard		
Issues Addressed:	Safety concerns from SRTS Report and intersection improvements		
Improvements Proposed:	Shorten crossing distances and installing dual curb ramps at each corner		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	3	High (601-900)	6
Model priority raw score:	1,856	Medium (301-600)	4
Normalized Score (model raw score / acres)	619	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	1
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply incidences 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)=	16
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)=	9
How will connections be added / improved or barriers removed between major destinations and 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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	**35**

Table 8 Amaya Drive and Fletcher Parkway

Project Name:	**Amaya Drive and Fletcher Parkway**
Issues Addressed:	Pedestrian crossing concerns, high vehicle speeds and volumes
Improvements Proposed:	Install missing walkways, shorten crossing distances, control turning movements

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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	2	High (601-900)	6
Model priority raw score:	1,181	Medium (301-600)	4
Normalized Score (model raw score / acres)	591	Low (<300)	2

SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	2
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply instances 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)=	17
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 and 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)=	0
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 La Mesa:		2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:		1
		TOTAL SCORE: 35

Table 9 Maryland Avenue and Lake Murray Boulevard

Project Name:	**Maryland Avenue and Lake Murray Boulevard**		
Issues Addressed:	Missing walkways, crosswalks and short pedestrian signal phasing		
Improvements Proposed:	Redesigning intersection, investigating longer walk phasing and adding additional traffic controls		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	**10**
Acres around the project site evaluated in the model:	**5**	High (601-900)	**6**
Model priority raw score:	**1,318**	Medium (301-600)	**4**
Normalized Score (model raw score / acres)	**264**	Low (<300)	**2**
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	**1**
History of collisions between pedestrians and vehicles for the period 2006-2009?			(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)=	**19**
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)=	**8**
How will connections be added / improved or barriers removed between major destinations and 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 La Mesa:			**2**
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			**1**
		TOTAL SCORE:	**33**

Table 10 University Avenue and Lowell Street

Project Name:	**University Avenue and Lowell Street**		
Issues Addressed:	Major east-west connection with problematic intersections		
Improvements Proposed:	Intersection redesigns (reference La Mesa Walkability Study and University Avenue Revitalization Plan)		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	1	High (601-900)	6
Model priority raw score:	940	Medium (301-600)	4
Normalized Score (model raw score / acres)	940	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	2
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply incidences 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)=	11
How will connections be added / improved or barriers removed between major destinations and 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)=	0
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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	33

Table 11 University Avenue and Maple Avenue

Project Name:	University Avenue and Maple Avenue		
Issues Addressed:	Major east west connection with problematic intersections		
Improvements Proposed:	Intersection redesigns (reference La Mesa Walkability Study and University Avenue Revitalization Plan)		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	1	High (601-900)	6
Model priority raw score:	763	Medium (301-600)	4
Normalized Score (model raw score / acres):	763	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	1
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply fatalities 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)=	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)=	11
How will connections be added / improved or barriers removed between major destinations and 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)=	0
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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	32

Table 12 Tower Street

Project Name:	Tower Street		
Issues Addressed:	Difficult visibility at the intersection and missing walkway adjacent to school		
Improvements Proposed:	Complete walkways and redesign Tower St and Terry Ln to improve sight lines with bulbouts and crosswalks		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	6	High (601-900)	6
Model priority raw score:	1,294	Medium (301-600)	4
Normalized Score (model raw score / acres)	216	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	1
History of collisions between pedestrians and vehicles for the period 2006-2009?			(multiply fatalities 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)=	18
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 and 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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	31

Table 13 University Avenue and Culbertson Avenue

Project Name:	University Avenue and Culbertson Avenue		
Issues Addressed:	Major east-west connection with problematic intersections		
Improvements Proposed:	Intersection redesigns (reference La Mesa Walkability Study and University Avenue Revitalization Plan)		
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 and issue score of:			(circle one & enter score above)
Lineal Feet of improvement:		Very High (>900)	10
Acres around the project site evaluated in the model:	1	High (601-900)	6
Model priority raw score:	664	Medium (301-600)	4
Normalized Score (model raw score / acres)	664	Low (<300)	2
SAFETY CRITERIA		Ranked Score for this Criteria (high scores are better)=	1
History of collisions between pedestrians and vehicles for the period 2006-2009?			(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)=	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)=	11
How will connections be added / improved or barriers removed between major destinations and 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)=	0
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 La Mesa:			2
Allows for techniques & treatments that exist in La Mesa but need to be spread to other areas of La Mesa:			1
		TOTAL SCORE:	31

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Appendix D: 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 Class 1 bikeway facilities.

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.

Other documents referenced for specific guidelines and requirements can be found in the following links.

- California Manual on Uniform Traffic Control Devices (CA MUTCD, 2003 and revised in 2006), http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ca_mutcd.htm
- Manual on Uniform Traffic Control Devices (MUTCD, 2009), http://mutcd.fhwa.dot.gov/kno_2009.htm
- Caltrans Highway Design Manual, Chapter 1000, http://www.dot.ca.gov/hq/oppd/hdm/pdf/chp1000.pdf
- AASHTO Guide to Development of Bicycle Facilities, http://www.sccrtc.org/bikes/AASHTO_1999_BikeBook.pdf
- Innovative Bicycle Treatments: An Informational Report. Jumana Nabti and Matthew Ridgeway. ITE, Washington DC, 2002.
- Bicycle Parking Guidelines, 2nd Edition. Association of Pedestrian and Bicycle Professionals www.apbp.org

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."

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.

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.

"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.

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.

Bicycle Coordinator

City government involvement can occur through the designation of a bicycle coordinator. For a city the size of La Mesa, 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 Police 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 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.

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.

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.

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 El Cajon. 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.

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 incorporating 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 weather-proof.

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.

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.

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.

Bicycle Facility Design Guidelines

The following sections cover physical design guidelines applicable to all bikeway facility types.

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. Casual riders and children 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.)

Shared Use Issues of Class 1 Facilities

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.

Example of a Shared Use Bike Path. (Chula Vista, CA). Photo credit: Catrine Machi

Class 1 Bike Path and adjacent horse trail on SR-56 Bike Path. (San Diego, CA). Photo credit: Joe Punsalan

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. 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 as the minimum width with two foot clear areas on each side.

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.

Roadside Obstacles

To make certain that as much of the paved surface as possible is usable by bicycle traffic, obstructions such as sign posts, light standards, utility poles and other similar appurtenances should be set back with at least a two foot minimum "shy distance" from the curb or pavement edge with exceptions for guard rail placement in certain instances. A three foot minimum is recommended. 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 eight feet. Where practical, a vertical clearance of ten feet is desirable (See Section 1003.1 of the Caltrans Highway Design Manual.)

Figure 9B-1 of the CA MUTCD for Sign Placement on Shared-Use Paths

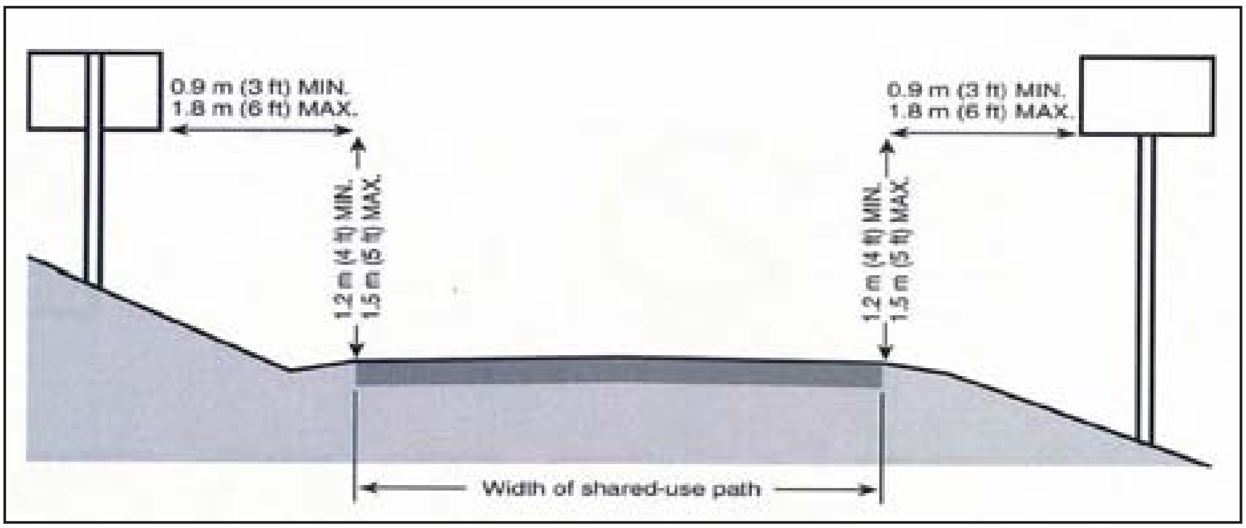
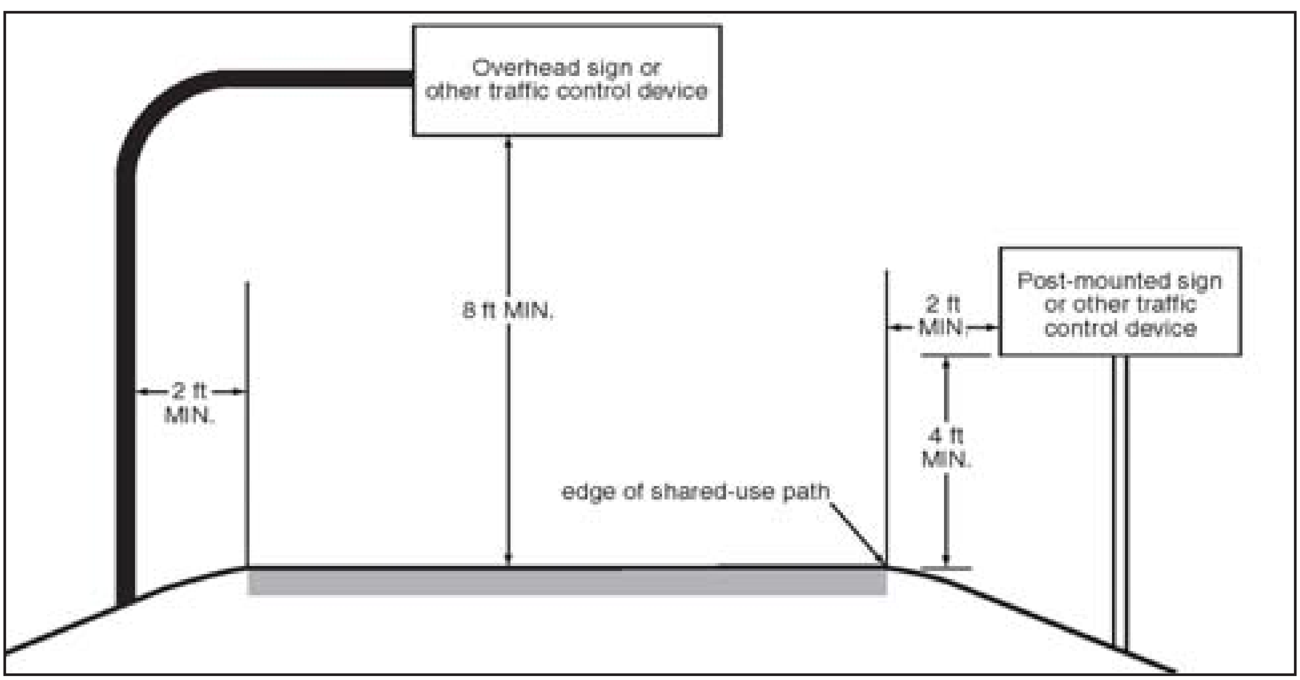


Figure 9B-1 Sign Placement on Shared-Use Paths to include overhead signage (2009 MUTCD)



Class 2 Bike Lane Guidelines

The following are typical guidelines as well as enhanced treatments for installing bike lanes. Other treatments not listed in these guidelines can be considered on a case by case basis when warranted.

Bike Lanes

Description: Provides a striped lane for one-way bike travel on a street or highway. Installed along streets in corridors where there is significant bicycle demand, and where there are distinct needs that can be served by them. In streets with on-street parking, bike lanes are located between the parking area and the traffic lanes.

Design Guidelines:

- Five foot minimum width for bike lanes located between the parking area and the traffic lanes.
- Four foot minimum width if no gutter exists. With a normal 2 foot gutter, the minimum bike lane width is five feet.

Recommendations:

- Bike lanes are not advisable on long, steep downgrades, where bicycle speeds greater than 30 miles per hour are expected. If bike lanes are to be marked, additional width should be provided to accommodate higher bicycle speeds.
- If parking volume is substantial or turnover high, an additional 1 foot to 2 foot of width is desirable.

References:

Caltrans Chapter 1000, California MUTCD (Revised 2006), CA MUTCD 2011

Sign R81 (CA MUTCD)

Sign R81-A (CA MUTCD)

Sign R81-B (CA MUTCD)

Example of a colored bicycle lane at high conflict areas with motor vehicles.
Graphic credit: KTU+A

Colored Bike Lanes

Description: Color is applied to bike lanes to enhance the visibility of cyclists on bike lanes the bike lanes themselves. Color can be applied to the entire bike lane or at high-risk locations where motorists are permitted to merge into or cross bike lanes.

Design Guidelines:

- Signage and dimensional guidelines are the same as a Class 2 bike lanes
- Avoid using blue which is commonly designated for disabled users. Green is the standard color for testing colored bike lanes.

Recommendations:

- Provide additional signage with matching color
- Use color and markings consistently
- Consider different coloring materials based on the location of the bike lanes, amount of traffic, road and weather conditions

References:

Innovative Bicycle Treatments: An Informational Report - ITE Pedestrian and Bicycle Council

Portland's Blue Bike Lanes: Improved Safety through Enhanced Visibility – City of Portland, 1999

Buffered Bike Lanes

Description: Space between the bike lane and traffic lane, parking lane or both. Provides a more protected and comfortable space for cyclists than a conventional bike lane.

Design Guidelines:

- Signage and dimensional guidelines are the same as a Class 2 bike lanes
- An additional 2-4 foot buffer or "shy zone" between the bike lane and traffic lane and/or parking lane

Recommendations:

- Add diagonal striping on the outer buffer adjacent to the traffic lanes. Diagonal striping to be installed every six feet
- On-street parking remains adjacent to the curb
- A travel lane may need to be eliminated or narrowed to accommodate the buffers

References:

City of Los Angeles Bicycle Plan Update, City of Los Angeles

Back-in Diagonal Parking

Description: The back-in/head-out parking is considered safer than conventional head-in/back-out parking due to better visibility when leaving. This is particularly important on busy streets or where drivers find their views blocked by large vehicles, tinted windows, etc., in adjacent vehicles in the case of head-in/back-out angled parking.

Design Guidelines: Based on existing dimensions from test sites and permanent facilities: 16' from curb edge to inner bike lane stripe and a 5' bike lane.

Recommendations: Test the facility on streets with existing head-in angled parking and moderate to high bicycle traffic. Additional signs to direct motorist on how the back-in angled parking works is recommended.

References:

Back-in/Head-out Angle Parking, Nelson/Nygaard Consulting Associates, 2005

City of Los Angeles Bicycle Plan Update, City of Los Angeles

This design treatment is not currently present in any State or Federal design standards. It is now a standard configuration in Seattle, WA.

Example of a back-in/head-out angled parking. (Solana Beach, CA). Photo credit: Joe Punsalan

Buffered bike lane on Kearny Villa Road. (San Diego, CA). Photo credit: Joe Punsalan

Buffered bike lane on Seapoint Street. (Huntington Beach, CA). Photo credit: Joe Punsalan

Bike Lane pavement marking guidelines

The following is the suggested pavement signage for bike lanes from the 2011 California MUTCD.

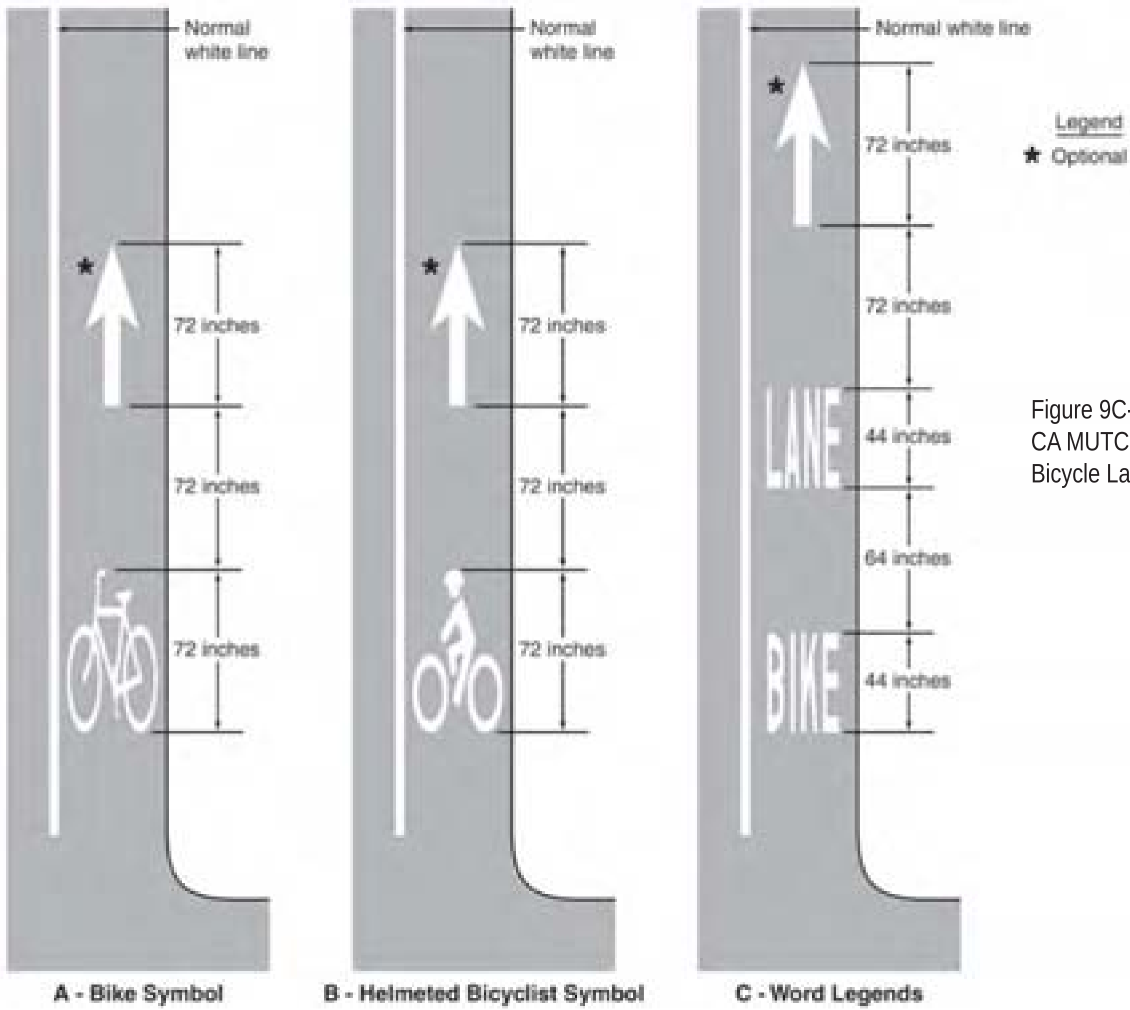


Figure 9C-3 of the CA MUTCD 2011 for Bicycle Lanes

Class 3 Bike Route Guidelines

The following are typical guidelines as well as enhanced treatments for installing bike routes. Other treatments not listed in these guidelines can be considered on a case by case basis when warranted.

Class 3 Bike Route

Signing

When designating a bicycle route, the placement and spacing of signs should be based on the California Manual on Uniform Traffic Control Devices, Part 9: Traffic Controls for Bicycle Facilities. 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. If used, route signs and directional signs should be used frequently because they promote reasonably safe and efficient operations by keeping road users informed of their location.

"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-20 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 35 MPH 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.

Sign W16-1 and W11-1 (CA MUTCD)

Sign D11-1 (CA MUTCD)

Sign SG45 (CA MUTCD)

Sign D1-1b (R) (CA MUTCD)

Sign R4-11 (CA MUTCD, Final Draft 2011)

Enhanced Class 3 Bike Route

Shared Lane Marking or "Sharrow" Design Criteria

The Shared Lane Marking shall be as shown in page AD-15 At locations where parking is allowed adjacent to the travel lane, the center of the marking should be located a minimum of 11 feet from the curb face or edge of the road. If used on a street without on-street parking that has an outside travel lane that is less than 14 feet wide, the centers of the Shared Lane Markings should be at least 4 feet from the face of the curb, or from the edge of the pavement where there is no curb.

Design Considerations:

Shared lane markings may be considered in the following situations:

- On roadways that are 35 MPH or less (CA MUTCD, Final Draft 2011)
- On constrained roadways that are too narrow to stripe bicycle lanes
- To delineate space within a wide outside lane where cyclists can be expected to ride
- On multi-lane roadways where cyclists can be expected to travel within the outside lane and motorists should be prepared to change lanes to pass cyclists
- On roadways where it is important to increase motorist awareness of cyclists
- On roadways where cyclists frequently ride the wrong way
- On roadways where cyclists tend to ride too close to parked cars

Further enhancements such as a green striped lane throughout the Shared Lane Marking is another enhancement being used in cities such as Long Beach, CA and Salt Lake City.

Shared Lane Marking (Oceanside, CA). Photo credit: Joe Punsalan

Green Striped Lane with Shared Lane Markings (Long Beach, CA). Photo credit: Joe Punsalan

Shared Lane Marking guidelines

The following is the suggested pavement signage for bike lanes from the California MUTCD, 2011.

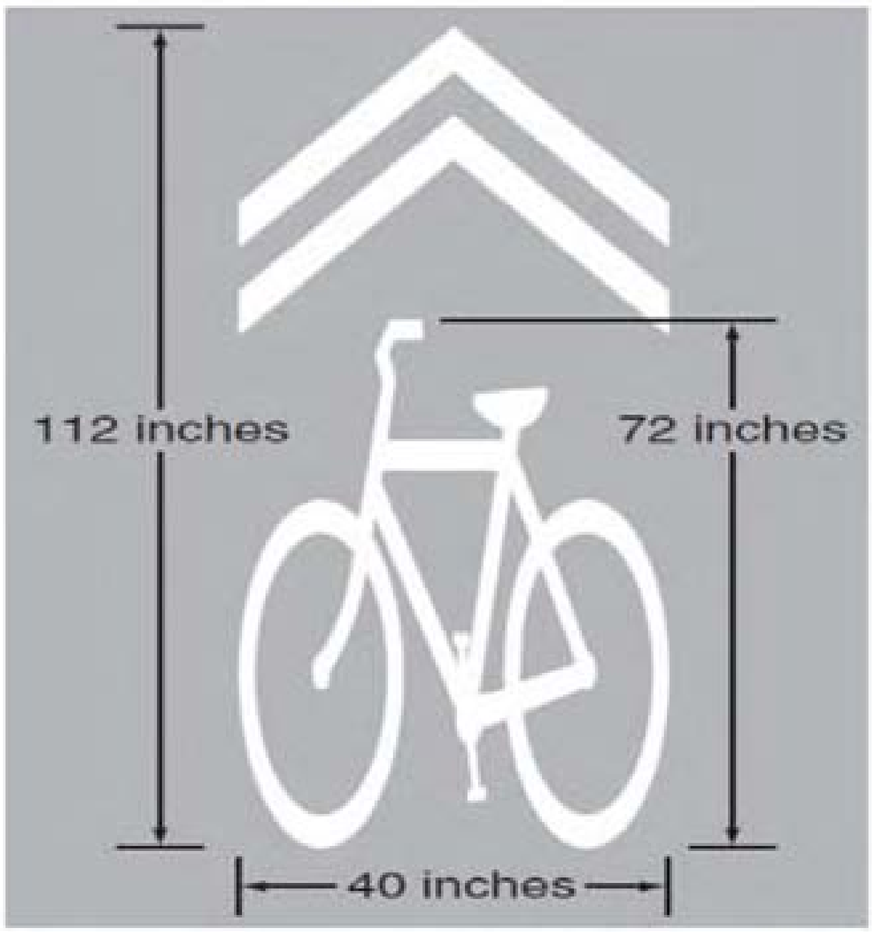


Figure 9C-9 Shared Lane Marking (CA MUTCD, 2011)

Cycle Track

Description: A combination between a bike lane and shared use bike path. This facility can be both two-way or one way depending on exisitng road conditions, intersections and adjacent land use. The cycle track is a separate facility adjacent to a pedestrian sidewalk and physically protected from an adjacent travel lane. This treatment reduces the risk of conflicts between bicyclist and parked vehicles.

Design Guidelines:

- One way cycle track typically 7 feet minimum
- Two-way cycle track typically 12 feet minimum
- This facility separates the cyclist from the road through either parked cars, planting strips, bollards, raised medians or a combination of these elements.
- Can be placed on slower urban streets or streets with high ADTs and speed but they should be streets that are long blocks with little to no driveways or midblock access points for vehicles.

Recommendations:

- Additional signage, traffic control treatments and pavement markings is needed to direct cyclist through the cycle track and intersections
- Priority on safety needs to be on cyclist safety through intersections

References: City of Los Angeles Bicycle Plan Update, City of Los Angeles

Innovative Bicycle Treatments: An Informational Report - ITE Pedestrian and Bicycle Council

Cycle Track (Montreal, Canada). Photo credit: Mike Singleton

Cycle Track Intersection Improvements (Montreal, Canada). Photo credit: Mike Singleton

Bicycle Boulevard Guidelines

The purpose of creating bicycle boulevards is to provide a primary bicycle friendly route to improve safety and convenience of bicycling on local streets. Bicycle boulevards are typically used on residential streets parallel to nearby arterial roads on routes that have high or potentially high bicycle traffic. A bicycle boulevard is a roadway available to motorists, but prioritizes bicycles traffic through the use of various treatments. Motor vehicle traffic volume is reduced by periodically diverting vehicles off the street and the remaining traffic is slowed to the same speed as bicycles. Bicycle boulevards are most effective when several treatments are used in combination.

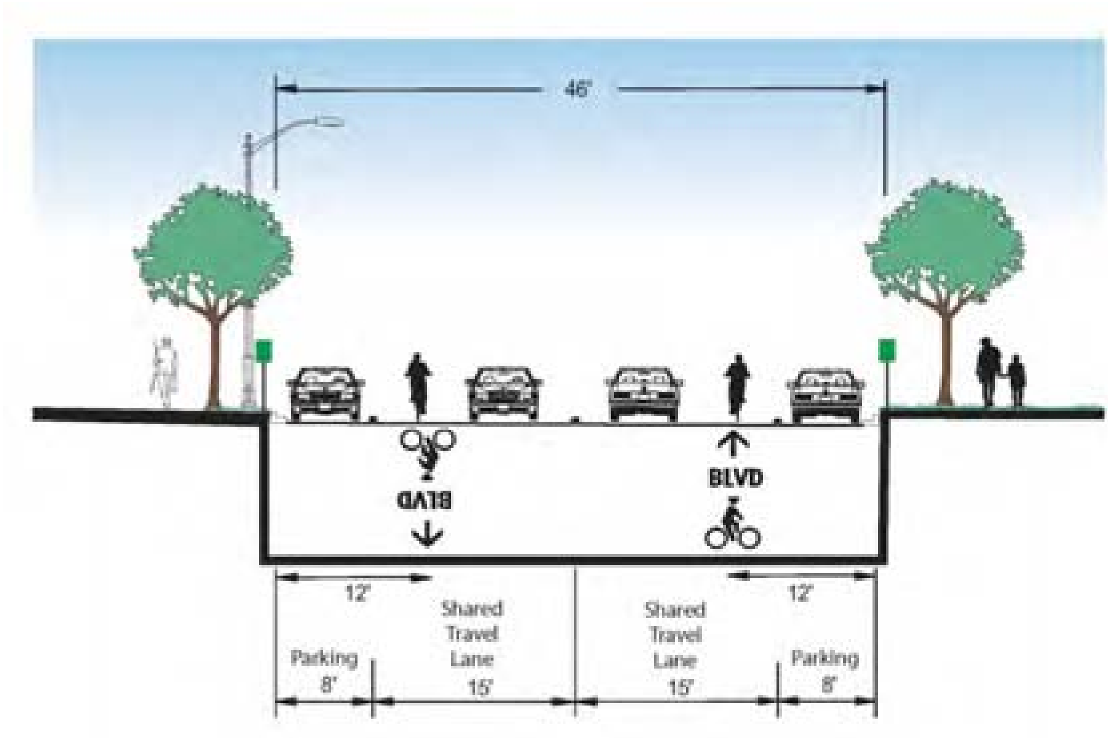
The design features associated with a Bicycle Boulevard can help:

- Increase feelings of comfort and safety for pedestrians, cyclists and the community as a whole
- Increase bicycling and walking
- Improve wayfinding
- Discourage neighborhood cut-through motor vehicle traffic
- Calm and reduce neighborhood traffic
- Provide shade for pedestrians and cyclists
- Create a pleasant corridor through the center of the City

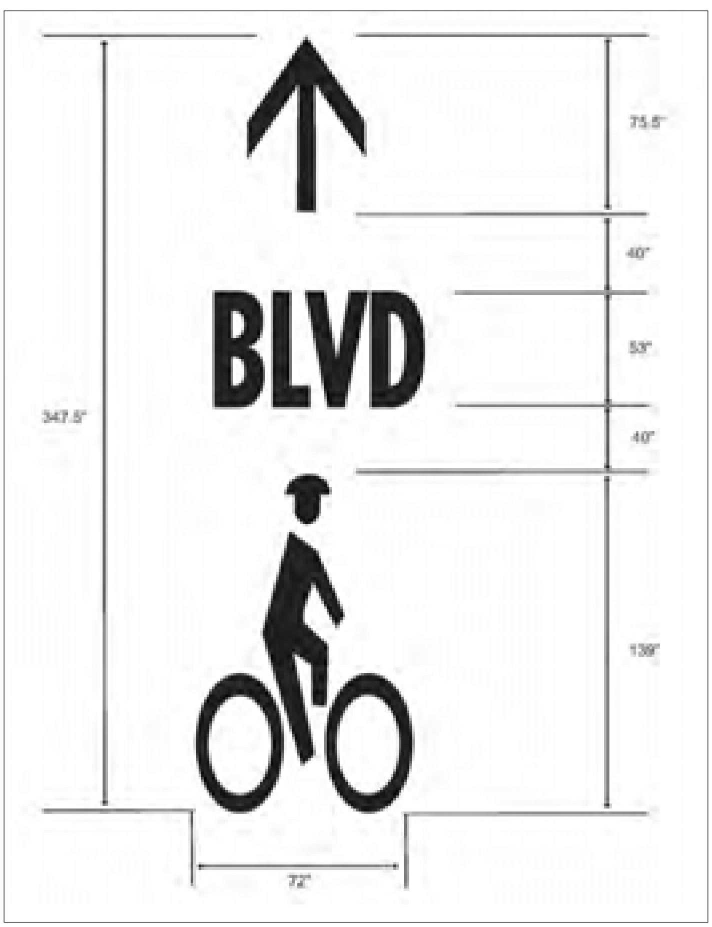
A few recommendations for Bicycle Boulevard enhancements include:

- Increased directional signage and/or special street sign design at all intersections
- Continuous "Bike Boulevard" signage along the street
- Increased pavement markings and/or unique pavement markings such as colored bike lanes, Shared Lane Markings ("Sharrows") or "Bike Boulevard" pavement legends
- Periodically re-routing vehicular traffic off of the street without affecting emergency vehicle response
- Limit stop signs and signals to the greatest extent possible except where they help the cyclist through busy intersections
- Alter major intersections with bicycle sensors, crossing actuators, directional signage. Other treatments for intersections can include traffic circles, bulb-outs and high visibility crosswalks
- Add street trees and landscaping
- Route design, amenities and signage must be consistent throughout the entire bicycle boulevard
- Install bicycle parking at specific locations along the route

The following diagram conceptually depicts how a Bicycle Boulevard can be delineated with a "Bicycle Boulevard" pavement marking.



Conceptual cross section of a bicycle boulevard with a Bicycle Boulevard Pavement Marking



Bicycle Boulevard Pavement Marking. (City of Berkeley, CA.)

Bicycle Boulevard (City of San Luis Obispo, CA.). Photo credit: Mike Singleton

Some optional Class 2 Bike Lane enhancements for a bicycle boulevard include:

- Colored bike lanes
- Distinct and unique directional signage
- Traffic calming (i.e., pop outs and street trees) designed to increase pedestrian and bicycle safety
- Traffic control devices for bicycles at major intersections
- Street trees and landscaping

Some optional Class 3 Bike Route enhancements for a bicycle boulevard include:

- Sharrows or Bike Boulevard pavement markings
- Traffic calming (curb extensions, roundabouts, street trees and speed tables) designed to increase pedestrian and bicycle safety
- Distinct and unique directional signage
- Traffic control devices for bicycles at major intersections
- Street trees and landscaping

General Guidelines for Bicycle Boulevard signs:

- Signs are a distinctive color to distinguish them from other traffic and road signs
- Signs are made with retro reflective material for improved visibility
- Lettering on signs may be no less than two inches high
- Maps of the City's bicycle system at hubs and near the intersections of bicycle boulevards
- Destination and distance signs placed every quarter mile, prior to signalized intersections, and in the block prior to the junction of other bicycle facilities
- Bike boulevard identification signs placed at least at every other corner
- No obscuring vegetation or other visual impediments

Pavement markings

If bike lanes are the preferred alternative, they should be installed to meet Caltrans requirements. For further enhancements to the bike lanes, the inside of the lane can be painted green for further visibility. Some cities have used blue bike lanes, but they have since come under scrutiny because the ADA color designation is also blue. As a result, green appears to be becoming the new bikeway color standard.

Bicycle boulevard pavement markings are car-sized white pavement markings that depict a bicycle, the abbreviation of "BLVD" and a directional arrow. These markings are to be applied directly to the road surface, in the center of the drive lane with a four to six inch wide white paint. Markings should be placed in each direction of traffic following every intersection, near high volume driveways or other potential conflict points, and at no more than 200 foot intervals. Where the bicycle boulevard turns or jogs, the arrow should be turned 45 or 90 degrees in the appropriate direction to help aid in way-finding. (The section of Lexington Avenue proposed to be a bicycle boulevard does not turn or jog so the directional arrow will stay consistent throughout.)

Bicycle boulevard pavement markings can also inform motorists and cyclists of the end of the path. When needed, these should be located in the same location as standard pavement markings to provide sufficient advance warning for cyclists to make appropriate decisions prior to the change. Advance warning of the end of a bicycle boulevard can be indicated on the pavement surface with "END" replacing the arrow and a count in feet until the end of the path. These should be placed 500 and 200 feet prior to the end of a bicycle boulevard.

The Bicycle Boulevard symbol is not a standard symbol in the California MUTCD. The following diagram is the measurement based on the symbol used for bicycle boulevards in the City of Berkeley, California. These symbols are to be used where bike lanes do not exist. With on-street parking, place the symbol twelve feet from curb face (measured to center of legend). Without on-street parking, place in center of travel lane.

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 planners and traffic engineers for review and approval prior to construction. The following factors should be considered:

- Existing and projected traffic volumes and speeds;
- Existence of parking (Can parking be restricted or removed to allow better sight distances? Although parallel parking is considered acceptable along streets with bike routes or adjacent to bike lanes, back out angled parking has been found to conflict with bicycle traffic and should be avoided when planning bike facilities along a roadway.

- Angled parking next to bike lanes should be coordinated and further studied. Angled parking means that short or long vehicles park with their rear ends into the roadway and is impossible to predict where the parking lane would end and the bike lane would begin. Additionally, back out diagonal parking requires a person leaving a parking space to back out into traffic, often without a good view of oncoming cyclists and vehicles.
- Back in angled parking can be an option where vehicles back into the angled parking. Back in angled parking provides better visibility when leaving and is particularly important on busy streets where drivers find their views block by large vehicles, or tinted windows on adjacent parked vehicle.)
- 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
- Traffic operations be changed or "calmed" to allow space and increased safety for cyclists

Table 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	N/A	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	N/A	6 ft SH	6 ft SH
More than 10,000 ADTs			
< 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	N/A	6 ft SH	6 ft SH
Notes			
Primarily applicable to Class 3 and "Undesignated" routes			
SH - Shoulder, SL - Shared Lane			
Provide a 9' shoulder for volumes greater than 10,000 ADTs			

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.

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 easily detectable by some currently installed types of loop detectors. As an convenience for cyclists, the strongest loop detection point should be marked with a standard symbol.

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. 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 MPH 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.

Video Detection

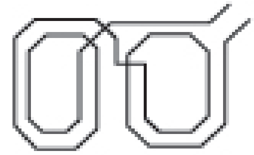
Video detection can pick up a bicycle's presence at an intersection over a larger area. A video detection setup consists of a video detector usually mounted on a four inch riser pole or a mainline pole, and a computer with video image processing capability. Existing video detectors have a flexible detector layout allowing for reprogramming of detection zones in a matter of minutes. Video detection technology has advanced to detect bikes with the same accuracy as loop detectors.

Some advantages to video detection include adjusting signal timing once activated to allow cyclists sufficient time to cross the intersection. This treatment enhances safety for this mode of transportation. Cameras can detect bicycles that do not contain iron, unlike loop detectors and in some cases can detect pedestrians fairly well. Video detection is also not affected by asphalt work and may be used to help direct traffic during construction.

Figure 9C-7 Bicycle Detector Symbol (CA MUTCD, 2011)

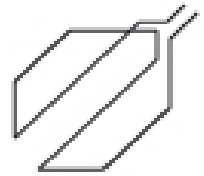
Quadrupole Loop

- Detects most strongly in center
- Sharp cut-off of sensitivity
- Used in bike lanes



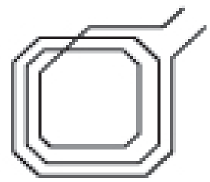
Diagonal Quadrupole Loop

- 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



Bicycle Signals

Bicycle signals are typically used at intersections with heavy bicycle traffic in conjunction with high peak vehicle traffic volumes, high conflict intersections or at the connections of shared use bike lanes and busy roads.

These signals separate conflicting movements between pedestrians, vehicles and cyclists. Bicycle signals also provide priority movement for cyclists at intersections and alternates right-of-ways between the different road users.

A bicycle signal is an electrically powered traffic control device that may only be used in combination with an existing

traffic signal. Bicycle signals shall direct cyclists to take specific actions and may be used to improve an identified safety or operational problem involving bicycles.

Only green, yellow and red lighted bicycle symbols, shall be used to implement bicycle movement at a signalized intersection. The application of bicycle signals shall be implemented only at locations that meet Department of Transportation Bicycle Signal Warrants. A separate signal phase for bicycle movement shall be used.

Alternative means of handling conflicts between bicycles and motor vehicles should be considered first.

Two alternatives that should be considered are:

1. Striping to direct a bicyclist to a lane adjacent to a traffic lane such as a bike lane to left of a right-turn-only lane.

2. Redesigning the intersection to direct a bicyclist from an off-street path to a bicycle lane at a point removed from the signalized intersection.

A bicycle signal must meet the warrants before being considered for installation. The following is the formula used to obtain a warrant.

1. Volume; When $W = B \times V$ and $W \geq 50{,}000$ and $B \geq 50$.

Where:

W is the volume warrant

B is the number of bicycles at the peak hour entering the intersection

V is the number of vehicles at the peak hour entering the intersection

B and V shall use the same peak hour

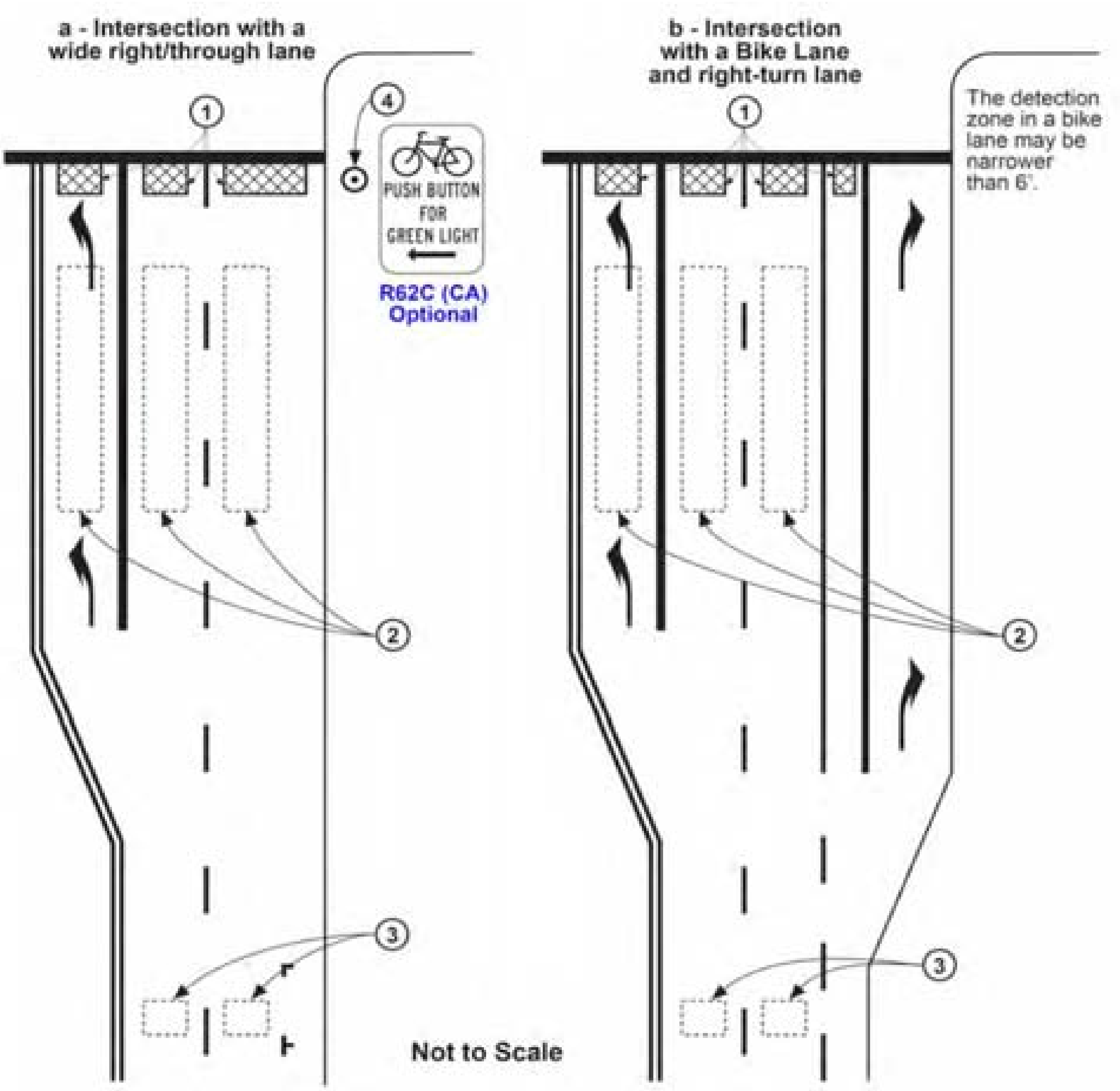
2. Collision; When 2 or more bicycle/vehicle collisions of types susceptible to correction by a bicycle signal have occurred over a 12-month period and the responsible public works official determines that a bicycle signal will reduce the number of collisions.

3. Geometric; (a) Where a separate bicycle/ multi use path intersects a roadway. (b) At other locations to facilitate a bicycle movement that is not permitted for a motor vehicle.

References:

California MUTCD (Revised 2006), MUTCD 2009

Bicycle Signals (Tucson, AZ). Photo credit: John Holloway



NOTES:

1. Typical technology-neutral limit line detection locations. See Section 4D.105 (CA).
2. Typical presence detection locations. See Section 4D.103 (CA).
3. Typical advance detection locations.
4. A bicyclist pushbutton may be used to activate a traffic signal to supplement the required limit line detection. A pushbutton should be located so it is convenient to use by bicyclists. See Section 9B.10 for bicycle regulatory signs.

Recommended Loop Detector Locations 4D-111 (CA MUTCD, 2011)

Design Considerations

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.

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 Table 1 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 MPH, 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.

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.

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.

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.

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.

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.

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.

Pavement Painting and Striping

Although adding pavement legends to indicate a bike lane or path is recommended, the colorization of the bike lane pavement with paint to indicate non vehicular use is recommended in certain situations to further delineate bicycle facilities from the vehicular lane. Certain paint materials have greater degrees of glossiness that can further contribute to the slippery nature of their surface. As an alternative to painting, dye treated colored asphalt overlays have equivalent friction levels and can be used if the selected colors do not interfere with the legibility of the pavement striping or conflict with MUTCD intentions.

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.

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 and 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.

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. Caltrans includes the gutter as part of its calculations of bike lane widths and uses a larger minimum width when adjacent to vertical curbs and parking. See Figure 1003.2A of the Caltrans Chapter 1000 Highway Design Manual. Although acceptable, this is not ideal. 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.

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, 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.

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 edge 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. 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 decrease 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.

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.

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.

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.

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. Finally, intersections and crosswalks pose increased risk of bicycle/car collisions, especially when cyclists on sidewalks are on the wrong side of the roadway (facing motorists).

Though sidewalks are, in general, not conducive to safe cycling, an exception is 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.

Permeable Pavement for Class 1 Bike Paths

Traditional impervious surfaces such as asphalt and concrete can be damaging to the local environment. Stormwater runoff collects dirt and debris, and even oil from the asphalt itself and washes them into the streams, lakes and oceans. Stormwater runoff is the leading source of pollutants entering our waterways. This stormwater runoff is not filtered through extensive treatment, but instead is directly transported into the local water system.

An alternative to an impervious surface for bike paths is a pervious pavement such as pervious concrete or asphalt. Pervious pavement assists water filtration into the soil by capturing rainwater in a network of voids and allowing it to percolate into the underlying soil. This material is a carefully controlled mix of water and cementing material used to create a paste that forms a thick coating around aggregate particles. A pervious pavement mixture contains little or no sand that would otherwise fill voids. Using this paste to coat and bind the aggregate particles together creates a system of highly permeable, interconnected voids that drains quickly. This surface captures stormwater and allows it to seep into the ground. Porous pavement is instrumental in recharging groundwater, reducing stormwater runoff, and meeting U.S. Environmental Protection Agency (EPA) stormwater regulations.

By capturing the first flow of rainfall and allowing it to percolate into the ground, soil chemistry and biology can then filter the polluted water naturally, allowing stormwater retention areas to be reduced or eliminated. In some cases, pervious pavements can double as water retention structures, reducing or eliminating the need for traditional stormwater management systems such as retention ponds and sewer tie-ins. Furthermore, by collecting rainfall and allowing it to infiltrate, groundwater and aquifer recharge is increased, peak water flow through drainage channels is reduced, and flooding is minimized. In fact, EPA named pervious pavements as a Best Management Practice (BMP) for stormwater pollution prevention because they allow fluids to percolate into the soil.

Porous pavement is especially ideal for sections of path which cannot be drained or is subject to stream or river erosion because it has a unique surface texture. It is made up primarily of angular aggregates such as gravel and crushed stone and the exposed coarse aggregates provide enhanced traction for maintenance vehicles and bikes and can prevent hazards such as hydroplaning. The textured surface is especially beneficial during the most difficult and dangerous of riding conditions such as during rain since water is not allowed to remain on the surface and flood.

Surface Conditions

The paving and surface maintenance schedule of bicycle boulevards should be increased to levels of arterial roads to ensure a safe, comfortable surface for bicycling.

Additional Recommendations

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.

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.

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

Bicycle Parking Facilities

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 the City. However, there are bicycle parking facilities at the larger retail centers, Community Centers and some parks and other City facilities as well as the bike lockers at the Transit Centers

The City 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 program 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. Also, cyclists often park their bikes parallel with the rack, instead of perpendicular as intended, which reduces the rack capacity by half.

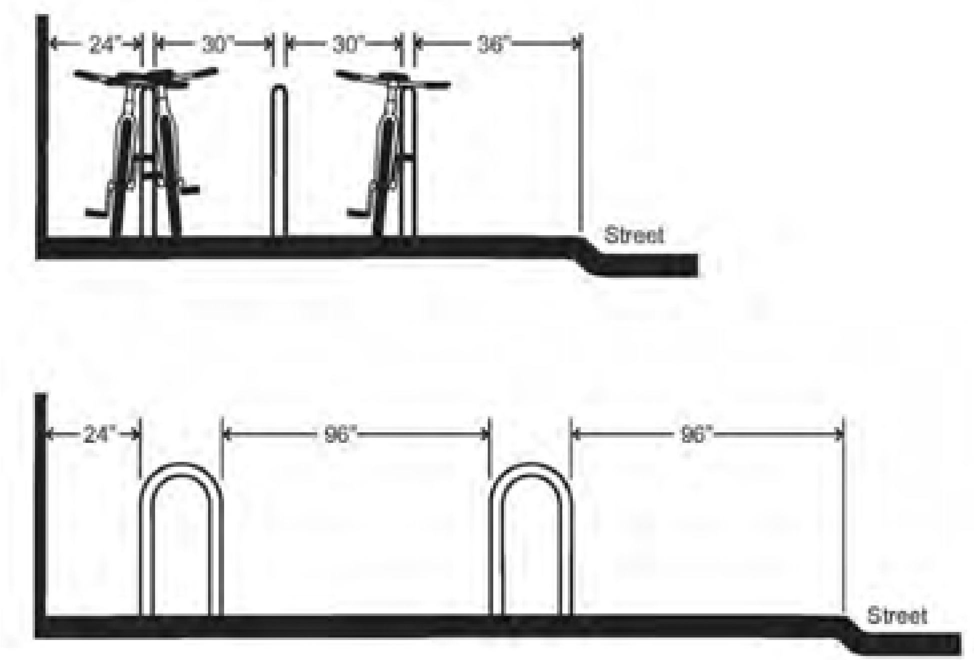
The rack element must resist being cut or detached using common hand tools, especially those that can be concealed in a backpack. Such tools include bolt cutters, pipe cutters, wrenches and pry bars.

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.



Typical bike rack dimensions

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.

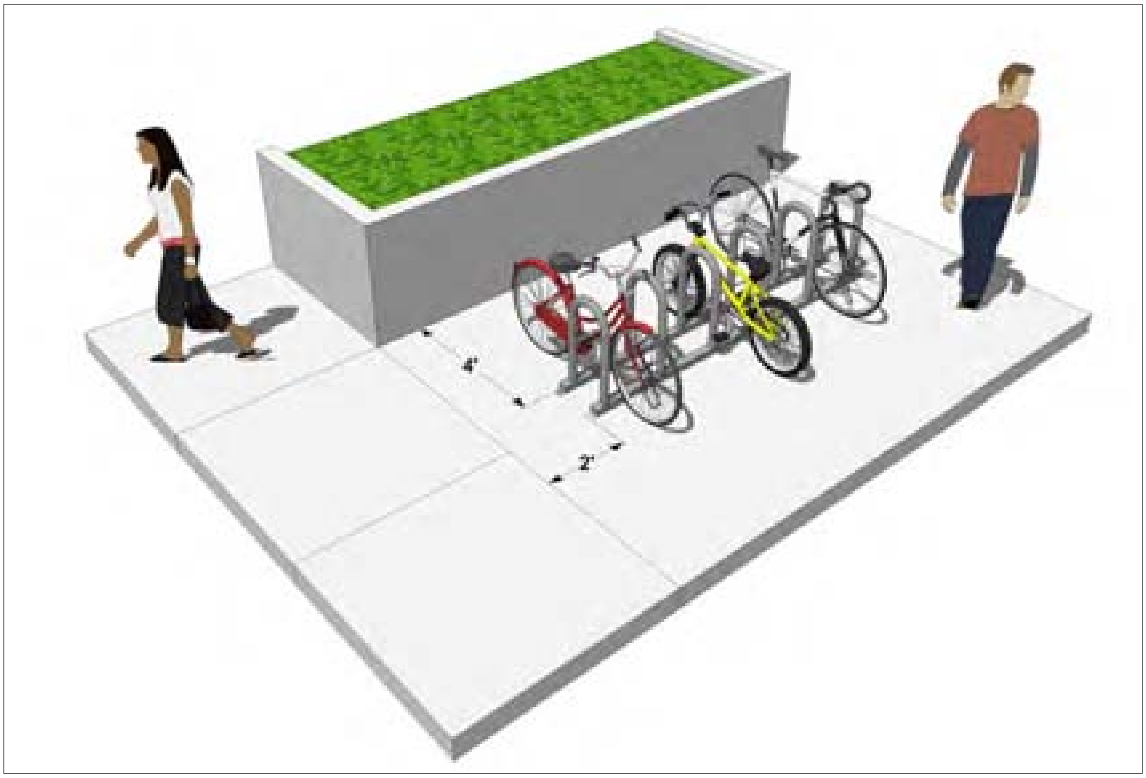
Large rack areas in high turnover areas should have more than one entrance. If possible, the rack area should be protected from the elements. Even though cyclists are exposed to sun, rain and snow while en route, covering the rack area keeps the cyclist more comfortable while parking, locking the bike and loading or unloading cargo. A covering will also help keep the bicycle dry, especially the saddle.

Rack Area Site

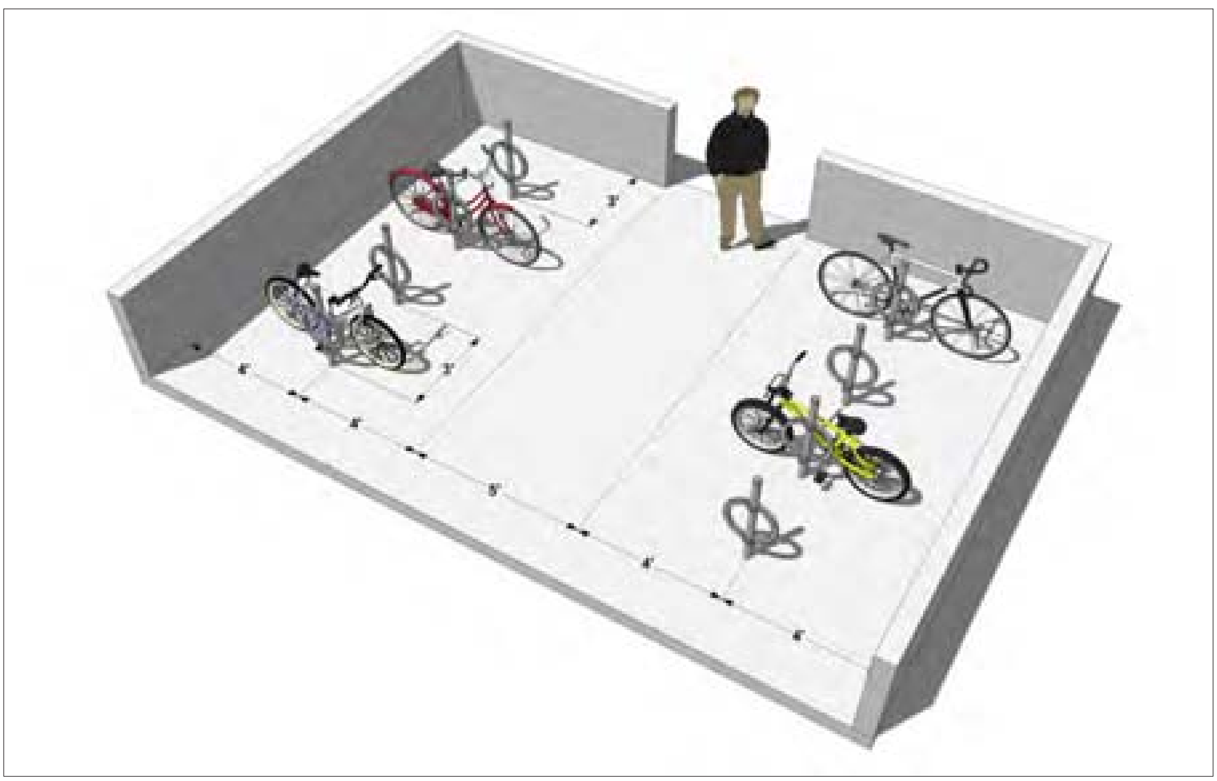
The rack area site is the relationship of a rack area to the building entrance or approach. In general, smaller, conveniently located rack areas should serve multiple buildings, rather than a larger combined, distant one. Racks far from the entrance or perceived to be where bikes will be vulnerable to 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.



Bicycle Rack dimensions for installation in large areas. Graphic credit: KTU+A



Bicycle Rack dimensions for installation in large areas. Graphic credit: KTU+A

Bicycle Rack dimensions for installation parallel to a curb. Graphic credit: KTU+A

Bicycle Rack dimensions for installation perpendicular to a curb. Graphic credit: KTU+A

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.

Custom bicycle rack (Oceanside, CA). Photo credit: Joe Punsalan

Custom bicycle rack (San Diego, CA). Photo credit: Joe Punsalan

Long Term Parking

Bicycle parking facilities intended for long term parking must protect 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.

Perhaps the easiest retrofit is the bicycle locker. Generally, they are as strong as the locks on their doors. They are designed to secure individual bikes with panniers, computers, lights, etc, left on the bike. Some bike locker designs can be stacked to double 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 areas 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.

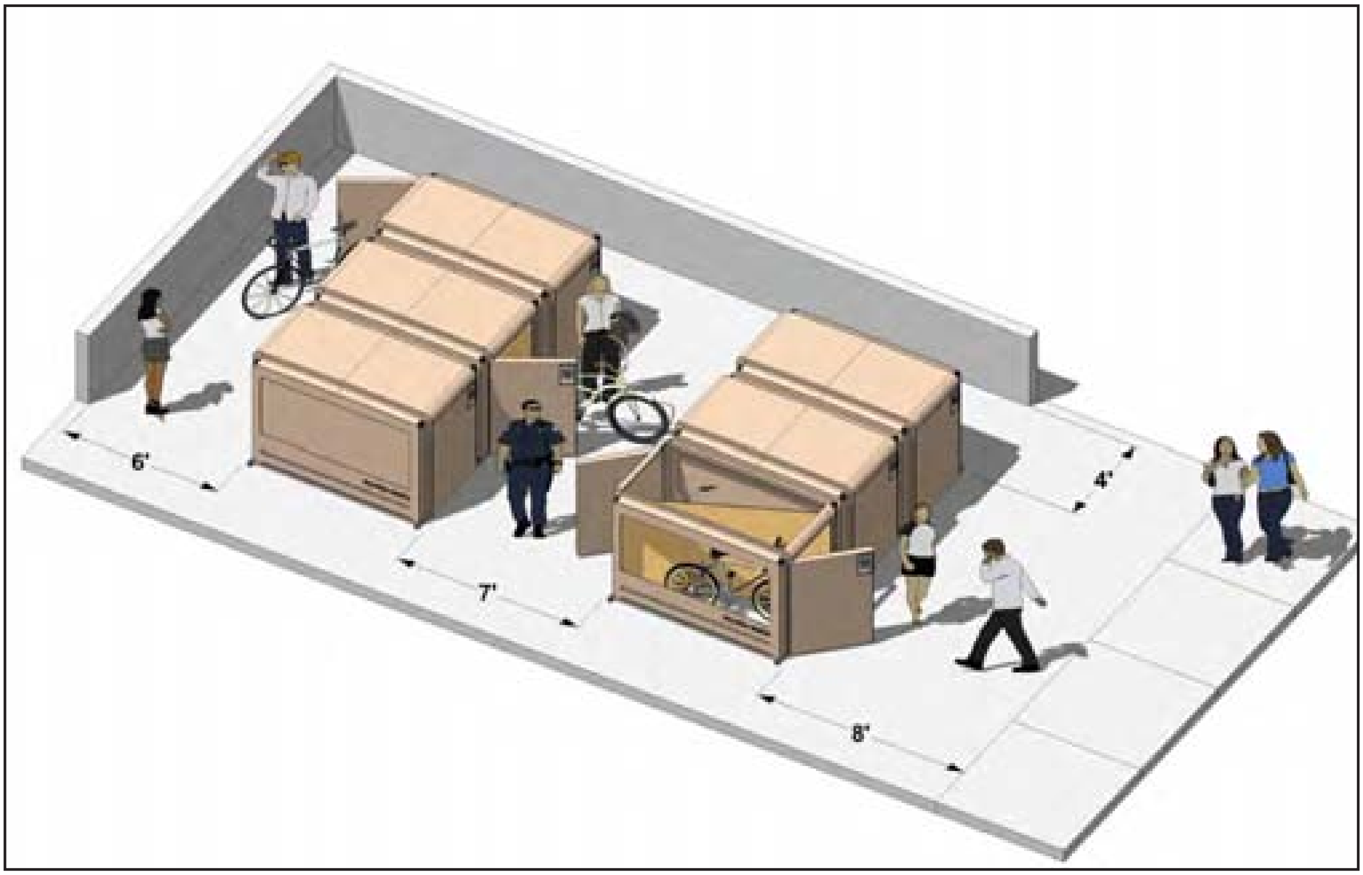
Locating Bicycle Facilities on Roadways

The appropriateness of a bicycle facility is influenced by a number of factors classified into the following categories:

1. Land Use and Location Factors

2. Physical Constraint Factors

3. Traffic Operations



Dimensions for installation of bike lockers. Graphic credit: KTU+A

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.

Dimensions for installation of a bike corral. Bike corrals convert one car parking space into 8-10 bike parking spaces. Graphic credit: KTU+A

Bike corral (Fort Collins, CO). Photo credit: Joe Punsalan

Appendix E: 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 to pull the various sources together.

According to the Federal Highway Administration's (FHWA) 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 Tucson 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.

Pedestrian and Bicycle Federal Sources

U.S. Department of Transportation Enhancement Funds SAFETEA-LU (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users)

In 1991, Congress reauthorized 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 reauthorized in 1997 as the Transportation Equity Act (TEA-21), and again in 2005 as the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). This grant has been extened seven times since expiring in October of 2009. Currently, it has been extended through 2011.

SAFETEA-LU 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, National Environmental Protection Act (NEPA) compliance and the commitment of local resources. In most cases, SAFETEA-LU provides matching grants of 80 to 90 percent. The amount of money available through SAFETEA-LU is substantial (over $155 billion from 1992-97), but there is always strong competition to obtain those funds.

Federal funding through the SAFETEA-LU program provides the bulk of outside funding. SAFETEA-LU 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 La Mesa:

Surface Transportation Program (STP)

Section 1007 (a)(I)(b)(3) allows states to spend their allocation of Surface Transportation Program (STP) funds on a range of activities similar to those of the National Highway System. 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.

Transportation Enhancements Activities

Transportation Enhancement (TE) activities offer funding opportunities to help expand transportation choices and enhance the transportation experience through 12 eligible TE activities related to surface transportation, including pedestrian and bicycle infrastructure and safety programs, scenic and historic highway programs, landscaping and scenic beautification, historic preservation, and environmental mitigation. TE projects must relate to surface transportation and must qualify under one or more of the 12 eligible categories.

Eligible Activities

1. Provision of pedestrian and bicycle facilities

2. Provision of pedestrian and bicycle safety and education activities

3. Acquisition of scenic or historic easements and sites

4. Scenic or historic highway programs including tourist and welcome centers

5. Landscaping and scenic beautification

6. Historic Preservation

7. Rehabilitation and operation of historic transportation buildings, structures, or facilities

8. Conversion of abandoned railway corridors to trails

9. Control and removal of outdoor advertising

10. Archaeological planning and research

11. Environmental mitigation of highway runoff pollution, reduce vehicle-caused wildlife mortality, maintain habitat connectivity

12. Establishment of transportation museums

Safe Routes to School Programs

There are two separate Safe Routes to School Programs administered by Caltrans. There is the State-legislated program referred to as SR2S and there is the Federal Program referred to as SRTS. Both programs are intended to achieve the same basic goal of increasing the number of children walking and bicycling to school by making it safer for them to do so. The differences between the two programs are as follows:

Legislative Authority

SR2S - Streets & Highways Code Section 2330-2334
SRTS - Section 1404 in SAFETEA-LU

Expires

SR2S - AB 57 extended program indefinitely
SRTS - Pending SAFETEA-LU reauthorization. Extensions have been granted through Sept 30, 2011

Eligible Applicants

SR2S - Cities and counties
SRTS - State, local, and regional agencies experienced in meeting federal transportation requirements. Non-profit organizations, school districts, public health departments, and Native American Tribes must partner with a city, county, MPO, or RTPA to serve as the responsible agency for their project.

Eligible Projects

SR2S - Infrastructure projects
SRTS - Stand-alone infrastructure or non-infrastructure projects

Local Match

SR2S - 10% minimum required
SRTS – None

Project Completion Deadline

SR2S - Within 4 ½ years after project funds are allocated to the agency
SRTS - Within 4 ½ years after project is amended into FTIP

Restriction on Infrastructure Projects

SR2S - Must be located in the vicinity of a school
SRTS - Infrastructure projects must be within 2 miles of a grade school or middle school

Targeted Beneficiaries

SR2S - Children in grades K-12
SRTS - Children in grades K-8

Funding

SR2S - $24.25M annual funding
SRTS - $23M annual funding

The Safe Routes to School Program funds non motorized facilities in conjunction with improving access to schools through the Caltrans Safe Routes to School Coordinator. For more information visit: http://www.dot.ca.gov/hq/LocalPrograms/saferoutes/saferoutes.htm

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 SAFETEA-LU 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. 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). The 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.

American Recovery and Reinvestment Act 2009

The $789 billion economic stimulus package provides $27.5 billion to modernize roads and bridges and includes a three percent set aside of each state's share of the $27.5 billion for the Transportation Enhancements Program. At least half of the funds must be obligated by states within 120 days, or the U.S. Secretary of Transportation can recall up to 50 percent of the unobligated funds.

Also included is $8.4 billion to increase public transportation and improve transit facilities; $8 billion for investment in high speed rail and $1.5 billion for a discretionary surface transportation grant program to be awarded competitively by the Secretary of Transportation.

The Federal Highway Administration (FHWA) and Federal Transit Administration have issued guidance to assist state and local agencies in preparing for implementation of the stimulus bill. The guidance includes Q&As and actions that can be taken to expedite economic recovery projects.

Other Bicycle Pedestrian Infrastructure Funding Options

Additionally, States will be receiving $53.6 billion in state fiscal stabilization funding. States must use 18.2 percent of their funding – or $9.7 billion – for public safety and government services. An eligible activity under this section is to provide funding to K-12 schools and institutions of higher education to make repairs, modernize and make renovations to meet green building standards. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System, developed by the U.S. Green Building Council (USGBC), addresses green standards for schools that include bicycle and pedestrian facilities and access to schools.

Another $5 billion is provided for the Energy Efficiency and Block Grant Program. This provides formula funding to cities, counties and states to undertake a range of energy efficiency activities. One eligible use of funding is for bicycle and pedestrian infrastructure.

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)

TDA funds are based on a ¼ percent state sales tax, with revenues made available primarily for transit operating and capital purposes. By law, the San Diego County Auditor's office estimates the apportionment for the upcoming fiscal year. SANDAG prepares forecasts of TDA funds using the apportionment as the base level. The forecasts are based on a forecast of sales tax revenues estimated for the San Diego County using SANDAG's Demographic and Economic Forecasting Model (DEFM), an econometric forecasting model which takes into consideration numerous variables, including population growth, inflation, and real income growth. Certain TDA funds are included in the 'local' revenue sources and in the operating costs.

Traffic Congestion Relief Program (TCRP)

In FY 2001, the Governor of California initiated a new funding program (TCRP) in an effort to relieve congestion statewide. The TCRP was created as a result of a budget surplus. However, with the continuing budget deficit, TCRP allocations haven been sporadic. TCRP funds are based on the priority list of TCRP allocations.

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.

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."

In November 2004, 67 percent of voters approved a 40-year extension of TransNet, which will generate an additional $14 billion for public transit, highway, and local street and road improvements. SANDAG leverages these funds with state and federal resources to improve the region's transportation infrastructure and tackle growing traffic congestion head-on.

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 and 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 La Mesa 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 or segment of one to help construct and maintain it.

Most Likely Sources

According to City of La Mesa sources, the most likely local sources of bikeway funding are the following:

1) BTA (Bicycle Transportation Account)

2) TransNet

3) State and Federal Safe Routes to School

4) Developer Impact Fees

5) City General Fund

Private Sources

Private funding sources can be acquired by applying through the advocacy groups such as the League of American Bicyclists and the Bikes Belong Coalition. Most of the private funding comes from foundations wanting to enhance and improve bicycle facilities and advocacy. Grant applications will typically be through the advocacy groups as they leverage funding from federal, state and private sources.

Tables AE 1 - AE 5 summarize some of the numerous funding sources available.

Table AE 1: Federal Funding Sources

Federal Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match Required**	**Remarks**
Land and Water Conservation Act of 1965		California Department of Parks and Recreation	December	50%	Funding subject to North/South split. Funds for outdoor recreation projects
SAFETEA-LU - Surface Transportation Program (STP)	$639 million in 2009*	FHWA / Caltrans / SANDAG	June 1	20%	STP funds may be exchanged for local funds for non-federally certified local agencies. No match required if project improves safety
SAFETEA-LU - Transportation Enhancement Activities (TEA)	$80 million in 2010*	FHWA / Caltrans / SANDAG	STIP cycle	20%	Contact State TE Coordinator
SAFETEA-LU - Bridge Replacement and Rehabilitation Program (BRP)	$386 million in 2009*	FHWA / Caltrans	Jan/list of projects	20%	Contact Caltrans Division of Structures, Office of Local Programs, Program Manager
SAFETEA-LU - Scenic Byways Program	$740,000 in 2009	FHWA / Caltrans		20%	Should apply first for TEA funds until TEA runs out
SAFETEA-LU - Public Lands Highway	Varies - averages $7 million/yr. state-wide	FHWA / Caltrans	June 7	20%	For roads and bikeways leading to and serving National Forests
SAFETEA-LU - Safe Routes to School (SRTS)	$23 million in 2009*	FHWA / Caltrans		20%	For pedestrian facilities and bikeways leading to schools. Five E's must be incorporated
SAFETEA-LU - Highway Safety Improvement Program	$98 million in 2009*	FHWA / Caltrans		20%	Bike projects must provide a high degree of safety
Forest Highway Program	$19 million in 2009*	FHWA / Caltrans	Oct. 30	20%	For roads and bikeways leading to and serving National Forests
Congestion Mitigation and Air Quality Improvement Plan (CMAQ)	$370 million in 2009*	FHWA / Caltrans	Annually to Multi-Year. Depends on MPO	20%	The amount of CMAQ Funds depends on the state's population share and on the degree of air pollution

Federal Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match Required**	**Remarks**
Regional Trails Program (RTP)	$5 million in 2010*	California Department of Parks and Recreation	October	20%	Funds are for both motorized and non-motorized categories
Rivers, Trails and Conservation Assistance Program (RTCA)		National Park Service	August		Expenditures include bikeway plans, corridor studies and trails assistance
Energy Efficiency and Block Grant Program	$3 million	FHWA			Provided formula funding for cities, counties and states to take part in energy efficient activities
Transportation Enhancement Program	$74 million in 2009	FHWA	Every 2 years, proposals due in 2013	STIP 11.47%, local 25%	At least half of the funds must be obligated by states within 120 days, or the U.S. Secretary of Transportation can recall up to 50 percent of the un-obligated funds.
Community Development Block Grants (CDBG)		Council Districts	Annual Budget		Available for low-income neighborhoods to improve land use and transportation infrastructure. Can be used for accessibility improvements citywide.
FDA Nutrition Network Mini Grants		San Diego Nutrition Network	6 years or longer		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.
Land and Water Conservation Fund (LWCF)	$3 million in 2009	California Department of Parks and Recreation	Annual (May)	50%	LWCF grants may be used for statewide outdoor recreational planning and for acquiring and developing recreational parks and facilities, especially in urban areas.
Active Community Transportation Act of 2010	$2 billion over 5 years. Set aside from STP.	FHWA / Caltrans	Annually	50%	H.R. 4722 would enable communities to compete for targeted funds to complete active transportation networks to enable Americans to walk or bike safely and conveniently. Not yet passed as of 2010.
Sustainable Communities Regional Planning Grants	$68 million	HUD	Annually	20%	Funding for preparing or implementing regional plans for sustainable development

Federal Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match Required**	**Remarks**
American Recovery and Reinvestment Act of 2009 (ARRA)	$73 million in California for 2010	FHWA	Ongoing	None	http://www.recovery.gov/About/Pages/The_Act.aspx

Source: Summary of FY 2009 Apportionments for RTA-000-1664A, * California Only

Table AE 2: State Funding Sources

State Sources					
Grant Source	Annual Total	Agency	Funding Cycle	Match Required	Remarks
State Highway Account (SHA): Bicycle Transportation Account (BTA)	$7,200,000/ yr. state-wide	Caltrans	Consult Local Assistance Office	10%	Available for planning grants
Transportation Development Act (TDA) Section 99234			Annually	None	2% of TDA total
AB 2766 Vehicle Registration Funds		Caltrans			Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) RCF		APCB	July	None	Competitive program for projects that benefit air quality
Vehicle Registration Surcharge Fee (AB 434) PMF	40% from grant source	APCB	April	None	Funds distributed to county communities based on population
Developer Fees or Exactions	Project-specific	Cities	Ongoing	None	Mitigation required during land use approval process
State Gas Tax (local share)		Allocated by State Auditor-Controller	Monthly allocation	None	Major Projects, >$300,000
State and Local Transportation Partnership Program (SLPP)	Est. $200 million/yr. state-wide	Caltrans	June 30	None	Road projects with bike lanes are eligible
Caltrans Minor Capital Program	Varies (Est. $4 million/yr. for District 11)	Caltrans	Ongoing after July 1	None	Projects must be on state highways; such as upgraded bike facilities

State Sources					
Grant Source	Annual Total	Agency	Funding Cycle	Match Required	Remarks
Environmental Enhancement and Mitigation Program (EEM)	$10 million/ yr. state-wide	State Resources Agency	October annually	None required, but favored	Projects that enhance or mitigate existing or future transportation projects
Petroleum Violation Escrow Account (PVEA)	Varies	Caltrans, CA Community Services and Development, Air Resources Board	March	None	Projects must save energy, provide restitution to the public and be approved by CA Energy Commission and US DOE
Community Based Transportation Planning Demonstration Grant Program	$3 million annually	Caltrans	November	20%	Projects must have a transportation component or objective
Habitat Conservation Fund Grant Program (HCF)	$2 million	CA Dept of Park and Recreation	October	50%	Will only be available until July 1, 2020
Office of Traffic Safety Program (OTS)	Varies	Office of Traffic Safety	January	None	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)	$24 million in 2009*	Caltrans	April	10%	Eligible for projects in the vicinity of a school and grades K-12
State Transportation Improvement Program (STIP)	Varies	Caltrans	Every 4 years	None	Gives metropolitan regions more control over how state transportation funds are invested
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.

State Sources					
Grant Source	Annual Total	Agency	Funding Cycle	Match Required	Remarks
Environmental Justice (EJ) Planning Grants	$9 million in 2010	Caltrans	Annually	10%	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.

Table AE 3: Local Funding Sources

Local Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match Required**	**Remarks**
Smart Growth Incentive Program	$7.2 million /yr. state-wide	SANDAG	6 year or longer	None	Regional funds dedicated to smart growth projects, which include pedestrian facilities.
Transportation Development Act (TDA)	$105 million in 2010 in the San Diego region	SANDAG	Annual (March)	None	TDA funds originate from a statewide sales tax of one quarter cent for transportation projects, which includes two percent for pedestrian and bicycle facilities.
Transportation Sales Tax (TRANSNET) Regional Share	$4.8 million in 2009	SANDAG	Biennial started in '08	None	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.
Parking Meter Districts		City	Annual Budget	N/A	Parking Meter Districts can use parking meter revenues for streetscape improvements such as ped facilities, landscaping & lighting.

Local Sources					
Grant Source	Annual Total	Agency	Funding Cycle	Match Required	Remarks
Redevelopment Tax Increment Financing (TIF)		City	Annual Budget	None	TIFs apply to redevelopment areas where bonds are issued based on expected increased tax revenues. Used for improved infrastructure, including pedestrian facilities.
Transient Occupancy Tax (TOT)		City	Annual Budget	None	Created to cover expenses & improvements related to tourism & to encourage more tourists to visit. This fund may be appropriate in areas where heavy tourism exists such as along the waterfront, major parks & historic neighborhoods.

Table AE 4: Private Funding Sources

Private Sources					
Grant Source	Annual Total	Agency	Funding Cycle	Match Required	Remarks
SRAM Cycling Fund	$400,000+/yr	SRAM	Ongoing	None	www.sramcyclingfund.org
Surdna Foundation	Project-specific	Surdna Foundation	Ongoing	None	The Surdna Foundation makes grants to nonprofit organizations in the areas of environment, community revitalization, effective citizenry, the arts, and the nonprofit sector.
Bikes Belong	$180,000 annually	Bikes Belong Coalition	Three times a year	50%	Community grants focus on funding facilities and programs. www.bikesbelong.org
Kaiser Permanente Community Health Initiatives	$54 million annually	Kaiser Permanente	Ongoing	None	Numerous programs to help with Healthy Initiatives
Health Foundations		Various foundations	Ongoing		Focus pedestrian improvements for an obesity prevention strategy. Examples include California Wellness Foundation, Kaiser & California Endowment.

Private Sources					
Grant Source	**Annual Total**	**Agency**	**Funding Cycle**	**Match Required**	**Remarks**
Rails to Trails Conservancy		Rails to Trails Conservancy			Provides technical assistance for converting abandoned rail corridors to use as multi-use trails.
Donations		Depends on nature of project	Ongoing		Corporate or individual donations, sponsorships, merchandising or special events.
In-kind Services		Depends on nature of project	Ongoing		Donated labor & materials for facility construction or maintenance such as tree planting programs or trail construction.

Table AE 5: Summary of Eligible Projects

Bicycle and Pedestrian Funding Opportunities	Transportation Enhancements	Congestion Mitigation and Air Quality Improvement (CMAQ)	Surface Transportation Program	Federal Safe Routes to Schools	Recreational Trails Program	Highway Safety Improvement Program (HSIP)	State and Community Highway Safety Grant Program (Section 402)	National Highway System	Scenic Byways	Federal Lands Highway Program	Highway Bridge Program	Caltrans BTA	TransNet	SANDAG	California Safe Routes to School
Bicycle and pedestrian plan		x	x											x	x
Bicycle lanes on roadway	x	x	x	x		x		x	x	x	x	x	x		x
Paved Shoulders	x	x	x	x		x		x	x	x	x	x	x		x
Signed bike route	x	x	x	x				x	x	x		x	x		x
Shared use path/trail	x	x	x	x	x			x	x	x	x	x	x		x
Single track hike/bike trail					x										
Spot improvement program	x	x	x	x		x									
Maps		x	x	x			x					x		x	x
Bike racks on buses	x	x	x	x									x	x	x
Bicycle parking facilities	x	x	x	x					x			x	x		x
Trail/highway intersection	x	x	x	x	x			x	x			x	x		x
Bicycle storage/service center	x	x	x	x										x	x
Sidewalks, new or retrofit	x	x	x	x				x	x	x	x		x		x
Crosswalks, new or retrofit	x	x	x	x				x	x	x			x		x
Signal improvements	x	x	x	x				x				x	x		x
Curb cuts and ramps	x	x	x	x				x					x		x
Traffic calming			x	x								x	x		x
Coordinator position		x	x	x											x
Safety/education position		x	x	x			x								x
Police Patrol			x	x			x								x
Helmet Promotion	x		x	x			x					x		x	x
Safety brochure/book	x	x	x	x	x	x	x					x		x	x
Training	x	x	x	x	x	x	x							x	x

Source: http://www.fhwa.dot.gov/ENVIRonment/bikeped/bp-guid.htm#bp4

Transit Funding Sources

Tables AE 6 through AE 8 summarize the funding opportunities to improve transit facilities. Many of the funding sources require coordinating with SANDAG, Caltrans or MTS.

Table AE 6: Local Transit Funding Sources

Local Sources	Notes
Transnet	A half-cent local sales tax that San Diego county voters approved in 1987. Administered by SANDAG, this 20-year program generated nearly $3 billion in funding, which was divided equally among three major transportation categories: highways, public transit, and local streets. These funds are used for a variety of transportation and related projects. The TransNet sales tax was extended in November 2004 to 2048, with more than 67 percent of voters countywide voting in favor. This 40-year extension will generate more than $14 billion for transportation improvements, and it includes an innovative $850 million environmental mitigation program. Grants for Smart Growth studies are available from this funding source.
General Fund/Miscellaneous Local Road	These are general fund revenues dedicated for transportation purposes as available from La Mesa's annual budget. Transit projects could include bus stop improvements and transit priority treatments.
Public Private Partnerships/ Transit-Oriented Developments (TOD)	Partnering with businesses for mixed-use development around transit stations as well as working with local agencies/businesses to offer circulators or shuttles. La Mesa has developed these partnerships extensively at its four Trolley stations.
Transportation Development Act (TDA)	TDA is a statewide one-quarter percent sales tax for transportation purposes. In San Diego County, the TDA program is used exclusively for transit and non-motorized purposes.
City/County Local Gas Taxes	These funds are subventions local agencies receive directly from the state from the state gas tax used for transportation related purposes.
Developer Impact Fees	The TransNet Extension Ordinance (2004) established the Regional Transportation Congestion Improvement Program which provides for the collection of a fee per new residential dwelling unit to help pay for transportation improvements on the Regional Arterial System. All local jurisdictions are required to comply.
City/County Local Gas Taxes	These funds are subventions local agencies receive directly from the state from the state gas tax used for transportation related purposes.
Developer Impact Fees	The TransNet Extension Ordinance (2004) established the Regional Transportation Congestion Improvement Program which provides for the collection of a fee per new residential dwelling unit to help pay for transportation improvements on the Regional Arterial System. All local jurisdictions are required to comply.

Local Sources	Notes
Future Local Revenues	A provision in the TransNet Ordinance specified that "SANDAG agrees to act on additional regional funding measures (a ballot measure and/or other secure funding commitments) to meet the long-term requirements for implementing habitat conservation plans in the San Diego region, within the timeframe necessary to allow a ballot measure to be considered by the voters no later than four years after passage of the TransNet Extension." A component of the future ballot measure would fund transit operations.

Table AE 7: State Transit Funding Sources

State Sources	Notes
State Transportation Improvement Program (STIP/) Traffic Congestion Relief	The STIP funds are flexible, and they are available for capital projects to increase the capacity of highways, public transit, and local roads. The STIP funds also are available for efforts to manage demands on the transportation system (TDM), and for planning, programming, and monitoring activities. Includes the county share Regional Improvement Program, Interregional Program, and the Traffic Congestion Relief Program.
Proposition 42 (Local Street and Road)	County portion of Prop. 42 revenues for local agencies only. Based on the passage of ABx8-6 and ABx8-9.
State Transit Assistance (STA) Funds	In March 2010, the governor signed into law ABx8-6 and ABx8-9, which restored the STA program (a prior budget action had suspended the program altogether) at $400 million for FY 2011 and $350 million for FY 2012. These funds are expected to be available to MTS to help fund Trolley and bus operations.
Transportation Planning Grants	Funds for various studies are provided by Caltrans under these programs: Community-Based Transportation Planning, Environmental Justice, Rural Transit Planning Studies, and Urban Transit Planning Studies. The grants are competitive and are awarded annually.
State Highway Operations, and Protection Program (SHOPP) and Maintenance and Operations Program Funds	State funding for state highway maintenance and operations projects, including major capital projects.
Other State-Managed Federal Programs	State administered programs for the region such as Highway Bridge Program, Hazard Elimination Program, Freeway Service Patrol, Highway Safety Improvement Program, and Safe Routes to School, among others.

Table AE 8: Federal Transit Funding Sources

Federal Sources	Notes
Federal Transit Administration (FTA) Discretionary	The FTA discretionary programs include funding for major bus and new starts capital projects. Previous New Starts include Mission Valley East and the SPRINTER. The RTP assumes Full Funding Grant Agreement for the Mid-Coast LRT project based on competitiveness and discussions with FTA for the out years based on the assumption of one large New Starts eligible project and three Small Starts eligible project per decade, with the federal share consistent with current FTA guidance.
FTA Formula Program (5307/5309/5316/5317)	Allocated annually from the federal budget based on urbanized area population, population density, and transit revenue miles of service. The Section 5307 urbanized area program is a formula funding program to fund ongoing preventive maintenance, bus acquisition programs, the regional vanpool program, office and shop equipment, and other capital projects. Section 5309 fixed guideway formula program funds infrastructure improvements to existing rail and other fixed guideway systems. Section 5316 Jobs Access Reverse Commute (JARC) provides operating and capital funds for programs that provide transit services for reverse commutes for low income. Section 5317 for capital and operating services and facility improvements for the disabled. The RTP is programming future funds for the Mid-Coast LRT and other transit service expansions
Congestion Mitigation and Air Quality Improvement (CMAQ)/ Regional Surface Transportation Program (RSTP)	The CMAQ program is contained in SAFETEA-LU to support projects and activities that reduce congestion and improve air quality in regions not yet attaining federal air quality standards. The RSTP program is more flexible and can be used toward major highway and transit projects as well as regional arterial projects.

Source: Draft RTP April 2011

CITY OF
LA MESA
JEWEL of the HILLS

Appendix F: Guidelines for Selecting Safe Routes to School

The following text was written by Kevin Karplus, winner of the LAB's 1994 Phyllis W. Harmon Volunteer-of-the-Year Award for bicycle advocacy. He is a certified Effective Cycling Instructor, and was chair of the Santa Cruz County Regional Transportation Commission Bicycle Committee. He is (or has been) a member of People Power, the Community Traffic Safety Coalition, the Santa Cruz County Cycling Club, the California Bicycle Safety Coalition, and the International Human-Powered Vehicle Association. He is a life member of the League of American Bicyclists, Adventure Cycling and American Youth Hostels.

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 school students 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 crashes 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.

For more information on Safe Routes to School visit: www.saferoutesinfo.org

Appendix G: 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. This is the English measurement version. A metric version is also available via the Caltrans web site.


SHARE
THE
ROAD

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 4-foot 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 4-foot paved roadway shoulders with a standard 4 inch 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 8 feet. The minimum paved width for a one-way bike path shall be 5 feet. A minimum 2-foot wide graded area shall be provided adjacent to the pavement (see Figure 1003.1A).** A 3-foot graded area is recommended 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 8-feet, preferably 12 feet 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 12 feet wide sometimes break up along the edge as a result of loads from maintenance vehicles.

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

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

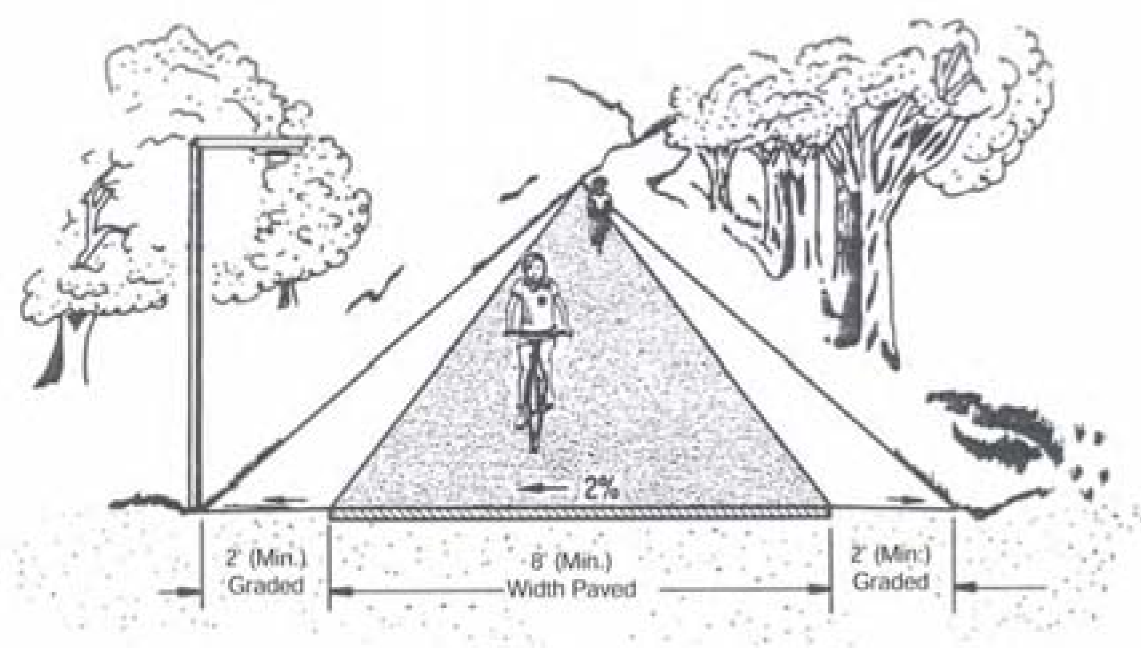
   The vertical clearance to obstructions across the clear width of the path shall be a minimum of 8 feet. Where practical, a vertical clearance of 10 feet is desirable.

(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.

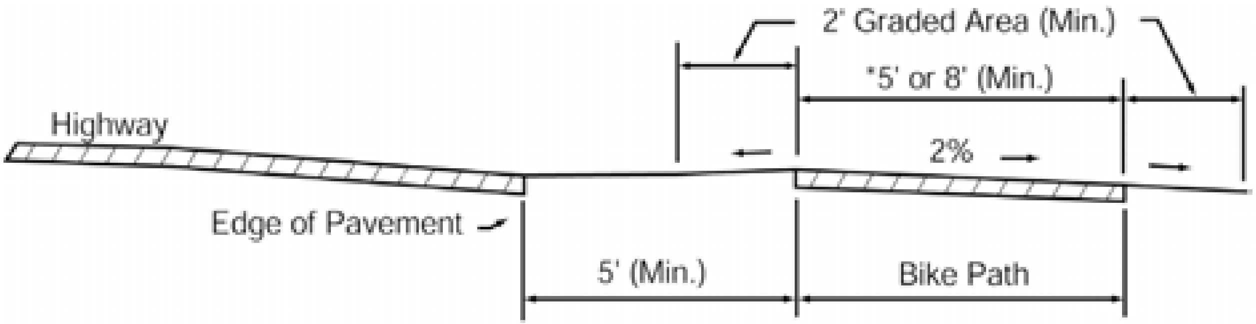
Figure 1003.1A

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 Highway



NOTE: See Index 1003.1(5)

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

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 5 feet 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 25 miles per hour except as noted in Table 1003.1.**

Table 1003.1

Bike Path Design Speeds

Type of Facility	Design Speed (mph)
Bike Paths with Mopeds Prohibited	25
Bike Paths with Mopeds Permitted	30
Bike Paths on Long Downgrades (steeper than 4%, and longer than 500')	30

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 percent cross slope is recommended on tangent sections. The minimum superelevation rate of 2 percent 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 12 miles per hour to 0.21 at 30 miles per hour. 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.

Figures 1003.1D and 1003.1E indicate 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.

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

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

Figure 1003.1C

Curve Radii & Superelevations

$$R = \frac{V^2}{15(0.01e + f)}$$

where,

R = Minimum radius of curvature (ft)

V = Design Speed (mph)

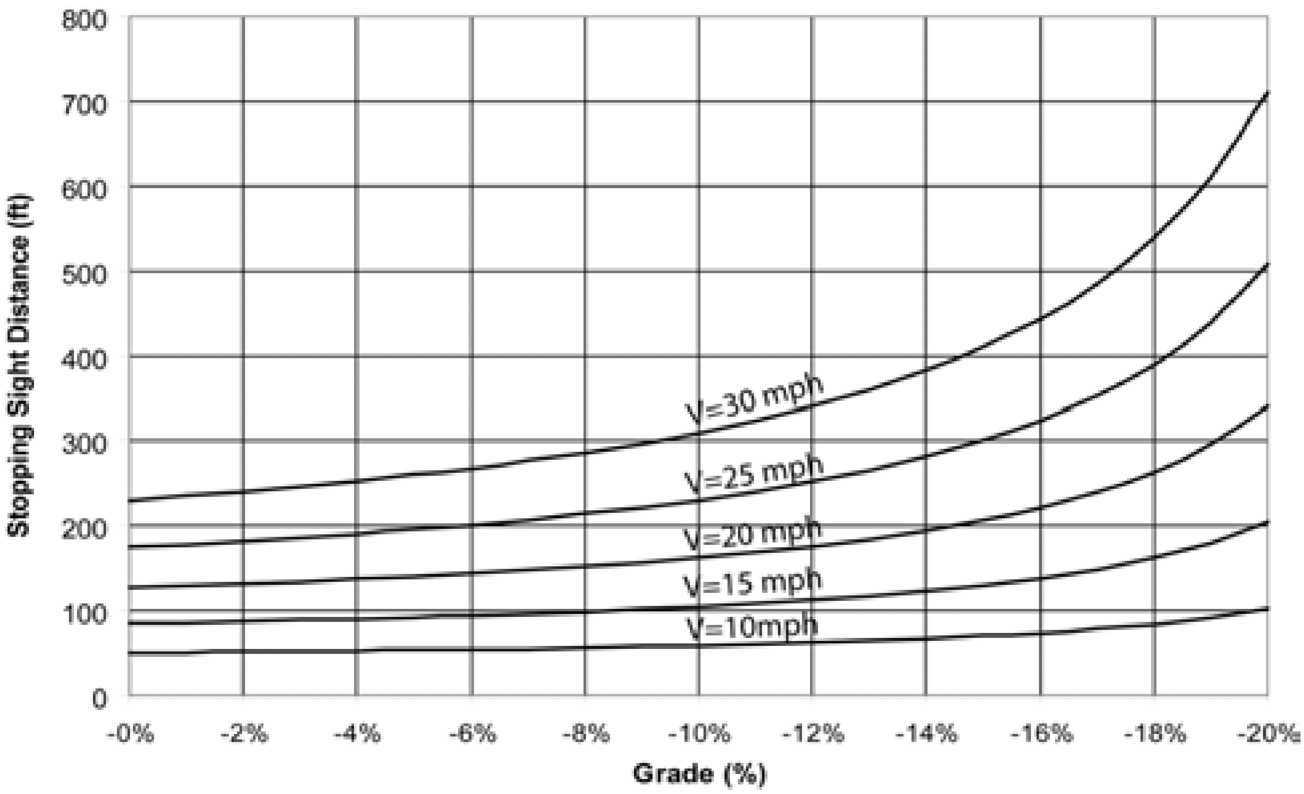
e = Rate of bikeway superelevation, percent

f = Coefficient of friction

Design Speed-V (mph)	Friction Factor-f	Superelevation-e (%)	Minimum Radius-R (ft)
15	0.31	2	46
20	0.28	2	89
25	0.25	2	155
30	0.21	2	261
15	0.31	3	45
20	0.28	3	86
25	0.25	3	149
30	0.21	3	250
15	0.31	4	43
20	0.28	4	84
25	0.25	4	144
30	0.21	4	240
15	0.31	5	42
20	0.28	5	81
25	0.25	5	139
30	0.21	5	231

Figure 1003.1D

Stopping Sight Distance – Descending Grade



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

Where : S = Stopping sight distance (ft)

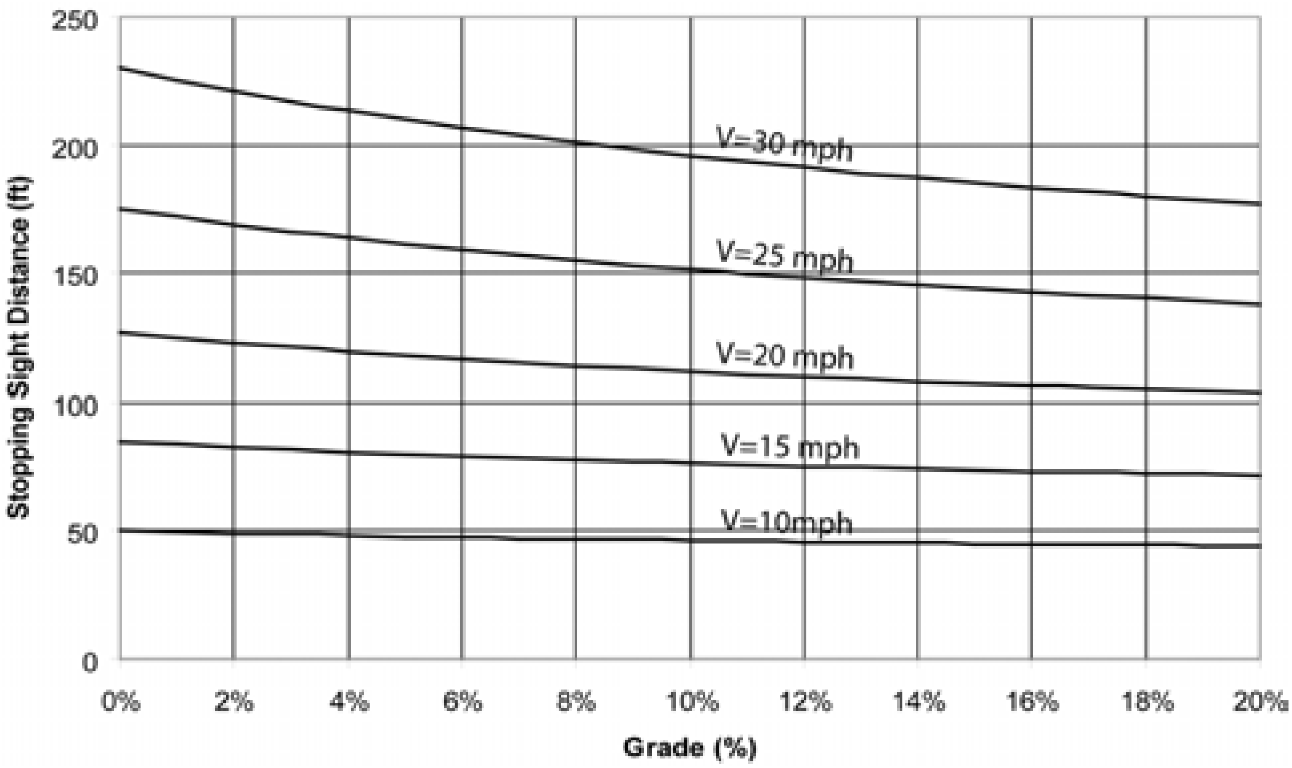
V = Velocity (mph)

f = Coefficient of friction (use 0.25)

G = Grade (ft/ft) rise/run

Figure 1003.1E

Stopping Sight Distance – Ascending Grade



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

Where : S = Stopping sight distance (ft)

V = Velocity (mph)

f = Coefficient of friction (use 0.25)

G = Grade (ft/ft) rise/run

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 percent. It is desirable that sustained grades be limited to 2 percent if a wide range of riders is to be accommodated. Steeper grades can be tolerated for short segments (e.g., up to about 500 feet). Where steeper grades are necessitated, the design speed should be increased and additional width should be provided for maneuverability.

(13) 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 pavement structure. A minimum pavement thickness of 2 inches of Hot Mix Asphalt (HMA) is recommended. HMA (as described in Department of Transportation Standard Specifications), with ½ inch maximum aggregate and medium grading is recommended. Consideration should be given to increasing the asphalt content to provide increased pavement life. Consideration should also be given to sterilization of basement soil to preclude possible weed growth through the pavement.

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 that location.

(14) Drainage. For proper drainage, the surface of a bike path should have a cross slope of 2 percent. 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.

(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.

Figure 1003.1F

Minimum Length of Crest Vertical Curve (L)
Based on Stopping Sight Distance (S)

$$L = 2S - \frac{1456}{A}$$ when S > L

$$L = \frac{AS^2}{1456}$$ when S < L

Double line represents S = L

L = Minimum length of vertical curve – feet

A = Algebraic grade difference - %

S = Stopping sight distance – feet

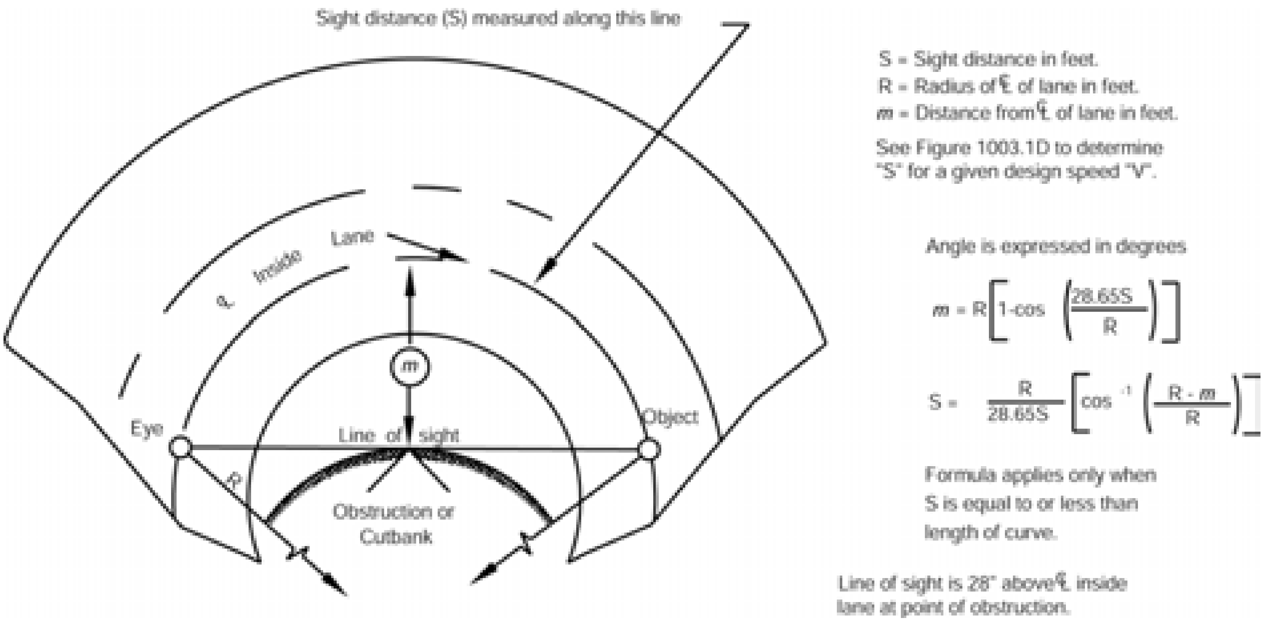
Refer to Figure 1003.1D to determine “S”, for a given design speed “V”

Height of cyclist eye = 4½ feet

Height of object = 4 inches

A	S = Stopping Sight Distance (ft)													
(%)	30	50	70	90	110	130	150	170	190	210	230	250	270	290	
3												15	55	95	
4									16	56	96	136	176	216	
5							9	49	89	129	169	209	249	289	
6		**S > L**				17	57	97	137	177	217	258	300	347	
7					12	52	92	132	172	212	254	300	350	404	
8					38	78	118	158	198	242	291	343	401	462	
9				18	58	98	138	179	223	273	327	386	451	520	
10				34	74	114	155	198	248	303	363	429	501	578	
11			8	48	88	128	170	218	273	333	400	472	551	635	
12			19	59	99	139	185	238	298	363	436	515	601	693	
13			28	68	108	151	201	258	322	394	472	558	651	751	
14			36	76	116	163	216	278	347	424	509	601	701	809	
15		3	43	83	125	174	232	298	372	454	545	644	751	866	
16		9	49	89	133	186	247	318	397	485	581	687	801	924	
17		14	54	95	141	197	263	337	421	515	618	730	851	982	
18		19	59	100	150	209	278	357	446	545	654	773	901	1040	
19		23	63	106	158	221	294	377	471	575	690	816	951	1097	**S < L**
20		27	67	111	166	232	309	397	496	606	727	859	1001	1155	
21		31	71	117	175	244	325	417	521	636	763	901	1051	1213	
22		34	74	122	183	255	340	437	545	666	799	944	1102	1271	
23		37	77	128	191	267	355	457	570	697	836	987	1152	1329	
24		39	81	134	199	279	371	476	595	727	872	1030	1202	1386	
25	2	42	84	139	208	290	386	496	620	757	908	1073	1252	1444	

Figure 1003.1G
Minimum Lateral Clearance (*m*) on Horizontal Curves



R (ft)	S = Stopping Sight Distance (ft)														
	20	40	60	80	100	120	140	160	180	200	220	240	260	280	300
25	2.0	7.6	15.9												
50	1.0	3.9	8.7	15.2	23.0	31.9	41.5								
75	0.7	2.7	5.9	10.4	16.1	22.8	30.4	38.8	47.8	57.4	67.2				
95	0.5	2.1	4.7	8.3	12.9	18.3	24.7	31.8	39.5	48.0	56.9	66.3	75.9	85.8	
125	0.4	1.6	3.6	6.3	9.9	14.1	19.1	24.7	31.0	37.9	45.4	53.3	61.7	70.6	79.7
155	0.3	1.3	2.9	5.1	8.0	11.5	15.5	20.2	25.4	31.2	37.4	44.2	51.4	59.1	67.1
175	0.3	1.1	2.6	4.6	7.1	10.2	13.8	18.0	22.6	27.8	33.5	39.6	46.1	53.1	60.5
200	0.3	1.0	2.2	4.0	6.2	8.9	12.1	15.8	19.9	24.5	29.5	34.9	40.8	47.0	53.7
225	0.2	0.9	2.0	3.5	5.5	8.0	10.8	14.1	17.8	21.9	26.4	31.3	36.5	42.2	48.2
250	0.2	0.8	1.8	3.2	5.0	7.2	9.7	12.7	16.0	19.7	23.8	28.3	33.1	38.2	43.7
275	0.2	0.7	1.6	2.9	4.5	6.5	8.9	11.6	14.6	18.0	21.7	25.8	30.2	34.9	39.9
300	0.2	0.7	1.5	2.7	4.2	6.0	8.1	10.6	13.4	16.5	19.9	23.7	27.7	32.1	36.7
350	0.1	0.6	1.3	2.3	3.6	5.1	7.0	9.1	11.5	14.2	17.1	20.4	23.9	27.6	31.7
390	0.1	0.5	1.2	2.1	3.2	4.6	6.3	8.2	10.3	12.8	15.4	18.3	21.5	24.9	28.5
500	0.1	0.4	0.9	1.6	2.5	3.6	4.9	6.4	8.1	10.0	12.1	14.3	16.8	19.5	22.3
565		0.4	0.8	1.4	2.2	3.2	4.3	5.7	7.2	8.8	10.7	12.7	14.9	17.3	19.8
600		0.3	0.8	1.3	2.1	3.0	4.1	5.3	6.7	8.3	10.1	12.0	14.0	16.3	18.7
700		0.3	0.6	1.1	1.8	2.6	3.5	4.6	5.8	7.1	8.6	10.3	12.0	14.0	16.0
800		0.3	0.6	1.0	1.6	2.2	3.1	4.0	5.1	6.2	7.6	9.0	10.5	12.2	14.4
900		0.2	0.5	0.9	1.4	2.0	2.7	3.6	4.5	5.6	6.7	8.0	9.4	10.9	12.5
1000		0.2	0.5	0.8	1.3	1.8	2.4	3.2	4.0	5.0	6.0	7.2	8.4	9.8	11.2

(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, 5 feet shall be the minimum width of bike lane where parking stalls are marked.** If parking volume is substantial or turnover high, an additional 1 foot to 2-foot 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, 11 feet or 12 feet (depending on the type of curb) shall be the minimum width of the bike lane where parking is permitted.** This type of lane is 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 35 miles per hour, 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 4 feet. With a normal 2-foot gutter, the minimum bike lane width shall be 5 feet.** The intent is to provide a minimum 4 feet wide bike lane, but with at least 3 feet between the traffic lane and the longitudinal joint at the concrete gutter, since the gutter reduces the effective width of the bike lane for two reasons. First, the longitudinal joint may not always be smooth, and may be difficult to ride along. Secondly, the gutter does not provide a suitable surface for bicycle travel. Where gutters are wide (say, 4 feet), an additional 3 feet must be provided because bicyclists should not be expected to ride in the gutter. Wherever possible, the width of bike lanes should be increased 6 feet to 8 feet to provide for greater safety. Eight-foot bike lanes can also serve as emergency parking areas for disabled vehicles.

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

Figure 1003.2A-(4) depicts bike lanes on a highway without curbs and gutters. This location is in an undeveloped area where infrequent parking is handled off the pavement. This can be accomplished by supplementing the bike lane signing with R25 (park off pavement) signs, or R26 (no parking) signs. **Minimum widths shall be as shown.** Additional width is desirable, particularly where motor vehicle speeds exceed 35 miles per hour

Per Topic 301, the minimum lane width standard is 12 feet. 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 11 feet may be feasible but must be approved per Topic 301.

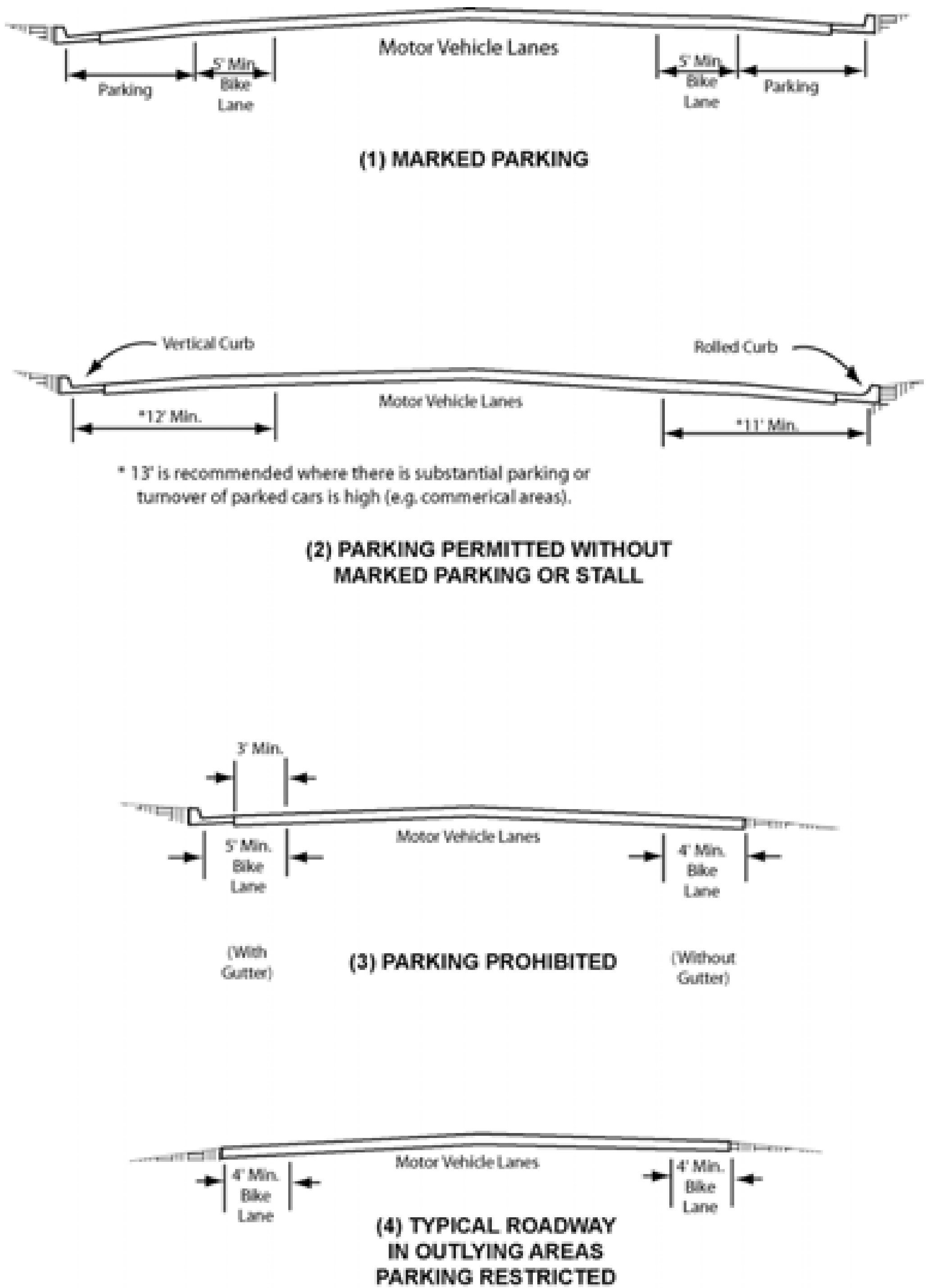
Bike lanes are not advisable on long, steep downgrades, where bicycle speeds greater than 30 miles per hour are expected. As grades increase, downhill bicycle speeds will increase, which increases the problem of riding near the edge of the roadway. In such situations, bicycle speeds can approach those 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.

(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 1003.2A
Typical Bike Lane Cross Sections
(On 2-lane or Multilane Highways)



Note: For pavement marking guidance, see the MUTCD and California Supplement, Section 9C.04

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 4 feet or 5 feet 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 14 feet 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.

(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.

Figure 1003.2B

Typical Bicycle/Auto Movements at Intersections of Multilane Streets

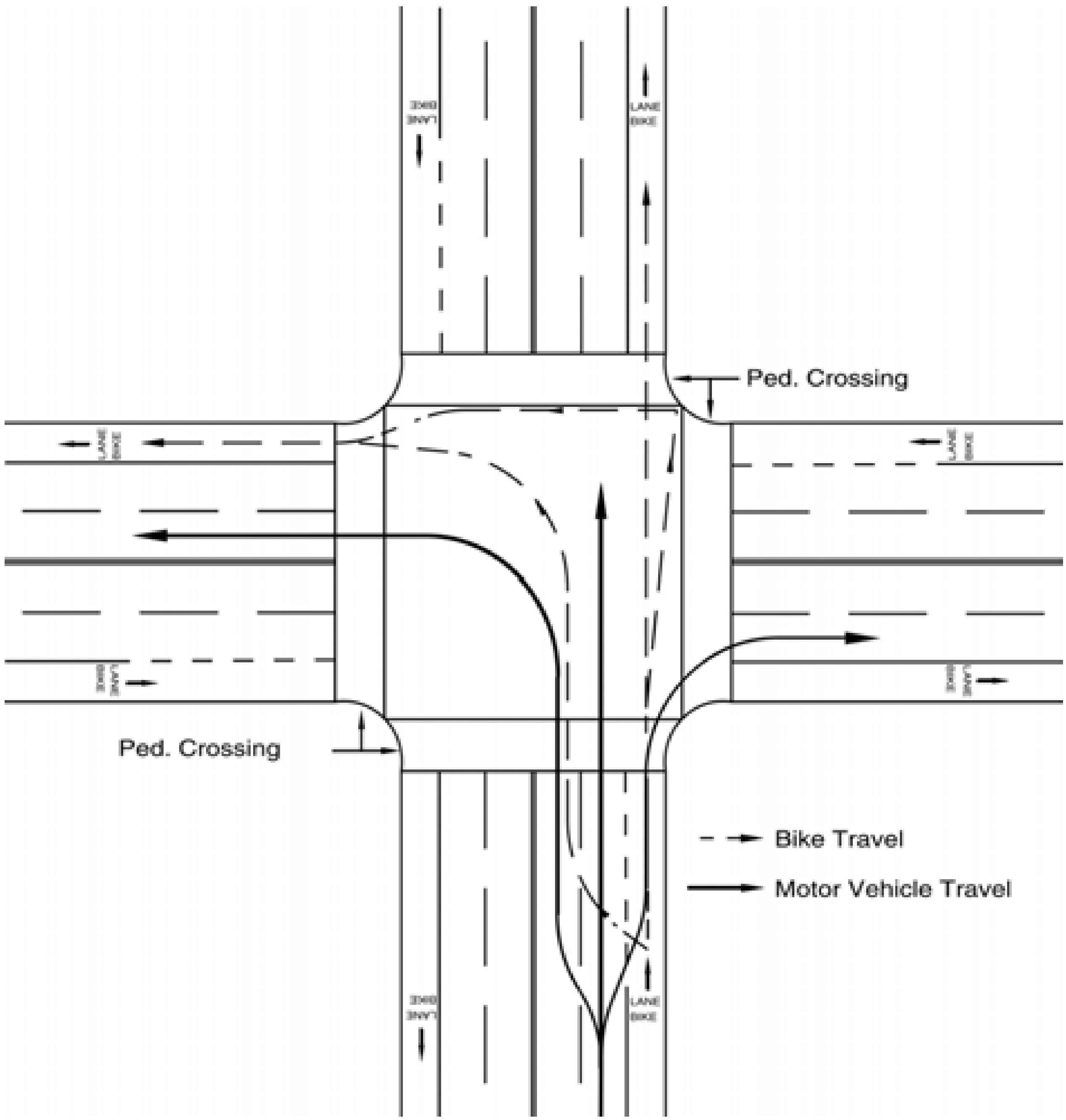
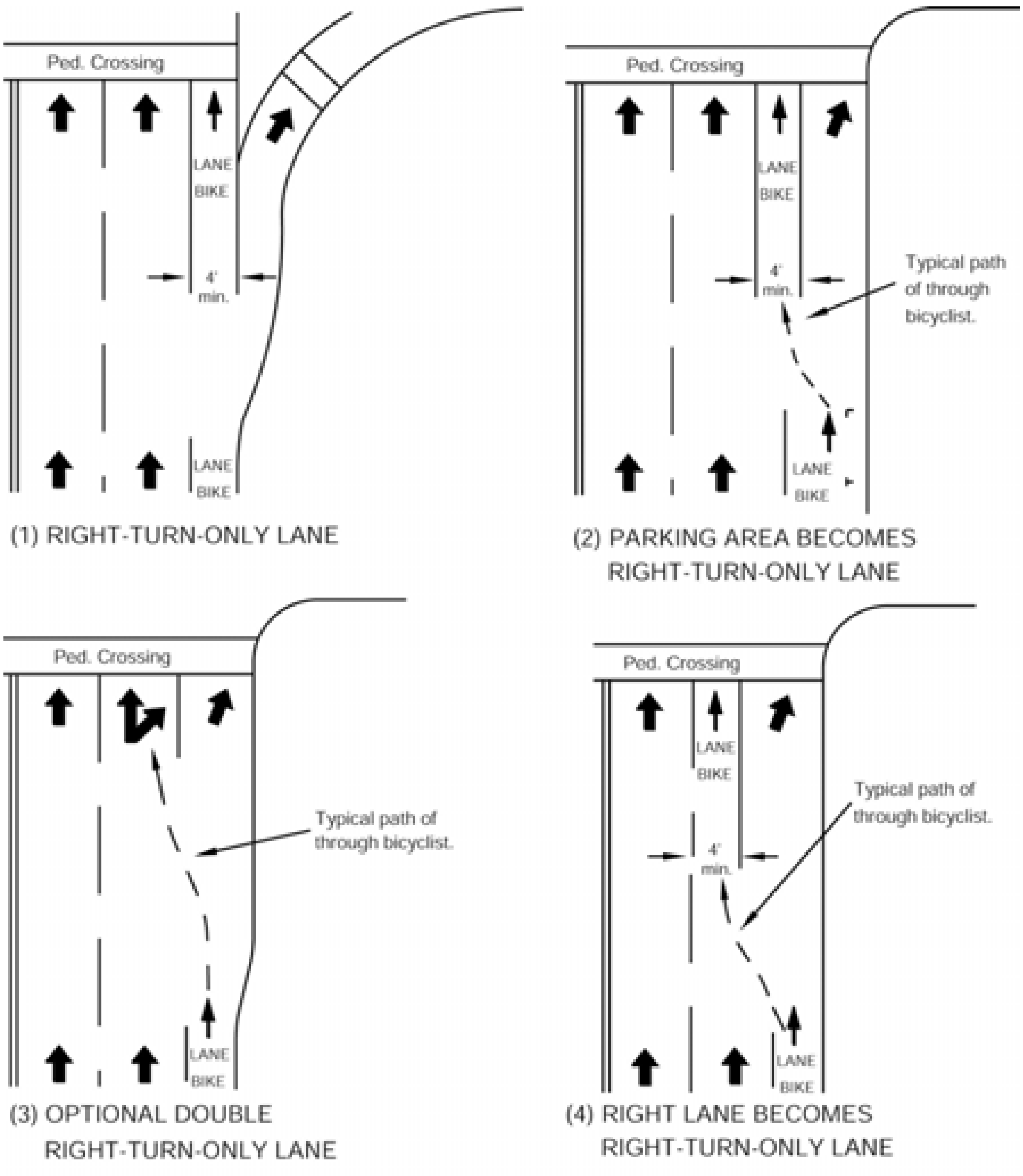
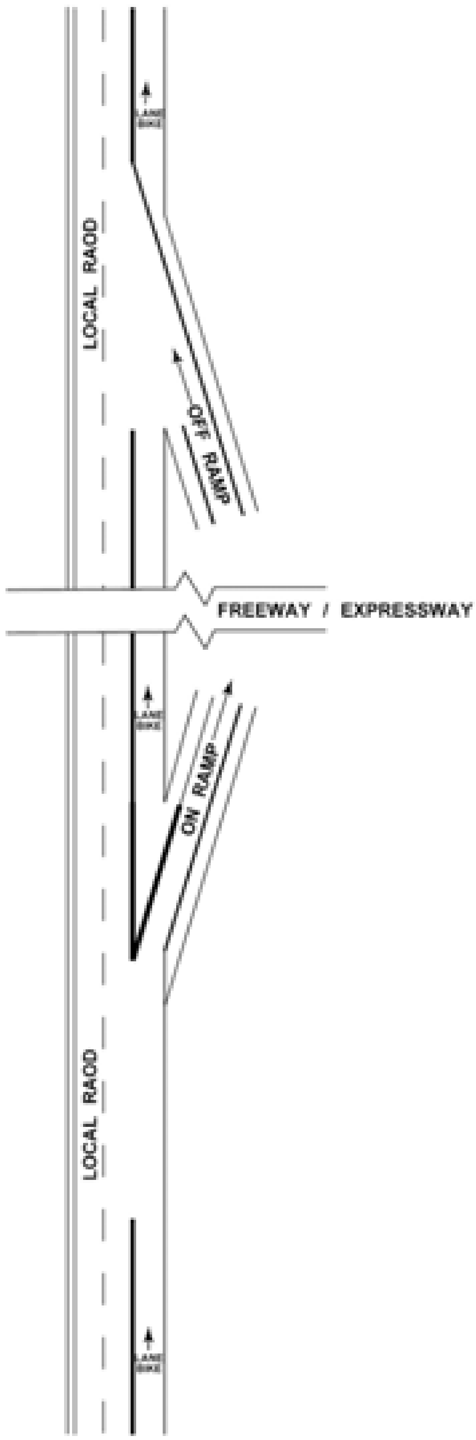


Figure 1003.2C
Bike Lanes Approaching Motorist Right-turn-only Lane



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 4 feet or 5 feet if a gutter exists. If the shoulder width is not available, the designated bike lane shall end at the previous local raod inter-section.

3.) See Index 1003.3(4) for information on Bike Routes Through Interchanges.

(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 16-foot or a 12-foot lane and a 4-foot 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 54 inches high to minimize the likelihood of bicyclists falling over the railings. Standard bridge railings which are lower than 46 inches 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 Department standard pedestrian overcrossing design loading. The minimum clear width shall be the paved width of the approach bikeway but not less than 8 feet. 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 ¼ inch from the lower edge of an 8-foot 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.

(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.

Table 1003.6
Bikeway Surface Tolerances

Direction of Travel	Grooves (1)	Steps (2)
Parallel to travel	No more than ½" wide	No more than ⅜" high
Perpendicular to travel	---	No more than ¾" high

Notes:

(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.

Drainage inlet grates on bikeways shall have openings narrow enough and short enough to assure bicycle tires will not drop into the grates (e.g., reticuline type), regardless of the direction of bicycle travel. Where it is not immediately feasible to replace existing grates with standard grates designed for bicycles, 1" x ¼" steel cross straps should be welded to the grates at a spacing of 6 inches to 8 inches on centers to reduce the size of the openings adequately.

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

Future driveway construction should avoid construction of a vertical lip from the driveway to the gutter, as the lip may create a problem for bicyclists when entering from the edge of the roadway at a flat angle. If a lip is deemed necessary, the height should be limited to ½ inch.

(4) *At-grade Railroad Crossings and Cattle Guards*. Whenever it is necessary to cross railroad tracks with a bikeway, special care must be taken to assure that the safety of bicyclists is protected. The bikeway crossing should be at least as wide as the approaches of the bikeway. Wherever possible, the crossing should be straight and at right angles to the rails. For on-street bikeways where a skew is unavoidable, the shoulder (or bike lane) should be widened, if possible, to permit bicyclists to cross at right angles (see Figure 1003.6A). If this is not possible, special construction and materials should be considered to keep the flangeway depth and width to a minimum.

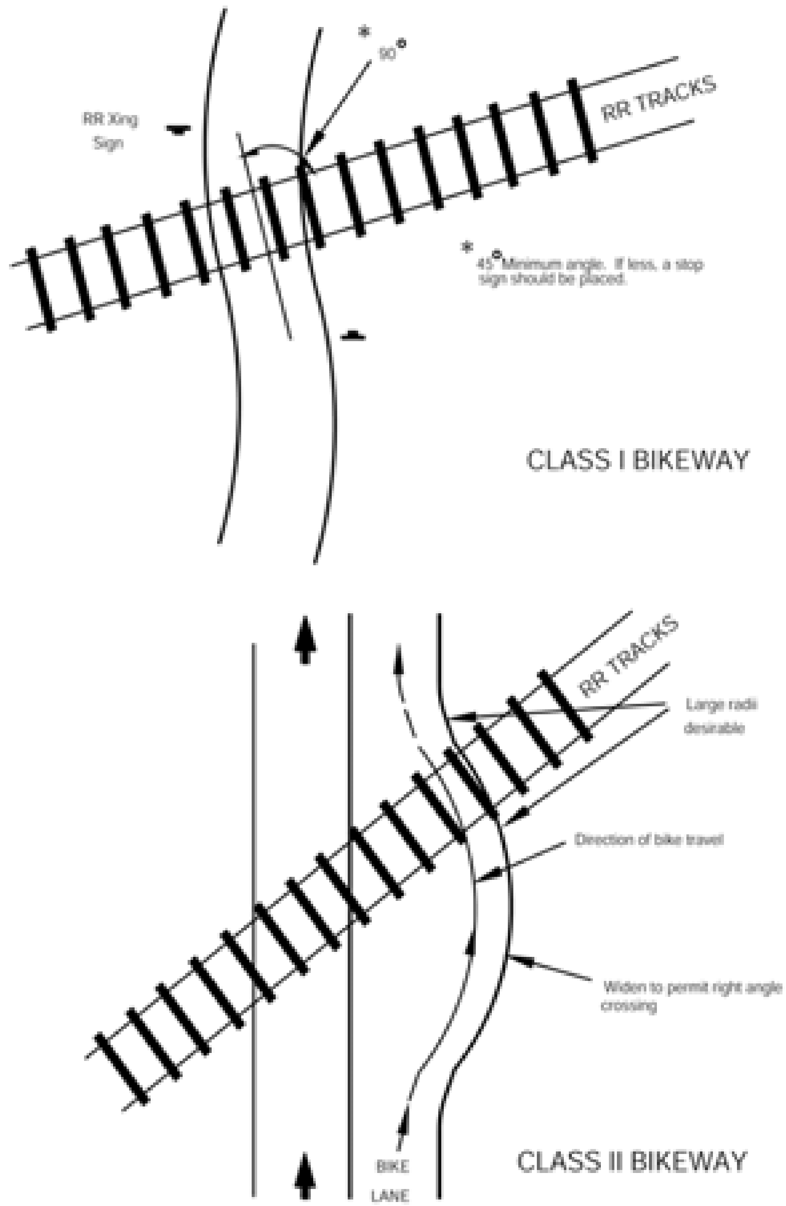
Pavement should be maintained so ridge buildup does not occur next to the rails. In some cases, timber plank crossings can be justified and can provide for a smoother crossing. Where hazards to bicyclist cannot be avoided, appropriate signs should be installed to warn bicyclists of the danger.

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

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

(5) *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 H: Public Input

The Public Input for the Bicycle Facilities Plan and Alternative Transportation Element was conducted through an online survey and two public workshops. The following are the results from the online survey.

Online Survey Summary

La Mesa Bicycle and Alternative Transportation Survey

As of November 1, 2010

1. Do you currently ride your bike for transportation?

	Responses	%
No	194	75%
Yes	63	25%
Total Answers	**257**	

2. How often do you ride your bike for transportation purposes (not recreation)?

	Responses	%
Daily	10	16%
4-6 days per week	12	20%
2-3 days per week	15	25%
Once a week	14	23%
A few times a year	8	13%
2-3 times per month	2	3%
Never	0	0%
Total Answers	**61**	

3. What time of the day and week do you ride your bike for transportation?

	Responses	%
Weekday Mornings	38	26%
Weekday Days	29	20%
Weekday Evenings	30	20%
Weekend Mornings	17	11%
Weekend Days	24	16%
Weekend Evenings	10	7%
Total Answers	**148**	

4. Do you ride your bike to work?

	Responses	%
No	28	50%
Yes	28	50%
Total Answers	**56**	

5. How often do you ride your bike to work?

	Responses	%
Daily	7	3%
4-6 days per week	11	4%
2-3 days per week	7	3%
Once a week	5	2%
A few times a year	4	2%
2-3 times per month	15	6%
Never	200	80%
Total Answers	**249**	

6. What is the distance of your commute roundtrip?

	Responses	%
Less than 2 miles	42	20%
2-5 miles	48	23%
5-10 miles	35	17%
More than 10 miles	80	39%
Total Answers	**205**	

7. Do you ride your bike for recreation?

No	104	42%
Yes	141	58%
Total Answers	**245**	

8. How often do you ride your bike for recreation?

Daily	3	2%
4-6 days per week	8	6%
2-3 days per week	45	31%
Once a week	27	19%
A few times a year	32	22%
2-3 times per month	27	19%
Never	2	1%
Total Answers	**144**	

9. What time of day and week do you ride your bike for recreation?

Weekday Mornings	26	9%
Weekday Days	38	13%
Weekday Evenings	43	15%
Weekend Mornings	59	21%
Weekend Days	82	29%
Weekend Evenings	34	12%
Total Answers	**282**	

10. Do you ride your bike with your family or as a social activity?

No	141	57%
Yes	107	43%
Total Answers	**248**	

11. How often do you ride your bike with your family or as a social activity?

Daily	1	1%
4-6 days per week	4	4%
2-3 days per week	18	17%
Once a week	20	19%
A few times a year	30	28%
2-3 times per month	33	31%
Never	2	2%
Total Answers	**108**	

12. When do you like to ride your bike with your family or as a social activity?

Weekday Mornings	16	8%
Weekday Days	22	12%
Weekday Evenings	24	13%
Weekend Mornings	37	20%
Weekend Days	67	35%
Weekend Evenings	23	12%
Total Answers	**189**	

What factors discourage you from bicycling?

13. Motorists that do not follow the rules of the road

Great extent	111	49%
Moderate extent	82	36%
Not at all	34	15%
Total Answers	**227**	

14. Aggressive motorists that make riding unsafe

Great extent	129	55%
Moderate extent	77	33%
Not at all	29	12%
Total Answers	**235**	

15. Bicycle unfriendly roadways

Great extent	146	63%
Moderate extent	62	27%
Not at all	22	10%
Total Answers	**230**	

16. No secure bicycle parking at destinations

Great extent	50	24%
Moderate extent	68	32%
Not at all	94	44%
Total Answers	**212**	

17. Lack of off-road bike paths

Great extent	76	36%
Moderate extent	69	32%
Not at all	69	32%
Total Answers	**214**	

18. Lack of time

Great extent	42	20%
Moderate extent	75	36%
Not at all	94	45%
Total Answers	**211**	

19. Lack of interest

Great extent	26	12%
Moderate extent	39	18%
Not at all	153	70%
Total Answers	**218**	

How would the improvements listed below affect your decision to bike more?

20. Provide bike paths separated from the road and from busy traffic

Great extent	163	71%
Moderate extent	34	15%
Not at all	33	14%
Total Answers	**230**	

21. Emphasize safe routes to schools and to local parks

Great extent	125	55%
Moderate extent	58	26%
Not at all	43	19%
Total Answers	**226**	

22. Provide more bike lanes painted on safe streets

Great extent	131	59%
Moderate extent	57	26%
Not at all	35	16%
Total Answers	**223**	

23. Mark safe routes (no painted lanes, just signs) on low volume / low speed streets

Great extent	75	34%
Moderate extent	88	40%
Not at all	59	27%
Total Answers	**222**	

24. Increase maintenance along routes, removing potholes and debris

Great extent	113	50%
Moderate extent	79	35%
Not at all	33	15%
Total Answers	**225**	

25. Provide more bike friendly facilities and services at transit stations / stops

Great extent	69	31%
Moderate extent	74	33%
Not at all	78	35%
Total Answers	**221**	

26. Fix bike unfriendly intersections that have high speed merge lanes

Great extent	141	63%
Moderate extent	51	23%
Not at all	33	15%
Total Answers	**225**	

27. Improve public education of motorists with an emphasis on sharing the road with bikes

Great extent	105	47%
Moderate extent	77	35%
Not at all	40	18%
Total Answers	**222**	

28. Improve public education of cyclists for obeying the rules of the road and riding safely

Great extent	80	37%
Moderate extent	89	41%
Not at all	49	22%
Total Answers	**218**	

29. Improve enforcement of laws that apply to motorists and cyclists

Great extent	92	42%
Moderate extent	76	35%
Not at all	51	23%
Total Answers	**219**	

30. Improve intersection bike loop detection systems

Great extent	83	39%
Moderate extent	80	38%
Not at all	50	23%
Total Answers	**213**	

31. Create a more connected system by filling in missing gaps in bicycle facilities

Great extent	92	43%
Moderate extent	80	37%
Not at all	43	20%
Total Answers	**215**	

32. Provide more bicycle parking at major destinations and public facilities

Great extent	72	33%
Moderate extent	76	35%
Not at all	69	32%
Total Answers	**217**	

34. How often do you walk in La Mesa to run an errand rather than using your car?

Daily	39	16%
4-6 days per week	23	9%
2-3 days per week	33	13%
Once a week	45	18%
A few times a year	34	14%
2-3 times per month	50	20%
Never	26	10%
Total Answers	**250**	

35. How often do you walk in La Mesa for exercise, recreation or enjoyment?

Daily	65	26%
4-6 days per week	45	18%
2-3 days per week	62	25%
Once a week	24	9%
A few times a year	25	10%
2-3 times per month	26	10%
Never	6	2%
Total Answers	**253**	

What are some of the reasons why you choose to walk? Please select how often these topics are (or are not) the reason you walk.

36. To go shopping

Frequently	61	27%
Once in a while	126	57%
Never	36	16%
Total Answers	**223**	

37. To get to work

Frequently	17	8%
Once in a while	15	7%
Never	172	84%
Total Answers	**204**	

38. To get to the bus or trolley

Frequently	23	11%
Once in a while	89	43%
Never	96	46%
Total Answers	**208**	

39. To get to school

Frequently	16	8%
Once in a while	11	6%
Never	173	87%
Total Answers	**200**	

40. To walk my pet

Frequently	78	36%
Once in a while	36	16%
Never	105	48%
Total Answers	**219**	

41. To get exercise

Frequently	176	72%
Once in a while	65	27%
Never	4	2%
Total Answers	**245**	

42. Just for relaxation

Frequently	129	54%
Once in a while	99	42%
Never	10	4%
Total Answers	**238**	

43. Why don't you walk more frequently? (check all that apply)

No sidewalks or pathways	74	14%
Difficult and unsafe streets to cross	78	15%
Fast drivers that do not pay attention	97	19%
Poor health	8	2%
Too far to walk where I want to go	89	17%
Unpleasant walking environment	65	13%
Concern over criminal activities	107	21%
Total Answers	**518**	

Please provide comments on specific issues or general comments on what needs to be done in the City of La Mesa to improve pedestrian facilities. If you list a roadway or intersection, please be as specific as you can with the location.

45. If you have a school age child, do they walk or ride their bike to school?

No	136	84%
Yes	26	16%
Total Answers	**162**	

46. Select the school(s) which your child(ren) currently attend

La Mesa Dale Elementary School	1	3%
Lemon Avenue Elementary School	6	18%
Murdock Elementary School	1	3%
Murray Manor Elementary School	3	9%
Rolando Elementary School	2	6%
La Mesa Middle School	7	21%
Parkway Middle School	1	3%
Grossmont High School	4	12%
Helix High School	8	24%
Total Answers	**33**	

47. Do they walk or do they ride a bike to school?

Walk	17	59%
Bike	12	41%
Total Answers	**29**	

42. Just for relaxation

Frequently	129	54%
Once in a while	99	42%
Never	10	4%
Total Answers	**238**	

43. Why don't you walk more frequently? (check all that apply)

No sidewalks or pathways	74	14%
Difficult and unsafe streets to cross	78	15%
Fast drivers that do not pay attention	97	19%
Poor health	8	2%
Too far to walk where I want to go	89	17%
Unpleasant walking environment	65	13%
Concern over criminal activities	107	21%
Total Answers	**518**	

Please provide comments on specific issues or general comments on what needs to be done in the City of La Mesa to improve pedestrian facilities. If you list a roadway or intersection, please be as specific as you can with the location.

45. If you have a school age child, do they walk or ride their bike to school?

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Rolando Elementary School	2	6%
La Mesa Middle School	7	21%
Parkway Middle School	1	3%
Grossmont High School	4	12%
Helix High School	8	24%
Total Answers	**33**	

47. Do they walk or do they ride a bike to school?

Walk	17	59%
Bike	12	41%
Total Answers	**29**	

48. What prevents your child(ren) from biking to school? (check all that apply)

Too far to ride their bike	3	13%
They have to be at school too early to allow them to ride their bike	2	9%
Concern over safety at street crossings	8	35%
Concern over criminal activities	9	39%
I can't get them motivated to ride their bike to school	1	4%
Total Answers	**23**	

49. Which form of public transportation do you primarily use?

Bus	10	4%
Trolley	105	43%
None	130	53%
Total Answers	**245**	

How often do you use public transportation in La Mesa?

50. Trolley

Daily	6	5%
4-6 days per week	9	7%
2-3 days per week	6	5%
Once a week	7	6%
A few times a year	25	21%
2-3 times per month	66	55%
Never	2	2%
Total Answers	**121**	

51. Bus

Daily	2	2%
4-6 days per week	3	3%
2-3 days per week	4	4%
Once a week	5	5%
A few times a year	6	6%
2-3 times per month	19	20%
Never	57	59%
Total Answers	**96**	

52. What motivates you to use public transportation? (check all that apply)

Lack of an automobile	20	6%
Convenience	67	19%
Transportation to work	32	9%
Transportation to events	83	23%
Transportation to other cities	24	7%
Transportation to school	8	2%
Cost Savings	53	15%
Concerned about lowering energy use and air quality	61	17%
Do not use public transit	12	3%
Total Answers	**360**	

53. What prevents you from using public transit? (check all that apply)

Criminal activity	69	22%
Takes too much time	87	27%
Cost	28	9%
Lack of connections to my destination	78	24%
Not close enough to my residence	25	8%
Lack of bicycle parking at trolley stations	11	3%
Lack of bicycle storage on the trolley/bus	16	5%
Do not use public transit	5	2%
Total Answers	**319**	

Online Survey Comments

The comments are verbatim from the online survey.

Bicycle Survey Comments

84. More bike lockers at the trolley stations. Class I bike lanes along University Avenue. Eliminate the medians and expand the bike lanes and walkways, add trees along the sidewalks.

83. Educate my fellow cyclists not to be scofflaw jerks.

82. Too many high volume intersections unsafe for pedestrian and cycling.

81. Create a bikes and pedistians only trail network so we can get from one part of La Mesa to any other part without putting our lives at risk by riding on streets crowded with cars and trucks whose drivers refuse to see cyclists.

80. In general, the drivers of large trucks and cars are idiots who run stop signs and don't signal when turning or changing lanes. That is a HUGE problem.

79. The La Mesa Street Dept. has always been responsive and helpful whenever I have a problem with potholes, irrigation flooding, erosion and unsafe traffic conditions.

78. Just today while I was waiting at a light to cross the street. The sign signaled for my children and I to cross and FIVE cars made a right turn without looking. If we can't walk safe we can't ride safe. There should be more enforcement of the laws to motorist to encourage safety.

77. Bike paths desperately needed..La Mesa streets have become very busy.

76. The use of cell phones by drivers is very distrubing and I have seen a police unit more than once next to the violator and he has not taken the time to stop the violator!!!

75. I am not and probably never will be a bike rider on city streets. Prefer off-road opportunities outside the city.

74. Unsafe and too much traffic on University between Yale and Downtown La Mesa

73. La Mesa needs a bike path network that does not require riders to share narrow streets and roads with aggressive car and truck drivers. We need quiet, paved treelines bike paths that don't put us into harm's way every time we ride our bikes.

72. Once or twice per year i notice that cars park in a clearly marked bike lane in front of business's on Lake Murray Blvd near Aztec Drive. Cars park to visit the retirement center and / or the convalescent business that does not have adequate off street parking. Rarely do any La Mesa Police stop to enforce the no parking rules that are in effect on the street.

71. I don't own a bike...

70. Motorists often do not understand that bicyclists have the right to be on the road and must sometimes ride in "their" lanes, particularly near and at intersections. Turning left onto El Cajon from La Mesa Blvd. can be infuriating when no car comes to trip the sensor controlling the traffic lights. This happens at other intersections too, but this is the worst one on my daily commute.

69. The intersection of Parks and Seneca that currently has one yield, and one stop sign should be a 3 way stop.

68. Reporting of near misses are extremely high. There is a culture of apathy about reporting near misses. Separating traffic from bikes is the best thing you can do.

67. We need more bike lanes everywhere!

66. My rides always begin and end on High St., just east of Lemon Grove Ave. The traffic there is too heavy and fast - dispite speed friendly speed bumps. There is little to no room to get out of the way of cars. Saturday and Sunday mornings are the times that are the least unsafe.

65. Riding a bike over highway 8 between 70th and La Mesa Blvd! Needs a bike lane! (And it's a main route for cyclists to get to Lake Murray and Mission Gorge parks.

64. future developments should consider pedestrian connections. There are many fragmented properties throughout the city that, on a whole, do not provide connectivity for people and bikes.

63. More bike routes along roads and separate trails

62. Enforce cell phone laws

61. I dislike riding on roadways. I don't believe educating motorists will help. I prefer riding at Lake Murray away from traffic.

60. It does not make sense to combine bicycles and autos in the same space. At 61 years old, even a minor accident might change my life forever. Why can't I rent a bicycle and a helmet, then and ride around Lake Murray?

59. I would like to get to Lake Murray from my house (off 70th between University and ECB), but I am intimidated by the intersection of 70th/LM Blvd and the 8 freeway and 2 frontage roads. There doesn't seem a safe way to get through this intersection on a bike.

58. vehicle speed on Lake Murray makes it difficult to ride to Lake Murray and utilize roadway around lake, so I end up driving to Lake Murray to ride. University west of Baltimore to City limit is too dangerous with parked cars, vehicle speed, and all the ingress and egress.

57. I prefer to bicycle at a park or at lake murray and not in traffic. The noise and smell is unpleasant regardless of how many bike lanes you provide. I am concerned about crime.

56. As a 2000 mile/year cyclist I am appalled at the lack of respect for stop signs and traffic lights by both cyclists and motorists....

55. We ride from El Capitan to Rolando Elementary. No safe route to get there - have to use University or El Cajon.

54. 70th across I-8 is a terrible place to bike across!

53. The intersection of Lake Murry and parkway drive I was hit on my bike by a car that was going to cross lake murray and i was turning to go up 70th.

52. People would cycle more if they were more sure that their bike would not be stolen or damaged while parked at their destination. The speed limit on (specifically) Baltimore Drive between Parkway Dr. and Lake Murray Blvd. needs to be enforced as it was years ago. Vehicles travel at 50 mph!

51. Crosswalk at Baltimore Dr at Lake Murray has a sometimes flashing light "strip" across the road. It only is flashing for a short time. It really ought to be flashing ALL the time because that is a crosswalk at a very busy road of higher speed traffic. Anything more to warn drivers of vehicles to watch for crosswalk users and slow down.

50. bicyclist are the ones who keep me from riding they don't obey the laws they run they lights and don't stop when they are suppose too. Most of them make it dangerous for other cyclist and motorist.

49. 70th St (from I-8 to El Cajon Blvd)- An Arterial Road lacking bike lines, that is pedestrian un-friendly, and constantly congested with vehicular traffic. The corridor is blighted with pot holes, an unsightly median, unkept weeds along sidewalks, and trash collecting near storm drains. The corridor has great potential to serve as an entry way into the college area and the City of La Mesa; although it lacks streetscape improvements, adequate lighting, and good planning and urban design. The corridor is utilized by travelers heading south toward University Ave., the City of La Mesa, and the City of Lemon Grove, along with travelers heading to and from the I-8. The area is in close proximity to two trolley stations and served by bus service. The portion of the corridor within the City limits is within the Low and Moderate Income Area and any revitalization efforts may be eligible for funding under the CDBG. The corridor would benefit tremendously by the removal of blighting conditions and the investment of capital to enhance this streetscape corridor. In order to create a better living environment and place to be for for those walking, biking, and traveling this corridor of the City, the following are recommended: Plant street trees within the median up to El Cajon Blvd. Enhance sidewalsk and ensure accesibility Provide new decorative street lighting for aesthetic and safety purposes Road resurfacing Placement of brick pavers or decorative pavement at the intersection of El Cajon Blvd and 70 St. This corridor serves as a major thoroughfare from the San Carlos/Lake Murray area to Lemon Grove. It deserves much more capital and dedication on behalf of the City of La Mesa.

48. #20 - a must.

47. The stop lights on intersections some will talk and others don't, I think all of them should talk.

46. I want a separated bike path along university avenue, so that my son can bike safely to school. Students should be safe to ride and La Mesa Dale, La Mesa Middle and Helix are relatively close. It would be a good area to start and continue it to the Kroc Center.

45. La Mesa is tough because it is so hilly. I think the hills are the biggest deterrent for people that like to bike, like myself. But we still need to provide some safe bicycling area for the people who don't drive.

44. Bike lane on el cajon blvd, Harbinson needs to be a safe route between el cajon blvd and university for both bikes and walkers. Other than Lake Murray, here is no place fun and safe enough to take kids to ride bikes. Even need places for beginning bikers to learn more safely.

43. Create safe, seperated, clearly marked and well maintained bikeways. I lived in North County and Mission Valley before moving here and this is the WORST area I've been in for biking. I have to load my bike on my car and drive somewhere else to bike.

42. Make The City of La Mesa a 'bike friendy city.

41. Although public education would be helpful, it won't do any good if the rules are followed. I live in a busy area (near Helix High) and have been hit by a car running, and someone opening their door right in front of me while I was riding my bicycle. So dangerous. The road surfaces are terrible and have complained about them to the city for the 10 years I've lived here and, to date, nothing has been done (Yale Ave)

40. currently too many bike lanes in city preventing parking

39. The library area appears to have good support for a bicycle. Some of the roads feel too unsafe to have my child ride on them, so I insist he ride on sidewalk. We take University and use sidewalks because it feels really unsafe. The Village area (La Mesa Village Drive) doesn't seem to have a good plan for bicyles (I use sidewalk) too many cars backing out and not enough room in the street to ride safely. I would support more lanes and facilities and awareness for bicycles.

38. I do not own a bike. Lack of balance prevents me from riding

37. terrible unsafe conditions for bikes on the center st. overpass, spring st (all!)University in its entirety needs bike lanes WITHOUT cars parked in it-

36. potholes and debris in the street is a major problem.

35. Allison Ave is horrible between 4th and Palm. Cars whiz through there and there are not safe crosswalks.

34. Baltimore Drive between El Cajon Blvd. and University needs some sort of bike lane southbound. The lane should be between the turning lanes and the go-straight lane. Vehicles should yield to bicycles in the bike lane, like on Fletcher Parkway.

33. More bike racks by Grossmont Mall. I work at Casa de Pico and the closest bike rack is by Olive Garden.

32. I ride on the sidewalks often as I am older and feel safer there. I would rather get a ticket than get hit.

31. Safe connection between University & Fletcher Pkwy. Baltimore S is faif N does not exist. Jackson is just plain crazy wlking or biking. Severin is dangerous. So N-S travel is very bad

30. a bicycle access to nebo dr from spring st when you are leaving the industrial area of La mesa.

29. WATCH THE MONEY! This should be a very incremental process and one based on actual public safety need. There is absolutely no money for the wants and good to haves!

28. Fletcher Parkway - dedicated bike path

27. Need better pedestrian and bike access across I-8 at 70th and north to Lake Murray, and also bike friendly route to the trolley at 70th street via El Cajon Blvd.

26. Realign traffic lane and bike lane striping at Fletcher Parkway and Amaya at northeast side. It is unsafe for cyclists as the vehicles are guided to the side of the road by the current striping layout.

25. The city needs to improve intersection of University and Yale. The new corners are a disaster. no bike lane any where around, cars hit extended corners, Yale going north is effectively a one way as two cars can't cross because of design and parked cars. going south to intersection can't see signal light properly.

24. Tripping signal lights so that when no vehicles are in the lane or next to the lane/s you are in at the limit line waiting for the green light - is sometimes an issue if there is nothing a cyclist can do other than push the walk button at the signal light pole. Don't recall exactly what intersections but there is at least one out there that the signal light doesn't change from red to green on behalf of just a cyclist in the road.

23. The old trolley cars on Orange line are HORRIBLE for enter/exit for bikes (and strollers). Baltimore S merge to Univ. is unsafe. Spring St. S under 94 very unsafe.

22. I CANNOT BELIEVE YOU ELIMINATED THE MARKED BIKE LANE WHERE ON UNIVERSITY --(NEAR THE NEW POLICE STATION) HOW CAN YOU DO SUCH A STUPID THING - THIS IS NOW A VERY DANGEROUS SITUATION

21. Along Spring Street, Palm Avenue and other close neighborhoods.

20. Safe routes connecting La Mesa 91941 & 91942 areas of the city. Centre Drive between Jackson and Spring is especially unfriendly.

19. Intersection of Baltimore and university needs a straight through bike lane. Forced to ride on sidewalk after light going south to spring st.

18. Sounds like you want to encourgage more bike riding. How can you get the bike riders to pay for their fair share of the improvements desired?

17. We love to ride to popular events in La Mesa such as the Octoberfest, but there are no public bike racks.

16. what we really need is better public transportaion.

15. The intersection of Amaya and Water contains 4 stops signs. The stop sign at the apartments/condos which is ON AMAYA, is constantly being RAN by motorists, as cars/trucks/RVs park right up to the Stop Sign and block the Stop Sign; thus, motorists run the Stop Sign ~ very dangerous for our kids to cross on foot or by bike. Please mark curb RED for 100 feet before Stop Sign, so that the sign is visible for traffic traveling down Amaya, crossing Water, going towards Garfield. Thank you ~

14. Sidewalks would be great leading to Murdock Elementary school on Conrad. The road is VERY dangerous when in a car, not to mention the kids who walk or ride their bike. If there were sidewalks more kids could walk and if there were bike lanes they could ride thier bikes. A few years ago our school was very excited about the safe route to school program, but a lot of the schools around us got side walks and we did not. I wonder why???

13. The shortest route to most destinations is University avenue, but rarely take it because I don't feel safe becuase the cars are driving fast and there is not alot of room when there are cars parked on the side of the street. Also it seems that sometimes, when I am in a left turn lane and there are no cars behind me, I don't get the arrow.

12. I love to cycle for recreation but I mainly commute to work (about 4 days a week) and I have had to force myself to do this. My ride to work is very stressful due to the traffic, especially in the evenings. There are very few bike lanes and where there are lanes painted cars are parked in them or the street surface is so bad(potholes, gravel, glass) that it is dangerous to ride in them. In a place like southern California where the weather is perfect for cycling La Mesa and San Diego have done very little to make it bicycle friendly, especially for commuters. I moved here from Seattle a little over 2 yrs ago and I have been very dissapointed in the roads and upkeep as it pertains to cyclists, I would ride in the rain in Seattle any day over a scarey potholed traffic dogging commute here. I would be more than happy to help in any way I can to improve La Mesa's comunity in general and specifically their streets as it pertains to bicycles.

11. People are scary drivers, I was hit by one 3 years ago and have been scared to go bike riding again. We need to enforce more punishments for these people who are in such a rush

10. improved freeway crossings (overpasses & underpasses)

9. would love more paved trails

8. bike friendly paths through parks.

7. I should be able to get anywhere in La Mesa on a bike without having to risk my life trying to ride on streets with cars driven by idiots who ignore or threaten bicyclists. La Mesa needs to plan a bike and pedistrian only trails system that would network the whole city.

6. A great help would be to improve the sensor loops, so a bike will trigger a signal change. West bound Allison at University, and Northbound La Mesa blvd at El Cajon are two intersections that could use an adjustment. Keeping the bike lanes clear of debris would be helpful. Often times the street sweeper will clean the gutters but the bike lanes will still be dirty, especially when the bike lanes are offset from the curb to allow parking. This is especially true on 70th St. between University and El Cajon Blvd.

5. Signage with bicyclist symbol and word/s of caution is needed in easy-to see locations along the roads, so that those operating motor vehicles will be more aware of bicyclists and their responsibility of sharing the roadway with bicyclists. Flashing lights near intersections/higher volume traffic areas are another good way to inform those in vehicles of their required attention to others using the road. (Allison Avenue/University Ave.) El Cajon Blvd and University Avenue are very busy routes that bicyclists and drivers take often- so many intersections, but these would tremendously benefit from this type of warning effect for those that travel them. Flashing lights in roadway on Baltimore Dr. at cross street near the south side of Lake Murray is a big improvement; however I've found it doesn't operate every time I ride through that intersection at dusk or early morning when the light of day is dwindling or not yet present- why is this? These lights should be blinking and be visible from at least 500 ft from their location (to warn and slow down fast drivers way ahead of the chance for an impact with a pedestrian or bicyclist crossing the road at the crosswalk there). Need to have more designated routes with bike lanes indicated for me to feel like taking certain route. How does one go from South La Mesa to North La Mesa (FWY 8 the dividing line) at the commercial district (Center St/Spring St.)? Must there be "no bicycling" signs posted in some locations that are too dangerous for riding one? How many incidents with injured or killed cyclists occur before a sign is posted? Does posting of these kids of signs make sense? Many of the streets in the city are too narrow to safely share the road with vehicles. What can be done to improve and/or address this issue? Many cyclists just don't ride, period...if the routes they want to take are not deemed safe! How do cyclists find out what are designated bicycling routes? Where there are divided roads separating cyclists from vehicles? Where there are bike lanes on shared roads? Where are the public forums where bicyclists and those that are concerned both for the safety of cyclists and drivers of vehicles can voice their concerns and share ideas? Where are the bicycle safety classes/meetings/presentations for the bicycling community? Why not offer them every month, week, differing times during the day, different locations, etc. so the attendees can become better cyclists and drivers? This is very much needed, but hardly offered. If anything, education should come before any other consideration for improving bicycling in the city.

4. We love the walking routes in La Mesa. A safe biking route would be awesome!

3. It is very tough to bike either direction (North or South) safely between the North end of Sprng Street and the La Mesa industrial park (Center Drive area) which is a main traffic corridor to get to Grossmont Mall, etc. Going North on Spring street to get to Center Drive is very dangerous and heading South over I-8 on Spring Street is also very dangerous. Not sure what can be done on the I-8 overpass since it is so narrow.. possibly pour a wider raised sidewalk (not sure there is room). There is room to add a separated sidewalk/bike lane on Spring street heading North under the El Cajon Blvd ramp (which feed to I-8 East) but then it dumps onto the skinny raised sidewalk on the I-8 overpass... after jumping a railing. Also, sidewalk/bike path is missing under I-8 along both sides of Jackson. I think that adopting a real effort to make La Mesa VERY bike friendly would be a great long term plan... but hard to considering how built up the area is.

2. All intersections... cars running stop signs and lights while driver is looking left and turning right...

1. IT's scary to ride the same direction with vehicles because of the lack of concern motorists have. Note the past couple killings, you just don't see them coming up behide you until it's too late.

Pedestrian Comments

121. I want a pedestrian crossing light at Glen Street and Jackson Drive.

120. Sidewalks needed on Bancroft Dr (between Lemon Ave & Grossmont Blvd). Very fast traffic there.

119. I live in downtown La Mesa and the #1 walking issue for me is that there are almost no ways to cross Interstate 8 if I want to walk.

118. Too many high volume intersections unsafe for pedestrian and cycling.

117. See comments above on the need for a new bicycles and pedistrians only trails networking throughout the city.

116. improve pedestrian safety and comfort at freeway under/overpasses along interstate 8

115. I AVOID at all costs walking on: 1. Normal street between Cinnabar and Helix High and 2. Near the trolley and the old police station. It's just not safe at all. There are way too many weirdos there catching the #7 bus. One day a lady sat on the bench outside the police dept and peed with her pants on. Finally, some of the stair paths above the village near Pasadena, Summit, Valle and Sheldon need to be weed whacked. Also, the city needs to get homeowners who allow their bushes to grow into the sidewalks to do some yard work. There is nothing worse than having to choose between getting stuck by a prickly bush or walking into traffic.

114. Write tickets for people who cross in the middle of a block or ignoring lights and rights-of-way at crosswalks.

113. The intersections of Fletcher Parkway and Grossmont Center (where people are making right turns from Grossmont Center exit). Also, the intersection of Jackson and Fletcher. We have barely avoided accidents multiple times at these intersection because drivers are not paying attention. We always wait for the notice to walk but many pay no attention to pedestrians at all. I have two children with me and it is very scary we have to walk because my husband takes the car to work everyday.

112. More street lights on La Mesa Blvd. between Grossmont and the Village.

111. Normal between Parks & Olive feels unsafe

110. I prefer to walk on sidewalks with my children. In our neighborhood, we don't have sidewalks on part of Pine St. which makes it a less safe, especially around the curve from Mills St. Near my son's school, there is not a sidewalk on Glen St. as you go up the hill. That street is a great place to walk if you trying to get exercise but it's dangerous without a sidewalk. I see kids walking to school on that street daily and it is sometimes a bit scary to watch. There is a a blind spot for drivers on both sides of the road from Alpine to Glenira. It would be nice to have a sidewalk there. I'm sure more families who live in that neighborhood would walk the short distance to school rather than drive. There should also be some sort of crosswalk on Allison near the library. I know pedestrians can cross at the stop light at Allison and University or at the stop sign at Allison and Date but it's rather inconvenient to cross there to get back the to library, especially if you are parked directly across the street from the library or if you are coming from the grocery store. Most people just cross anyway but they should be given a safe way to cross, especially since the parking creates many blind spots for both drivers and pedestrians. Also, I think there should be slanted crosswalk curbs (for wheelchairs, bikes and strollers)

in both directions of the crosswalk. I think is only one slanted curb at each corner. It's usually somewhere in the middle or closer to one side so if you cross in the other direction you end up going into the street before straightening out in the appropriate crosswalk. I find it most irritating at Allison/Spring and University/Spring, La Mesa Blvd/Spring. Drivers turning right on those streets are often in a hurry and don't wait for pedestrians. Finally, I am not a fan of the stop on Lemon Ave. and Glen. I'm surprised there aren't more accidents there since no one really pays attention to traffic rules at that stop. If you are coming down Glen, you can't really see the car heading west on Lemon and vice versa. If you are heading east on Lemon, you are often cut off or missed by other cars because the stop is a great distance from the center of the intersection. I'm not sure anything can be done without cutting into the school but it's definitely a problem, esp. during the high-traffic times during school hours.

109. Drivers on cell phones and the police do not do anything about stopping them. Baltimore and Parkway is a very bad area for this violation..always someone of cell phone in that area

108. We live on Madison Ave (east of 125) Bancroft Drive really needs sidewalks. Thanks!

107. I'd like to see more restaurants, antique and other shops, a theater or concert hall, etc. on University Ave, near Helix High School and an increased police presence and better street lighting. La Mesa doesn't feel as safe as it did 10 years ago.

106. need more lighting in some areas

105. Crime at the trolley stations.

104. La Mesa's walkability is a main reason we moved here 20+ years ago. It's still a great city to walk in.

103. I live on Rosebud and walking around the block there are often people making ugly comments or drinking and this scares me, so I feel intimadated.

102. Property owners let trees and bushed grow over side the walks.

101. The city needs to put sidewalks along Lee Avenue south of University. I have to walk in the street whenever I go walking because there are no city sidewalks on our block. Lee Avenue must be one of the last streets in La Mesa without city sidewalks. It's embarassing.

100. There are flashing lights that National City uses to alert drivers of a pedestrian crossing near a school for example.These lights are layed into the street itself and activated by a pedestrian crossing button, have you considered using these newer amber flashing lights?

99. The intersection on my street is very dangerous- I am even afraid to cross the street. It is a little north of Chatham and East Lake Drive (on East Lake Drive). My friend's car has been totaled right in front of my house, and my neighbor's child has been hit in the past. There needs to be a "Slow" sign or a speed bump, because there is a hill right near our street that goes up, and we cannot see a car coming until it is a few feet away from us. If anything can be done, I'd feel much happier and safer for my future children.

98. La Mesa has GREAT pedestrian facilities!!!

97. When walking on the east side of La Mesa Blvd. around the intersection with Allison, there's no clear pedestrian path across the multiple streets that meet there. Light/friendly traffic usually makes this a bit of a non-issue, though.

96. Would LOVE to have sidewalks in our "below Helix High School" streets (Specifically Olive Ave, Seneca Ave area) this is a school route and it is so dangerous to have all these kids traveling to school in the middle of the street.

95. Providing safe waling environments is essential for a positive experience. Crossing of any intersection needs to be effortless and completely safe. A high degree of design needs to be completed at these conflict areas.

94. Lack of sidewalks is my primary concern. I live on Harbinson Ave which is a very busy (too busy) street. Yet there are very few sidewalks. On the smaller sreets, the lack of sidewalks isn't as big of a deal to me.

93. Alvarado by RV park can be dicey. Also, it takes 1/2 mile to get from Guava to Baltimore & Fletcher Parkway safely (going through Crossroads parking lot)--would love a safe sidewalk on Fletcher Parkway off-ramp.

92. See #28. The same problem with many speeding cars on High St., east of Lemon Grove Ave. Once east of the stop sign near the trolley tracks, the street there is great for walking.

91. Harbinson Ave has fast traffic and lacks a sidewalk in some places. I find myself going a block out of the way to avoid walking on it.

90. I enjoy walking but am often changing the side of the street to be on a sidewalk.

89. There should be pedestrian crosswalks in front of the library/post office and city hall. Bus Stop #7 by the trolley always has 10-15 people waiting and there is poor seating and atmostphere for them- very underappreciated.

88. Better walk ways for going up and down hills in the Eastridge area.

87. I run and would prefer to avoid traffic, uneven sidewalks and stupid drivers.

86. If bicyclists are hard to see, walkers are even even more difficult. In the few months that I have been walking daily, I have almost been hit by cars backing out of driveways and parking spaces; cars driving out of parking lots (my closest call yet, was at the police station parking lot!); and by cars turning right on green, while I have the right-of-way. Dogs, dogs, dogs! When we first moved to La Mesa, my wife and I walked every evening. Soon, we started avoiding certain routes because of encounters with large dogs. Finally we gave up walking and spent $2,000 for a treadmill when were so frightened by a pit bull, that it did not seem healthy to walk in our neighborhood. Almost all of our encounters with dogs were accompanied by the owner's assurance that their dog wouldn't bite.

85. There was a path on Jackson Blvd. with steps that led up to the Grossmont Shopping Center. This was taken away, making it unable to get up the hill. Even with the steps it was hard -- now it is impossible. Walking is good, but it has to be easier than that.

84. I feel safer as a pedestrian than I do as a bicyclist in many areas of La Mesa, although a limit my routes at night out of concern for safety.

83. I would like a sidewalk on Glen Street (between Lemon and Alpine). Also I would like a sidewalk on Lemon Avenue (between Lemon Avenue Elementary and the village).

82. Drunks in area of Jackson and Parkway Dr make it unsafe and unpleasant. They leave beer bottles along roadway, urinate in bushes, and beg for money.

81. I am most concerned about safety in my neighborhood. I never see the police patroling and it concerns me. I live near la mesa blvd and el cajon blvd. With the kind of pedestrian traffic I see, it does not appear safe to walk - unless accompanied - and I wouldnt let my child walk alone ever! When I walk, I go to Lake Murray during the day on the weekend.

80. Watch for motorists turning right at stops and red lights without stopping OR minding pedistrians

79. Parkway has become a homeless hang out by car wash. Parkway in general has people drinking and smoking pot outside apartments. people from hotel lurking about baltimore and parkway with beer etc. Makes it very comfortable to walk in area. also we need to have SDGE paint the metal things they have on the sidewalk. hard to see if it has rained and very slippery.

78. the trolly station is a scary place

77. Concern about unstable Meth users around trolley stop and store areas, Starbucks parking lot.

76. The west side of 70th street down to I-8 has no crosswalk. That forces pedestrians to cross 70th at unsafe place (Saranac). No one does for that reason and tromps down the area with no sidewalk. Alvarado road has no safe place to walk, the area between Stall Chevrolet and the 70th st trolly station.

75. On Parkway Drive in front of The Coleman college building we need street lights it is very scary walking by there once it gets dark

74. In my neighborhood, vista la mesa, people drive very fast, disobey stop signs and reckleslly. There are no sidewalks and no police enforcement.

73. In many places the residents have allowed their shrubry to grow over the sidewalk,forcing me to walk in the street.

72. Cars speed on the roadways.

71. Pedestrians have the right of way and drivers should not be so rude! Public awareness should be heightened again. Some signals are so long to wait for in car or on foot. In addition to pedestrian & cycling, I would like to see La Mesa implement knowledge and acceptance to Golf Cart usage. It is 'green', quiet, fun, small vehicles to park.

70. Crosswalk at Baltimore Dr at Lake Murray has a sometimes flashing light "strip" across the road. It only is flashing for a short time. It really ought to be flashing ALL the time because that is a crosswalk at a very busy road of higher speed traffic. Anything more to warn drivers of vehicles to watch for crosswalk users and slow down.

69. To many hoodlum looking kids around graffitee. Neighborhood looks slummy. La Mesa going down hill. Not much to look at when you walk around some of the neighborhoods.

68. Provide street trees and planters along 70 St from I-8 to El Cajon Blvd along with enhancing sidewalks and providing streetscape improvements to enhance pedestrian activity and improve walkability along the corridor.

67. More law enforcement traffic patrols to slow down speeding drivers.

66. I am a 48 year old women and I have been stopped by guys on El Cajon Blvd., I have been followed by a van on Baltimore drive and some of the sidewalks need to be fixed. They are sticking out of the ground and have made me fall a couple of times and I am disabled.

65. ElCajon Blvd. from Jessie to Auto Zone is risky on both sides, sex offenders and they are close to the schools

64. Waite St., between Massachusettes & Violet, feels unsafe. There is lots of loitering and at times litter.

63. I want a better pedestrian crossing at Glenn Street and Jackson. I have seen a woman hit while crossing at this intersection and the traffic moves too quickly and bad line of site along Jackson. I want better crossing at La Mesa Blvd and Glen for my son to walk to school. Even with walk lights, people don't look before turning right on red for pedestrians. I want contiguous sidewalks along Glen street from La Mesa Blvd to Lemon Avenue for my son to walk to school.

62. same comments as above. Colony needs a safe sidewalk for kids/parents to walk to school at Rolando. Tower needs sidewalk. Harbinson is a huge issue

61. Criminal activity and personal safety is a concern.

60. I frequently walk to pick up my son at Lemon Ave Elementary, but it is very dangerous going from his school, up Glen St (south) to Alpine blvd and then home to Edenvale. The top of Glen is especially dangerous because cars are coming over the hill with limited visibility. I don't know if I would allow my son to walk to or from school due to lack of sidewalks.

59. On my street, Lois street, there are no sidewalks. This almost stopped me from purchasing the house. It is a big concern for most people. We need sidewalks on every road. We need a healthier country, so it needs to be EASY for people to exercise.

58. In the area of University and Yale (especially during pick up/drop off times) for school. Enforce illegal activity such as speeding, kids on bikes, etc.

57. There is no safe pedestrian walk way between Center Street and Spring Street. I run a business on Center Street, and would love to be able to walk into down town La Mesa to get lunch but it's scary because of the freeway on ramp for I8

56. Demolish the pravada apartments

55. The "village" areas of La Mesa are great to walk in. My area of University is not initially that astetically beautiful.

54. We are a family with 3 very young children and we enjoy walking and going to the park or downtown but we find it difficult because many of the roadways we use do not have sidewalks. We live near Bancroft and Golondrina and there is no safe route to Eucalypus Park on Bancroft. I know that is county area but a cooprative effort with the county would be great. Also Lemon Ave from Bandcroft to downtown is also dicey. Some of the way has sidewalks but most and the nicest areas don't.

53. I appreciate the extended Walk lights at busy intersections.

52. Some of the older neighborhoods have no sidewalks and are unsafe for walking- mostly La Mesa is well set-up for walkers

51. **Allison Ave. at 4th St. & Allison Ave. at Palm: These are dangerous to cross at -- there is either no cross walk, or it is not placed well. **4th St. between Finley and Fresno has no sidewalk on the west side, and has 13 kids living on it under 12 years old -- and people speed really fast on this street. VERY unsafe.

50. Actually, I live in the 8600 block of Lemon Avenue (near Glen)and I find the walking to be quite enjoyable.

49. I have not had a problem with pedestrian facilties in La Mesa.

48. More street lighting, dark areas makes the streets feel unsafe

47. Very dark on Randlett Drive between LM Blvd and Victory.

46. Pedestrian friendly crossings at Baltimore & EC Blvd, Baltimore & Spring. Jackson & Grossmont Blvd. Logical walk on Baltimore from Fletcher Pkwy.

45. More police patrols on and near Amaya Street so that it's safe to walk early in the morning when it's still dark outside.

44. I prefer to ride my bicycle.

43. Cars driving on Palm Ave between Fresno and Spring St frequently exceed the speed limit, and barely slow down for the stop sign at Fresno Ave. It also feels a little unsafe walking up the hill from Collier Park, as cars take the curves too fast.

42. WATCH THE MONEY! This should be a very incremental process and one based on actual public safety need. There is absolutely no money for the wants and good to haves!

41. Section of Normal Avenue between Helix H.S.and Park Blvd. Very unsafe. Criminal activity. More LMPD presence.

40. Get rid of the billboards, and plant a lot more large trees.

39. I am always scared that I am going to get robbed when I take my dog for walks in the morning and in the evenings.

38. Somehow slow drivers down. The intersection of Lemon and Date frequently has drivers who do a 'country stop'; that is, roll through it, and sometimes not even a roll thru, they keep the same speed. Possible speed bumps for the block of Lemon between Acacia and Date? You could generate some additional revenue by putting a LMPD there to write up those who speed thru, do not stop, and those who are on their cell phones.

37. I live off of Parks Ave. and I would really like to see sidewalks going all the way down that street. Also from there I find walking to downtown La Mesa on University distasteful. It isn't a very nice or pretty area.

36. Make crossing an intersection less intimidating and such that there is ample time to get across- from an older pedestrian's or wheelchair person's perspective- not an active youth. Safe place to stand/stay is SO IMPORTANT if signal changes while traversing the intersection.

35. On Harbinson, between University and El Cajon people fly down that road and a good portion of the street doesn't have sidewalks.

34. Drivers do not obey stop signs and speed up to them and roll through, ignoring a pedestrian is a common occurrence. Also, better street lighting is recommended for evening walks.

33. Drivers generally run stop sign at Grant/Lemon Ave. into pedXing.

32. motorist fail to yield to pedestrians at Nagel & Fletcher Parkway, amaya & Fletcher parkway

31. IT IS VERY DIFFICULT TO WALK IN MANY AREAS OF LA MESA DUE TO LACK OF PATHS/ SIDEWALKS -- FOR EXAMPLE IT IS VERY UNSAFE TO WALK TO GROSSMONT HIGH SCHOOL FROM THE AREA NEAR THE BRIGATEEN

30. 1) Leave the neighborhood residential streets in the Vista La Mesa area alone; 2) Keep the sidewalks to major arteries like Hoffman, Massachusetts, University and Waite.

29. Enforcement of vehicle traffic! Specifically: 1. Rolling through stop signs; not coming to a complete stop and yeilding to pedestrians. 2. Vehicles encroaching marked crosswalks!! Vehicles rolling through crosswalks or stopping in the crosswalk at stoplights as they proceed to use right-on-red. Most vehicles tend to use this right-on-red law as a yield and do not stop at all; they usually do not yield to the pedestrian walking. My children have almost been hit a few times right in front of their school because of careless, unconcerned, unforgiving, law breaking motorists. I find this completely UNACCEPTABLE. It has become so unsafe at their school, Murray Manor Elementary, that the crossing guard program had to be stopped because of concern for the safety of the Guards themselves. I walk great distances myself and over the years (I have lived here in La Mesa since 1989) have had numerous encounters, more than you could imagine, where these law breakers are blocking my right-of-way through a crosswalk; this happens almost everytime I go for a walk. 4. Speeding through neighborhoods.

28. cars not giving way to walk signals.Baltimore and univfrsity.

27. City of La Mesa is a wonderful place to live. It is getting the public, teens and young adults to pay attention to the signs, roads and good ole commom courtesy.

26. Same answer as in #30. In addition, walk ways need to be maintained regularly, such as cutting back bushes, tree limps that are obstructing a safe walk way; and elevated cracks in the sidewalks.

25. Have a sidewalk on Glen Street between LMSV Home Education and Alpine Street.

24. trolley areas fon't seem very safe.

23. Three curbs that need to be cut so we can ride our electric scooters south on Palm Av. to the park and to convience stores or restaurants. Two large poles in middle of side walk near trolley on Spring St. that make it impossible to get around on Spring St with our scooters. Can,t get to Denneys or shops. Have taken pictures and written letters, called public officials, attended public meetings many times over the years.Have talked to the city manager, the mayor. councilman and the works manager and only got the run around. The works manager told my wife and I he had the money and would take care of the matter.Lip service is all I have received.Nearly every older person has complainmed about the fake cobble stone steets and side walk cobble stone inserts to no avail.La Mesa is not sensitive to the elderly unless its their idea.La Mesa is senior unfriendly.Elderly don,t window shop as it is difficult to get around.

22. The intersection of Amaya and Water contains 4 stops signs. The stop sign at the apartments/condos which is ON AMAYA, is constantly being RAN by motorists, as cars/trucks/RVs park right up to the Stop Sign and block the Stop Sign; thus, motorists run the Stop Sign ~ very dangerous for our kids to cross on foot or by bike. Please mark curb RED for 100 feet before Stop Sign, so that the sign is visible for traffic traveling down Amaya, crossing Water, going towards Garfield. Thank you ~

21. Sidewalks from on Conrad to Murdock Elem. would be great.

20. I live on Yale and typically walk in the Eastridge development area because it is more aesthetically pleasing. University is not aesthetically pleasing! Not alot of vegitation onor near the sidewalks and the car lots and dilapidated commercial strips don't help. Also, I have walked down murray hill to waite and turned left and there is no sidewalk there and that is a route that alot of kids walk to school on!

19. I would use the trolley more, it is only about 2 miles from my house, but traffic is so bad (near El Cajon and 70th) during commute times I am scared to ride my bike to the trolley station. Most of the areas have poor lighting and no sidewalks (I live on Toni Ln near Rolando) or bike lanes, some streets don't even have curbs (Tower street in front of Rolondo Elementary doesn't even have a curb as it heads into San Diego). La Mesa could be a really nice city, but it needs some serious cleaning up! Zoning laws pertaining to multi-family dwelings would really help. Having one single family house split into two or three apartments doesn't help the neighborhood at all.

18. I only a mile away from the 70th and Lake Murray trolley station (around El Cajon). That area is so unsafe I would never feel comfortable walking that when it is dark out. Better lighting and please try to clean up the empty lots around La Mesa. La Mesa has potential, it's just not going ANYWHERE.

17. improved freeway crossings (overpasses & underpasses) specifically Spring Street over I-8

16. I would like sidewalks in my neighborhood on Carmenita Road.

15. People need to feel save when they are out walking to the store or for recreation. It is dangerous for seniors that live in the senior highrise on orange avenue to walk anywhere in the area. There are too many transients, teenagers wondering around looking for trouble in that general location. The police station is close, but it remains to be a high crime area. Security patrols who help tremendously in that area.

14. Lighting is poor. Lake Murrary no lights for safety. No lighting around the side streets by the village.

13. Wider sidewalks, clearer marking of pedistian intersections, more street landscaping that doesn't block drivers views of pedistrians. Better control of stoplight systems.

12. List of desiraBLE WALKING PATHS

11. I workout M-F all over the hills in Eastridge area, Murray Drive, Waite and High Street. I feel safe. I hate the litter and stop sign non stoppers!!!!! I also hate speeders !!!!!!

10. It would be nice if Bancroft ave., between Dillon Drive and Lemon Ave had sidewalks.

9. Our neighborhood (The "state streets" on the hill behind the Shell station north of I-8 at Lake Murray Blvd,) has no sidewalks at all. The only way out is a very dangerous, curvy road (Connecticut Ave,) with parking on both sides, and many fast drivers, or a rocky, steep canyon (owned by the water district) that leads to Lake Murray Blvd. from Colorado Ave.) I do not allow my children to walk on Connecticutt and they can only use the canyon if they are with an adult since homeless people have been spotted living in the canyon. The neighborhood should have sidewalks at least on the lower part of Connecticut Ave., from Wisconsin to Colorado Ave.

8. THIS WASN'T A CATEGORY SELECTION OFFERED IN Q38. I DON'T WALK MANY TIMES DUE TO THE LACK OF TIME I HAVE TO GET TASKS DONE.

7. University on La Mesa .. people need to SLOW DOWN! Also, the businesses need to clean up! Business on Olive and University is Gross!

6. Palm Ave from Spring, to La Mesa Blvd, Seems to be a Toilet for dogs! Nobody cleans up after their pets! and their seems to be a lot of trash around. Skatboarders seem to think they own the sidewalks, and the "homeless" with Bikes tend to ride them on the sidewalks rather than in theStreet. The same can Be said for La Mesa Blvd! I would like to see "doggy Bag stands, about every 1/2 mile on La Mesa Blvd, at least! it is The"Village" after all!!

5. No sidewalks on many streets. 4th Avenue between Fresno and Finley for example.

4. I don't walk too much due to lack of time and would rather get other forms of exercise but do walk downtown to eat periodically. Stairs on our hill (Mt. Nebo) are GREAT for exercise and well used by lots of folks.

3. All intersections... cars running stop signs and lights while driver is looking left and turning right...

2. drivers speeding through signals at baltimore and lake murray road, usually in the morning

1. Sidewalks and ramps in the western part of La Mesa - walking from Helix High to the Vons plaza on University has some places with no ramps and poor sidewalks, making it difficult to walk with a small child.

Workshop Comments

The comments are verbatim from the boards at each workshop. The comments typically are related to a geographic location.

No sidewalks

Narrow roads. Hard for skateboarders, bikers, cars to enter Helix

fenced off area

large pole taking up 90% of the sidewalk, by Denny's.

High speed corner-cutting

Baltimore between El Cajon and University needs bike lane southbound.

No pedestrian access under this bridge. I've walked bike under, but not safe.

need bike lane and safety fence on east side of Baltimore across I-8

Cars don't stop for bikes

No sidewalk here and this is where kids walk to school

When I'm on the right hand lane crossing El Cajon Blvd people 'car people' speed up behind me to get ready to go on the freeway. Bike lane/crosswalk needed

need bike lane southbound on Baltimore

need a bike lane

Traffic signal is a green ball, should be a right arrow only

Crosswalk removed

Trim branches on South side of Fletcher

Bike lane Grossmont Center Dr at I-8/I-125 to Severin Dr. on and off ramp

all of Bancroft should have a Class 1 bike lane, there is space

cut through between 94 and 1-8

Raised dots or some sort of tactile signal to keep cars from cutting corners

Student traffic

No curb cut

No sidewalk

Not fun to walk under this bridge to Grossmont Center.

under bridge is always filthy and brush along road rarely maintained

no lighting under bridge

I work at Casa de Pico at Grossmont Mall. I was told I can't park my bike around the restaurant. The closest bike rack is 10 minutes away. Please put one by Casa de Pico!

Narrow bridge, lots of traffic, scary to bike, very steep hill

Parkway Dr. could be an alternative to Fletcher Parkway

Bumpy asphalt in bike lane, resurface Fletcher between Jackson and Bus Ct.

Priority on Fletcher Parkway at Nagel Grossmon Center Drive.

Release signal now that construction is over

Dead end on Lubbock/Hard to get to Amaya Trolley

Need bike lane

check signal timing

check bike lane widths and striping - travel lanes do not align across intersection

The hedge at the corner of Lemon Ave and Alta Lane is extremly dangerous, blocking both the sidewalk and view. It goes to the curb.

Only 50 feet - plese fill in missing sidewalk on Alta Ln. It's very muddy and weedy. Please & thanks.

Potential bike boulevard on Palm

Over freeways = dangerous narrow bridge but direct link to commercial businesses - important to some!

Sidewalks to be installed on Glen

Caltrans to take out bridge at Mariposa St. - verify

Really unsafe

Add sidewalks to all remaining streets that don't have them, like Lee Avenue

Add more trails in the network set aside for just bikes and walkers off the streets and roads

Nebo Class 1

Left turn bike from Fletcher to Amaya

Safe Routes to Transit Public Input

The third public workshop was conducted on July 30th, 2011. This workshop primarily focused on access to transit, Park Master Plan input and General Plan update input. Boards and informational material for the bicycle and pedestrian components of the plan were also presented. An additional transit only online questionnaire was developed to further collect input for transit related issues. The following summarized the input from the public workshop and online questionnaire for the Safe Routes to Transit Plan.

1) How often do you use the following modes of travel?

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	Daily	Weekly	Monthly	Quarterly	Don't Use
Bus	9 10%	6 7%	6 7%	5 6%	63 71%
Carpool / Vanpool	3 4%	8 9%	5 6%	3 4%	66 78%
Skate / Skateboard	1 1%	0 0%	1 1%	0 0%	78 98%
Drive alone in a vehicle	70 76%	14 15%	1 1%	1 1%	6 7%
Bicycle	5 6%	10 12%	9 11%	11 13%	50 59%
Walk	44 49%	22 24%	10 11%	5 6%	9 10%
Run	5 6%	14 16%	0 0%	2 2%	65 76%
Trolley	14 15%	11 11%	15 16%	35 36%	21 22%

2) How do you usually get to the trolley station or bus stop?

	Number of Response(s)	Response Ratio
Drive by yourself	21	20.3%
Drive with others	21	20.3%
Dropped off	8	7.7%
Walk	33	32.0%
Bus Transfer	3	2.9%
Bike	2	1.9%
Do not use transit	13	12.6%
Other	1	<1%
No Responses	1	<1%
Total	103	100%

3) What improvements to the way that you get to a transit station are most important to you?

1 = Least Important, 8 = Most Important

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option.	1	2	3	4	5	6	7	8
Better connected or expanded walkways	7 9%	8 10%	11 14%	12 16%	8 10%	12 16%	10 13%	9 12%
Better walking environment	4 5%	6 8%	11 14%	10 13%	14 18%	16 21%	11 14%	5 6%
Safer walking environment	7 9%	3 4%	9 12%	4 5%	6 8%	7 9%	14 18%	27 35%
Better lighting along the route	2 3%	13 17%	9 12%	8 10%	13 17%	9 12%	16 21%	7 9%
Improved street crossings	4 5%	2 3%	10 13%	19 25%	18 23%	12 16%	8 10%	4 5%
Better bike lanes	34 44%	9 12%	4 5%	6 8%	4 5%	5 6%	2 3%	13 17%
More directional signs	13 17%	26 34%	11 14%	8 10%	6 8%	6 8%	5 6%	2 3%
New walkways where they are currently missing	6 8%	10 13%	12 16%	10 13%	8 10%	10 13%	11 14%	10 13%

4) What transit station and bus station area improvements are most important to make transit more attractive to you?

Top number is the count of respondents selecting the option. Bottom % is percent of the total respondents selecting the option. 1 = Least Important, 7 = Most Important	1	2	3	4	5	6	7
Improved Security	10 12%	7 8%	2 2%	4 5%	5 6%	8 9%	50 58%
Better lighting at station	2 2%	10 12%	17 20%	10 12%	12 14%	31 36%	4 5%
Better shade at station (trees or shelters)	8 9%	7 8%	16 19%	16 19%	21 24%	12 14%	6 7%
More transit messaging such as "Next bus or trolley arriving in 'x' minutes"	4 5%	9 10%	14 16%	18 21%	20 23%	13 15%	8 9%
Better street crossings near stations	10 12%	24 28%	14 16%	12 14%	12 14%	10 12%	4 5%
Better bicycle storage facilities (lockers/racks)	46 53%	12 14%	7 8%	3 3%	3 3%	7 8%	8 9%
More seating and weather protected areas	6 7%	17 20%	16 19%	23 27%	13 15%	5 6%	6 7%

5) What is the maximum time you are willing to dedicate walking to a transit station o

	Number of Response(s)	Response Ratio
less than 5 minutes	14	13.5%
5-10 minutes	41	39.8%
10-15 minutes	29	28.1%
greater than 15 minutes	11	10.6%
No Responses	8	7.7%
Total	103	100%

6) What is the maximum distance you are willing to walk to a transit station or bus

	Number of Response(s)	Response Ratio
less than 1/2 mile	49	47.5%
1/2 mile - 1 mile	40	38.8%
1-2 miles	4	3.8%
over 2 miles	3	2.9%
No Responses	7	6.7%
Total	103	100%

7) How long does it take you to reach your transit station or bus stop?

	Number of Response(s)	Response Ratio
less than 5 minutes	16	15.5%
5-10 minutes	48	46.6%
10-15 minutes	15	14.5%
greater than 15 minutes	15	14.5%
I don't know where closest stop is located	2	1.9%
No Responses	7	6.7%
Total	103	100%

8) If you do not currently use transit, what factors currently deter you from using it?

	Number of Response(s)	Response Ratio
Too far to walk	14	18.6%
Too far to bike	1	1.3%
Inadequate walking connections along route	6	8.0%
No drop off locations nearby	7	9.3%
Feel unsafe at station	36	48.0%
Poor lighting along route	9	12.0%
Nearby high speed or high volume traffic makes me feel unsafe at the station	2	2.6%
High speed / high volume traffic makes me feel unsafe walking to the station	5	6.6%
Afraid of criminal activity	37	49.3%
Bus service does not get me to where I want to go	20	26.6%
Bus service is too infrequent to be of use	21	28.0%
Bus or trolley routes take too long to get to my destination	36	48.0%
I wouldn't ride transit even with improvements to any of the issues listed above	4	5.3%
Other	11	14.6%
Total	75	100%

Safe Routes to Transit Online Survey Comments

The comments are verbatim from the online survey.

1) How often do you use the following modes of travel?

I will never use the trolley or bus. For me it is way too scary and unsafe. I feel the trolley gives the rif-raff easy access to our La Mesa neighborhoods.

Work for small company, can't vanpool. Used to bicycle but bike was stolen and then I moved into the hills.

I work from home, but I give workshops in public venues.

Only use the trolley occasionally to get to a ball game or to the conventions center. Feel unsafe riding public transportation.

I try to use public transportation whenever possible and appreciate having the trolley and buslines in La Mesa. In fact, I one of the major reasons I choose to live in La Mesa because of accessibility to public transportation. Thank you

I rode the Orange Line trolley for 13 years. Then it got scary, between people throwing rocks and shooting at the cars in transit and unruly drunks and homeless riding the trolley finally convinced me to stop.

We like to take the trolley to events where know there will be crowds (like ComicCon and Chargers games.) Drive in vehicle 2-3 times/week.

I really only use the trolley once in a blue moon to go to some event and that works out fine! I use the Alvarado stop as it is closest to my house but the parking is pretty limited so we usually have someone drop us off. The Trolley is just too slow for most of my needs, that or I need a car at the other end...

How can we get the street lights re-set so they are timed? Lots of wasted gasoline stopping at every single street light.

should be more frequent bus routes to la mesa not just 30 min rote 7

The trolley did nothing but bring crime to east county. It was and still is a bad idea. Look at the crime at and around the trolley stations. The trolley should be closed down.

I walk to and from work based on weather conditions and how much extra time I have; it varies...

We depend on buses and trolleys to get us to many places, when we choose not to or cannot drive to a location after dark, where no parking is available or to save money being poured down the right-wing rathole of Middle Eastern gas prices. We could not purchase food and drink and medical care at their present barely-affordable prices nor obtain clothing and supplies if we could no longer drive and had to walk many miles to obtain necessities. It is for these we must have trolleys, buses, etc.

if the trolley had more stops, especially downtown, I would use it daily. We need more pedestrian and bike lanes throughout La Mesa.

This reflects what we do, not what we want to do. For 9 years in Europe we had no car and raised a family on transit. Although big fans of transit, the system here simply prohibits such a lifestyle.

I would use the bus to get to the trolley stops, however to and from the intersection of Baltimore & Lake Murray the buses don't run frequently enough. I am not going to wait at a trolley stop for nearly an hour; the stops are scary enough without that.

As a sole proprietor of a La Mesa business, I need to have a vehicle at the store. So I drive. That said, if I were living alone I believe I would sell my Fletcher Hills home because it has a walkability rating of 32, and I would very much like to live where I had the option to walk to some services, and take public transport to more distant destinations.

When I look at properties to buy, walkability is my number #1 criterion.

Retired and use the trolley to attend functions at the ball park or waterfront.

We in our household would use mass transit if it were provided with shorter routes, e.g., 2 + hours for me to get to Carmel Valley; and then I have no way to get 2 miles from there, to work.
to go to games

I would like to take the trolley to work and back but the monthly pass would cost me more then the $45 I spend on cas.

I used to use the Route 1 to/from La Mesa Blvd. to Grossmont Center and Trolley Stop. It was very difficult to meet connections, because the buses did not run on schedule a good deal of time. This was very frustrating. I later moved to a different part of La Mesa, where the Route 14 was the main bus service, and this one was always on time and a pleasure to ride.

I also prefer riding the Green line to the Orange line; much safer feeling and cars are in better condition.

take trolley to padres games

every home chargers game

My husband and I ONLY take the trolley to Aztec games!

Our son skateboards and bikes daily. He uses the trolley 2 to 3 times a week. My husband and I use the Trolley Quarterly. We find it easier to drive to Padre and Charger games.

I don't use transit buses, but I do use casino buses.

2) How do you usually get to the trolley station or bus stop?

walk to the bus; drive to the trolley w/others

3) What improvements to the way that you get to a transit station are most important to you?

I go to the La Mesa Blvd station and I like the lighting. I would hate for it to be too bright to make it unattractive. But also, at La Mesa Blvd. there are fewer places for crooks to hide.

I expect to use the trolley more when the elevator at Grossmont Center (destination) is completed.

The current bike lanes are not safe, too close to traffic, too much debris. The last time I checked on transit from home to work, travel required 2 buses plus the trolley (not practical)

Some of the stops are kinda creepy; low lighting, very few or no seating (Spring St Trolley-west side; I think there's 2 benches)

Really, our path is just fine. Years ago there were plans to build a walkway across the freeway but it was poorly planned and not at all thought out. It is not feasable and due to the lack of parking in our area the neighborhood would fight tooth and anil again to defeat such a project!

Movement around the city is quite safe and pleasurable... some sections of Lemon Avenue and Glenn could use sidewalks, especially approaching the elementary school, but otherwise, very nice.

Armed security guards.

We are forunate to live near both bus and trolley stops. However, once out in the wider city or county, the need for lighting and safe environments, walkways etc. becomes paramount.

The problem really isn't getting there or the infrastructure at the trolley stop. It's the degenerates that the trolley brings to La Mesa. We've all seen the hoodlums casing the stops, waiting for that next victim that they can rob and punch in the face. Everytime I use the trolley, I'm always on edge, waiting for the time I have to defend myself or my family against a criminal. The criminals LOVE the trolley.

You left out the single most critical improvement: More and more timely transit connections (i.e. trolley-bus, trolley-trolley). Allocate effort and resources where they will make a difference: Unless you can get people where they want to go within a reasonable amount of time, all the rest together will never be enough to convince people to use transit.

Only the first one item is important, survey would not allow leaving the others blank.

Amaya Station is close enough for me to walk, if I didn't need a car at my place of business. As a senior citizen,

I have to say that crime would deters me from doing this. The stations have way too many incidents.

We use the Spring street station and it is just fine the way it is.

Many walkers in my are don't use the sidewalks, due to the trip hazard of frequent driveway ramps.
I feel very unsafe around the trolley stop - more security would be very helpful.

The improvements at L Mesa Blvd Trolley and bus stop are terrific!

The only other trolley we use is Spring Street, and while it seems isolated and deserted, I cannot think of a way to improve it.

South side of Fletcher Parkway has no sidewalks.

The GRAFFITI at the Grossmont trolley area is disgusting!

The wooden steps down, cement wall that is next to those steps, railings and anything that can be vandalized has been hit. The graffiti that I saw from this green line west to the stadium(all in La Mesa) was a disgusting site.

I reported what my husband and I saw on 9/17/11. Reported to the la Mesa Graffiti hotline: 619-667-7560. Saw no security officers at 2:40pm. Did see 2 security officers upon our return at 8:30 pm. YEAH!

It all seems fine to me.

Sorry, but I would rarely walk to a trolley station, and I don't bike at all.

4) What transit station and bus station area improvements are most important to make transit more attractive to you?

Improved security would be like the top 3 answers for me.

There is a lot of crime at the trolley stops.

Although I do not bicycle I support more bicycle paths and access in la mesa

None of the above are important

The Grossmont Trolley station is still unfinished! It is a very unpleasant place to wait for the trolley.

Don't rerally ride the trolley but this seems logical.

The main problem is anti-rain and adequate lighting. Safety can be addressed by such changes, and street crossing adequate to allow more riders to reach the stations. Shade would be nice but it cannot be a paramount consideration in this economic climate.

See my comments above.

Critical to have a map/schedule/connections at every bus stop and station. If you want to get people to use transit, you have to tell them where and when it will take them!

Only the first four items are important, survey would not allow leaving the others blank.

It is really a very nice station.

Having digital signage that displays when the next trolley is arriving would be FANTASTIC!

GET RID OF THE GRAFFITI!!!!!!!!!!!!!!!!! Looks like a ghetto!!!!! on opposite side of tracks from existing shelter

When I do use the trolley to commute to work downtown, I board in Lemon Grove rather than at 70th Street (the La Mesa station closest to me). The ride is shorter on the Orange Line because there's no need to transfer, and, frankly, white collar passengers are at less risk on the Orange Line since it's not plagued with the juvenile assailants that have been such a nuisance to passengers on the I-8 corridor route (who evidently perceive the ridership there as more desirable marks).

If you do not currently use transit, what factors currently deter you from using it?

my home and job are too far frm bus and trolley routes

NO NEED

I need my car at some point of the day.....also often I have my 92 year old Mom

I live .7 (tenths) of a mile from work and I walk there.

retired, use only to games downtown.

lack of round trip senior ticket

Takes twice as long on trasit as personal auto to get anywhere.

doesn't work with my responsibilities

Shopping requires car trunk for bags.

work schedule, work overnight

Local activities

Do you have any suggestions for improvement?

Better overall security is needed. Too many crimes occurring in the vicinity of trolley stations.

I would use transit to shop at Grossmont more if there was a shuttle bus taking me from the stop below to the shopping center. The shuttle bus could also go to the hospital. And, I'm sure some out-of-town people could use the shuttle as well.

I live in Santee but I visit the antique stores in La Mesa. It would be great if the Orange Line trolley ran all the way to Santee instead of having to transfer from the Green Line. I can understand the Orange Line only going as far as Gillespie during the week because it runs every 15 minutes . . . (continued on next survey)
and it would be hard to get the Green Line and the Orange Line into Santee but on the weekends it runs every 30 minutes. Having the Orange Line going all the way to Santee on the weekends you might see an increase of people going to La Mesa to shop.

Shuttles to transit stations.

A trolley station is quite near my house; it's the rest of the system that's the problem (though the elevator at Grossmont Center will help). Another factor is that I use a wheeled cart when I meet clients, and one hesitates to use the wheelchair lift for it.

I live by Kenwood Drive and Bancroft. I suggest that the 856 bus should run every 30 minutes on weekdays, and the 851 to run on Saturday and Sunday, of course 851 could run less frequent (say every 2 hours) at least we would have that option to ride directly to the trolly instead of having to walk to Campo Rd. and Bancroft to catch the 856.

YES i DO i THINK THAT THERE SHOULD BE A BUS THAT STARTS AND THE BENINING OF JACKSON dRIVE AND GO ALL THE WAY DOWN TO FLETCHER PARKWAY. MAKE A LEFT ON TO PARKWAY GO STRAIGHT UNTIL YOU GET TO AMAYA DRIVE THEN GO STRAIGHT UNTIL YOU GET TO WATER STREET GO DOWN WATER STREET TO THE HIGH SCHOOL THEN PROCEED TO EL CAJON TRANSIT CENTER

Public transportation does not take you where you need to go. Time is important and I could walk to most destinations faster than I could get there by public transportation. Also, I do not feel safe on public transportation.

It seems a good percentage of the crime in La Mesa is committed by trolley passengers. In my mind, this greatly outweighs the benifit of public transportation.

Also, La Mesa would benefit from an "Express" service during rush hour that runs downtown while skipping most stops in between.

More drop off locations.

There is alot of crime at the trolley stops. The cameras need to work and the images need to be high def. The criminals need to know that. I won't use the trolley at night because of this for any event.

I would like for downtown la mesa to be a walking mall.

More trolleys needed for large events...I know you try to usually increase the # of trolleys for events but MORE are needed (that don't break down between stations).

Would like more frequent service on both the trolley and buses.

Honestly the type of people who ride the trolley not all but alot, scare me so I never ride alone. The crime in La Mesa that happens around the trolley stations has detoured me from enjoying this mode of transportation.

Maybe more SECURITY....

Security is the biggest issue. I feel safe in La Mesa but many areas the trolley travels are places I don't go due to crime rates etc, especially at night. It travels places I'd not choose to drive through sometimes. Mostly there are nice people just like me but I've seen scary things happen and know several who have been acosted or mugged!

Keep up the good work and keep asking for feedback! It is the best way to keep one's finger on the pulse.

Improve street light timing

Need a direct route into Mission Valley. I board the trolley at the La Mesa Blvd. station to go to the Grossmont Transit station. More often than not, the wait at the Grossmont Transit statement to catch the green line into Mission Valley is half an hour or more. Last time I used the trolley to go to Mission Valley it took more than an hour.

bus service is not as accurate and doesnt always get me to where i need to go in the time i need to get there.

More security at trolley stations

Why waste money on things like this? Also if The City would have put in a "restaurant row" aka the mini gaslamp, instead of the section 8 apartments on Fletcher, the city would have generated more revenue and a better environment. Who really thinks up all these good ideas that are not? Trolley is only a riff raff problem. Planners need to include important zones as destinations so that the city and county can be served at least minimally. For instance, from La Mesa's trolley ad buses, there is no transportation to the VineRipe shopping center, and some hospitals are hard to reach.

if the trolley had more stops, especially downtown, I would use it daily. We need more pedestrian and bike lanes throughout La Mesa.

There used to be a round trip senior ticket. It is often difficult to see at some of machines, so having the return ticket would be helpful.

Transit has intrinsic benefits: no gas, insurance and maintenance costs; no parking headaches; independence for all ages. But until we have a comprehensive, coordinated system to get where we want to go in a reasonable time, people won't willingly use it for their daily commutes. I challenge you to create this! It is done other place. Why can't we?

Trolley schedules and length of trolley does not match the ridership. The first Orange Line trolley (5:10 AM) from Spring is very crowded (standing room usually), but only has two cars. The next trolley is much lighter. It would be nice to have three cars on the first trolley.

I have seen more LMPD cruisers around LM Blvd. and Spring Street during a single car show (4 hours) than I normally see between my house and Amaya Station in a 6 month period. Maybe the LMPD needs to rethink priorities of policing, and get their cruisers out into the neighborhoods. There really aren't that many bad guys at the village car shows!

I think the La Mesa Spring street and Village stations are both unsafe. I have witnessed drug use and tagging at the trolley stops. As a Padres season ticket holder I always use the trolley, but I must say on more that one occasion I have felt like I might become the victim of a crime.

Look at other cities to see how they permit express service during peak commuter hours.

riding the bus and trolley is not a pleasurable experience. The ridership seems to have a low end almost criminal feel to it. Not a good experience.

I live in La Mesa, and the crime at the stations - within earshot of the police station no less - is a major deterent to my more frequent use of this service.

lower the cost of the montly pass

Trolley should be extended down park blvd to el cajon blvd, and down el cajon blvd to SDSU

Build new trolley line to UTC area

More sidewalks

GET RID OF THE GRAFFITI at the stations and along the lines that are in La Mesa!!!!!!!!!!!!!!!!!!!!!!!

I believe the transit service offered by MTS is excellent. More security would be important.

I don’t understand that when you buy a ticket nobody comes by to check.

Along Spring Street and at the intersection of Lemon Grove Ave and Broadway, trolleys should obey the intersection signaling, just like in downtown San Diego. The entire system doesn’t have to be this way, but a few areas DO. Businesses across the line from me I don’t patronize anymore--takes way too long to get there and is just really irritating.

Appendix I: Complete Streets and Agency Publications

SANDAG Policy No. 031, Accommodating Bicyclists and Pedestrians - Section 4(E)(3)

All new projects, or major reconstruction projects, funded by revenues provided under this Ordinance shall accommodate travel by pedestrians and bicyclists, except where pedestrians and bicyclists are prohibited by law from using a given facility or where the cost of including bikeways and walkways would be excessively disproportionate to the need or probable use. Such facilities for pedestrian and bicycle use shall be designed to the best currently available standards and guidelines.

This amendment to the TransNet ordinance utilizes existing bicycle and pedestrian design standards from the Caltrans Highway Design Manual, Chapter 1000 regarding bicycle facilities, and the American Association of State Highway Transportation Officials (AASHTO) Guide for the Planning, Design, and Operation of Pedestrian Facilities. These documents provide reasonable and widely recognized designs guidelines proposed as the standard under this amendment.

Assembly Concurrent Resolution Number 211

On May 16, 2002 (the official California Bike-to-Work Day), Assembly Member Joe Nation (D-San Rafael) introduced Assembly Concurrent Resolution Number 211, relative to integrating walking and biking into transportation infrastructure. This advisory measure encourages all cities and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure. The text of the resolution is as follows:

WHEREAS, Bicycling and walking contribute to cleaner air; and

WHEREAS, Bicycling and walking provide affordable and healthy transportation options for many of the 10 million Californians who do not possess a driver's license; and

WHEREAS, The State Department of Health Services has declared that more than 40,000 Californians annually die from causes related to physical inactivity; and

WHEREAS, The United States Centers for Disease Control has determined that changes in the community environment to promote physical activity may offer the most practical approach to prevent obesity or reduce its co-morbidities. Automobile trips that can be safely replaced by walking or bicycling offer the first target for increased physical activity in communities; and

WHEREAS, Bicycling and walking contribute to safeguarding our coast from offshore oil drilling and enhance California's energy independence and national security by reducing our reliance upon imported oil; and

WHEREAS, Designing roads for safe and efficient travel by bicyclists and pedestrians saves lives; and

WHEREAS, Bicyclists and pedestrians pay sales taxes which provide for the majority of local transportation spending; and

WHEREAS, Local demand for funding from the Bicycle Transportation Account, the Safe Routes to School, and the Transportation Enhancement Activity Programs far exceeds available moneys; and

WHEREAS, The best use of limited financial resources is to include bicycle and pedestrian elements into roadway projects where feasible; and

WHEREAS, Bicycling and walking reduce traffic congestion in California; and

WHEREAS, In February 2000, the United States Department of Transportation issued a design guidance statement titled, "Accommodating Bicycle and Pedestrian Travel: A Recommended Approach-A United States Department of Transportation Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure;" and

WHEREAS, In March 2001, the California Department of Transportation issued Deputy Directive 64 titled "Accommodating Non-Motorized Travel" which states that "The Department fully considers the needs of non-motorized travelers (including pedestrians, bicyclists and persons with disabilities) in all programming, planning maintenance, construction, operations, and project development activities and products. This includes incorporation of the best available standards in all of the Department's practices. The Department adopts the best practices concepts in the US DOT Policy Statement on Integrating Bicycling And Walking into Transportation Infrastructure;" now, therefore, be it

RESOLVED by the Assembly of the State of California, the Senate thereof concurring, That in order to improve the ability of all Californians who choose to walk or bicycle to do so safely and efficiently, the Legislature of the State of California hereby encourages all cities and counties to implement the policies of the California Department of Transportation Deputy Directive 64 and the United States Department of Transportation's design guidance document on integrating bicycling and walking when building their transportation infrastructure.

California Department of Transportation Deputy Directive 64: Accommodating Non-Motorized Travel Policy

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

Definition/Background

The planning and project development process seeks to provide the people of California with a degree of mobility that is in balance with other values. They must ensure that economic, social and environmental effects are fully considered along with technical issues, so that the best interest of the public is served. This includes all users of California's facilities and roadways.

Attention must be given to many issues including, but not limited to, the following:

- Safe and efficient transportation for all users of the transportation system
- Provision of alternatives for non-motorized travel
- Support of the Americans With Disabilities Act (ADA)
- Attainment of community goals and objectives

- Transportation needs of low-mobility, disadvantaged groups
- Support of the state's economic development
- Elimination or minimization of adverse effects on the environment, natural resources, public services, aesthetic features and the community
- Realistic financial estimates
- Cost effectiveness

Individual projects are selected for construction on the basis of overall multimodal system benefits as well as community goals, plans and values. Decisions place emphasis on making different transportation modes work together safely and effectively. Implicit in these objectives is the need to accommodate non-motorized travelers as an important consideration in improving the transportation system.

Responsibilities

Deputy Director, Planning and Modal Programs:

- Ensures that the needs of non-motorized travelers are incorporated into the program element of Transportation Planning and the modal elements of the statewide strategy for mobility.
- Ensures that liaison exists with non-motorized advocates to incorporate non-motorized needs into all program areas including project and system planning.
- Ensures that the needs of the non-motorized travelers are incorporated in personal movement strategies.

Deputy Director, Project Delivery:

- Ensures that projects incorporate best practices for non-motorized travel in the design and construction of capital projects.

Deputy Director, Maintenance and Operations:

- Ensures that the transportation system is maintained and operated in a safe and efficient manner with the recognition that non-motorized travel is a vital element of the transportation system.
- Ensures that the needs of non-motorized travelers are met in maintenance work zones.

District Directors:

- Ensure that best practices for non-motorized travel are included in all district projects and project planning.
- Ensure that best practices for non-motorized travel are implemented in maintenance and travel operations practices.

Chief, Division of Design

- Ensures that project delivery procedures and design guidance include the needs of non-motorized travelers as a regular part of doing business.
- Ensures that all project delivery staff is trained and consider the needs of the non-motorized traveler while developing and designing transportation projects.

Chief, Division of Planning:

- Ensures incorporation of non-motorized travel elements in transportation plans, programs and studies prepared by Transportation Planning.
- Ensures planning staff understand and are trained in the principles and design guidelines, non-motorized funding sources and the planning elements of non-motorized transportation.
- Coordinates Caltrans projects with non-motorized interest groups.
- Ensures incorporation of non-motorized travel elements in Corridor Studies prepared by Transportation Planning.

Chief, Division of Environmental Analysis:

- Ensures that non-motorized travel groups potentially affected by Caltrans projects are identified and have the opportunity to be involved in the project development process.
- Advocates effectively for all reasonable project-specific best practices that support or promote non-motorized travel.

Chief, Division of Maintenance:

- Ensures State-owned facilities are maintained consistent with the needs of motorized and non-motorized travelers.
- Provides guidance and training to those maintaining roadways to be aware of and sensitive to the needs of non-motorized travel.

Chief, Division of Traffic Operations:

- Ensures that the transportation system is operated in accordance with the needs of all travelers including non-motorized travel.
- Provides training and guidance on the operation of the transportation facility consistent with providing mobility for all users.
- Recommends safety measures in consideration of non-motorized travel on California's transportation system.

Chief, Division of Local Assistance:

- Ensures that Local Assistance staff, local agencies and interest groups are familiar with funding programs that are available for non-motorized travelers.
- Ensures that program coordinators responsible for non-motorized travel modes are familiar with non-motorized issues and advocate on behalf of non-motorized travelers.

Applicability

All Caltrans employees who are involved in the planning, design, construction, maintenance and operations of the transportation system.

Complete Streets

A “complete street” is one that enables a safe and viable transportation access to all types of roadway users. They allow bicycles, pedestrians, seniors, transit riders and individuals with disabilities to move through a roadway. Complete streets addresses the safety and mobility needs of non-vehicular users while balancing efficiency of vehicular traffic.

Roadway segments differ, so complete street design treatments will be unique as well. Adjacent land uses, transportation infrastructure and demographics play a key role in the design of a complete street. Typical amenities can include bike lanes, paved and hard surface paths, wide sidewalks, parkway strip, special bus lanes, pedestrian curb extensions, accessible pedestrian and bicycle signals and median islands. Complete streets in rural areas will look different than those in urban core areas, but can operate in the same way with a balance of convenience and safety designs.

Complete streets offer many benefits for the surrounding community:

- Wide, attractive sidewalks and well defined bike routes encourage healthy and active lifestyles among residents of all ages.
- They give children opportunities to reach nearby destinations in a safe and supportive environment.
- Transportation options allow everyone, particularly people with disabilities and older adults, to be mobile and stay connected to the community.
- Multi-modal transportation networks help communities provide alternatives to sitting in traffic.
- Integration of land use and transportation creates an attractive blend of buildings, houses, offices, shops and street designs.
- Improved pedestrian facilities including sidewalks, raised medians, convenient bus stop placement, traffic calming measures, and treatments for travelers with disabilities can increase the convenience and safety of all users.
- Preserving resources through livable and walkable communities can also help reduce carbon emissions and are an important part of a climate change strategy.
- Reductions in transportation costs and travel time, as well as lower public investment in infrastructure, can allow for increased spending in other areas and can result in economic revitalization.
- Integrating sidewalks, bike lanes, transit amenities and safe crossings into the initial design of a project can reduce the need for costly retrofits later.

Deputy Directive 64 - Revision #1 - Complete Streets: Integrating the Transportation System

This revision to Deputy Directive 64 was signed on October 2, 2008. It reiterates that Caltrans is to provide for the needs of travelers of all ages and abilities in all planning, programming, design, construction, operations, and maintenance activities and products on the State Highway System (SHS). Caltrans views all transportation improvements (new and retrofit) as opportunities to improve safety, access, and mobility for all travelers and recognizes bicycle, pedestrian, and transit modes as integral elements of the transportation system.

The Department develops integrated multimodal projects in balance with community goals, plans, and values. Addressing the safety and mobility needs of bicyclists, pedestrians, and transit users in all projects, regardless of funding, is implicit in these objectives. Bicycle, pedestrian, and transit travel is facilitated by creating "complete streets" beginning early in system planning and continuing through project delivery, maintenance and operations. Developing a network of complete streets requires collaboration among all Department functional units and stakeholders.

Deputy Directive 64-R1 further defines what complete streets are and creates an Implementation Action Plan Overview. The Implementation Action Plan projects are organized into seven categories:

1) Highest Focus Areas;

2) Guidance, Manuals, and Handbooks;

3) Policy and Plans; 4) Funding and Project Selection;

5) Raise Awareness;

6) Training; and

7) Research.

A Complete Streets Steering Committee will oversee implementation of the projects as well as track and report on action items, deliverables and policies. DD-64 designates roles and responsibilities for implementing Complete Streets.

Complete Streets Act - AB 1358

The Complete Streets Act of 2007 will ensure that the transportation plans of California communities meet the needs of all users of the roadway including pedestrians, bicyclists, users of public transit, motorists, children, the elderly, and the disabled.

AB 1358 requires the legislative body of a city or county, upon revision of the circulation element of their general plan, to identify how the jurisdiction will provide for the routine accommodation of all users of the roadway including motorists, pedestrians, bicyclists, individuals with disabilities, seniors, and users of public transportation.

The bill also directs the Office of Planning and Research to amend guidelines for the development of general plan circulation elements so that the building and operation of local transportation facilities safely and conveniently accommodate everyone, regardless of their mode of travel.

Design Guidance Accommodating Bicycle and Pedestrian Travel: A Recommended Approach

A USDOT Policy Statement on Integrating Bicycling and Walking into Transportation Infrastructure

Purpose

Accommodating Bicycle and Pedestrian Travel: A Recommended Approach is a policy statement adopted by the United States Department of Transportation (USDOT). USDOT hopes that public agencies, professional associations, advocacy groups, and others adopt this approach as a way of committing themselves to integrating bicycling and walking into the transportation mainstream.

The Design Guidance incorporates three key principles:

a) a policy statement that bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist;

b) an approach to achieving this policy that has already worked in State and local agencies; and

c) a series of action items that a public agency, professional association, or advocacy group can take to achieve the overriding goal of improving conditions for bicycling and walking.

The Policy Statement was drafted by the U.S. Department of Transportation in response to Section 1202 (b) of the Transportation Equity Act for the 21st Century (TEA-21) with the input and assistance of public agencies, professional associations and advocacy groups.

Introduction

Bicycling and walking issues have grown in significance throughout the 1990s. As the new millennium dawns public agencies and public interest groups alike are striving to define the most appropriate way in which to accommodate the two modes within the overall transportation system so that those who walk or ride bicycles can safely, conveniently, and comfortably access every destination within a community.

Public support and advocacy for improved conditions for bicycling and walking has created a widespread acceptance that more should be done to enhance the safety, comfort, and convenience of the non-motorized traveler. Public opinion surveys throughout the 1990s have demonstrated strong support for increased planning, funding and implementation of shared use paths, sidewalks and on-street facilities.

At the same time, public agencies have become considerably better equipped to respond to this demand. Research and practical experience in designing facilities for bicyclists and pedestrians has generated numerous national, state and local design manuals and resources. An increasing number of professional planners and engineers are familiar with this material and are applying this knowledge in towns and cities across the country.

The 1990 Americans with Disabilities Act, building on an earlier law requiring curb ramps in new, altered, and existing sidewalks, added impetus to improving conditions for sidewalk users. People with disabilities rely on the pedestrian and transit infrastructure, and the links between them, for access and mobility.

Congress and many State legislatures have made it considerably easier in recent years to fund non-motorized projects and programs (for example, the Intermodal Surface Transportation Efficiency Act and the Transportation Equity Act for the 21st Century), and a number of laws and regulations now mandate certain planning activities and design standards to guarantee the inclusion of cyclists and pedestrians.

Despite these many advances, injury and fatality numbers for cyclists and pedestrians remain stubbornly high, levels of bicycling and walking remain frustratingly low, and most communities continue to grow in ways that make travel by means other than the private automobile quite challenging. Failure to provide an accessible pedestrian network for people with disabilities often requires the provision of costly paratransit service. Ongoing investment in the Nation's transportation infrastructure is still more likely to overlook rather than integrate cyclists and pedestrians.

In response to demands from user groups that every transportation project include a bicycle and pedestrian element, Congress asked the Federal Highway Administration (FHWA) to study various approaches to accommodating the two modes. The Transportation Equity Act for the 21st Century (TEA-21) instructs the Secretary to work with professional groups such as AASHTO, ITE, and other interested parties to recommend policies and standards that might achieve the overall goal of fully integrating cyclists and pedestrians into the transportation system.

TEA-21 also says that, "Bicycle transportation facilities and pedestrian walkways shall be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation projects, except where bicycle and pedestrian use are not permitted." (Section 1202)

Sec. 1202. Bicycle Transportation And Pedestrian Walkways.

(b) Design Guidance.

1) In general - In implementing section 217(g) of title 23, United States Code, the Secretary, in cooperation with the American Association of State Highway and Transportation Officials, the Institute of Transportation Engineers, and other interested organizations, shall develop guidance on the various approaches to accommodating bicycles and pedestrian travel.

2) Issues to be addressed - The guidance shall address issues such as the level and nature of the demand, volume, and speed of motor vehicle traffic, safety, terrain, cost, and sight distance.

3) Recommendations - The guidance shall include recommendations on amending and updating the policies of the American Association of State Highway and Transportation Officials relating to highway and street design standards to accommodate cyclists and pedestrians.

4) Time period for development - The guidance shall be developed within 18 months after the date of enactment of this Act.

In August 1998, FHWA convened a Task Force comprising representatives from FHWA, AASHTO, ITE, bicycle and pedestrian user groups, State and local agencies, the U.S. Access Board and representatives of disability organizations to seek advice on how to proceed with developing this guidance. The Task Force reviewed existing and proposed information on the planning and technical design of facilities for cyclists and pedestrians and concluded that these made creation of another design manual unnecessary. For example, AASHTO published a bicycle design manual in 1999 and is working on a pedestrian facility manual.

The area where information and guidance was most lacking was in determining when to include designated or special facilities for cyclists and pedestrians in transportation projects. There can also be uncertainty about the type of facility to provide, and the design elements that are required to ensure accessibility.

For example, when a new suburban arterial road is planned and designed, what facilities for cyclists and pedestrians should be provided? The task force felt that once the decision to provide a particular facility was made, the specific information on designing that facility is generally available. However, the decision on whether to provide sidewalks on neither, one or both sides of the road, or a shoulder, striped bike lane, wide outside lane or separate trail for cyclists is usually made with little guidance or help.

After a second meeting with the Task Force in January 1999, FHWA agreed to develop a Policy Statement on Accommodating Bicyclists and Pedestrians in Transportation Projects to guide State and local agencies in answering these questions. Task Force members recommended against trying to create specific warrants for different facilities (warrants leave little room for engineering judgment and have often been used to avoid providing facilities for bicycling and walking). Instead, the purpose of the Policy Statement is to provide a recommended approach to the accommodation of cyclists and pedestrians that can be adopted by State and local agencies (as well as professional societies and associations, advocacy groups, and Federal agencies) as a commitment to developing a transportation infrastructure that is safe, convenient, accessible, and attractive to motorized AND non-motorized users alike. The Policy Statement has four elements:

a) An acknowledgment of the issues associated with balancing the competing interests of motorized and non-motorized users;

b) A recommended policy approach to accommodating cyclists and pedestrians (including people with disabilities) that can be adopted by an agency or organizations as a statement of policy to be implemented or a target to be reached in the future;

c) A list of recommended actions that can be taken to implement the solutions and approaches described above; and

d) Further information and resources on the planning, design, operation, and maintenance of facilities for cyclists and pedestrians.

The Challenge: Balancing Competing Interests

For most of the second half of the 20th Century, the transportation, traffic engineering and highway professions in the United States were synonymous. They shared a singular purpose: building a transportation system that promoted the safety, convenience and comfort of motor vehicles. The post-war boom in car and home ownership, the growth of suburban America, the challenge of completing the Interstate System, and the continued availability of cheap gasoline all fueled the development of a transportation infrastructure focused almost exclusively on the private motor car and commercial truck.

Initially, there were few constraints on the traffic engineer and highway designer. Starting at the centerline, highways were developed according to the number of motor vehicle travel lanes that were needed well into the future, as well as providing space for breakdowns. Beyond that, facilities for cyclists and pedestrians, environmental mitigation, accessibility, community preservation, and aesthetics were at best an afterthought, often simply overlooked, and, at worst, rejected as unnecessary, costly, and regressive. Many States passed laws preventing the use of State gas tax funds on anything other than motor vehicle lanes and facilities. The resulting highway environment discourages bicycling and walking and has made the two modes more dangerous. Further, the ability of pedestrians with disabilities to travel independently and safely has been compromised, especially for those with vision impairments.

Over time, the task of designing and building highways has become more complex and challenging. Traffic engineers now have to integrate accessibility, utilities, landscaping, community preservation, wetland mitigation, historic preservation, and a host of other concerns into their plans and designs - and yet they often have less space and resources within which to operate and traffic volumes continue to grow.

The additional "burden" of having to find space for pedestrians and cyclists was rejected as impossible in many communities because of space and funding constraints and a perceived lack of demand. There was also anxiety about encouraging an activity that many felt to be dangerous and fraught with liability issues. Designers continued to design from the centerline out and often simply ran out of space before bike lanes, paved shoulders, sidewalks and other "amenities" could be included.

By contrast, bicycle and pedestrian user groups argue the roadway designer should design highways from the right-of-way limits in, rather than the centerline out. They advocate beginning the design of a highway with the sidewalk and/or trail, including a buffer before the paved shoulder or bike lane, and then allocating the remaining space for motor vehicles. Through this approach, walking and bicycling are positively encouraged, made safer, and included as a critical element in every transportation project rather than as an afterthought in a handful of unconnected and arbitrary locations within a community.

Retrofitting the built environment often provides even more challenges than building new roads and communities: space is at a premium and there is a perception that providing better conditions for cyclists and pedestrians will necessarily take away space or convenience from motor vehicles.

During the 1990s, Congress spearheaded a movement towards a transportation system that favors people and goods over motor vehicles with passage of the Intermodal Surface Transportation Efficiency Act (1991) and the Transportation Equity Act for the 21st Century (1998). The call for more walkable, livable, and accessible communities, has seen bicycling and walking emerge as an "indicator species" for the health and well-being of a community. People want to live and work in places where they can safely and conveniently walk and/or bicycle and not always have to deal with worsening traffic congestion, road rage and the fight for a parking space. Vice President Gore launched a Livability Initiative in 1999 with the ironic statement that "a gallon of gas can be used up just driving to get a gallon of milk."

The challenge for transportation planners, highway engineers and bicycle and pedestrian user groups, therefore, is to balance their competing interest in a limited amount of right-of-way, and to develop a transportation infrastructure that provides access for all, a real choice of modes, and safety in equal measure for each mode of travel.

This task is made more challenging by the widely divergent character of our nation's highways and byways. Traffic speeds and volumes, topography, land use, the mix of road users, and many other factors mean that a four-lane highway in rural North Carolina cannot be designed in the same way as a four-lane highway in New York City, a dirt road in Utah or an Interstate highway in Southern California. In addition, many different agencies are responsible for the development, management, and operation of the transportation system.

In a recent memorandum transmitting Program Guidance on bicycle and pedestrian issues to FHWA Division Offices, the Federal Highway Administrator wrote, "We expect every transportation agency to make accommodation for bicycling and walking a routine part of their planning, design, construction, operations and maintenance activities." The Program Guidance itself makes a number of clear statements of intent:

- Congress clearly intends for cyclists and pedestrians to have safe, convenient access to the transportation system and sees every transportation improvement as an opportunity to enhance the safety and convenience of the two modes.
- "Due consideration" of bicycle and pedestrian needs should include, at a minimum, a presumption that cyclists and pedestrians will be accommodated in the design of new and improved transportation facilities.
- To varying extents, cyclists and pedestrians will be present on all highways and transportation facilities where they are permitted and it is clearly the intent of TEA-21 that all new and improved transportation facilities be planned, designed and constructed with this fact in mind.
- The decision not to accommodate cyclists and pedestrians] should be the exception rather than the rule. There must be exceptional circumstances for denying bicycle and pedestrian access either by prohibition or by designing highways that are incompatible with safe, convenient walking and bicycling.

The Program Guidance defers a suggested definition of what constitutes "exceptional circumstances" until this Policy Statement is completed. However, it does offer interim guidance that includes controlled access highways and projects where the cost of accommodating cyclists and pedestrians is high in relation to the overall project costs and likely level of use by non-motorized travelers.

Providing access for people with disabilities is a civil rights mandate that is not subject to limitation by project costs, levels of use, or "exceptional circumstances". While the Americans with Disabilities Act does not require pedestrian facilities in the absence of a pedestrian route, it does require that pedestrian facilities, when newly constructed or altered, be accessible.

Policy Statement

1. Bicycle and pedestrian ways shall be established in new construction and reconstruction projects in all urbanized areas unless one or more of three conditions are met:

- Cyclists and pedestrians are prohibited by law from using the roadway. In this instance, a greater effort may be necessary to accommodate cyclists and pedestrians elsewhere within the right of way or within the same transportation corridor.
- The cost of establishing bikeways or walkways would be excessively disproportionate to the need or probable use. Excessively disproportionate is defined as exceeding twenty percent of the cost of the larger transportation project.
- Where scarcity of population or other factors indicate an absence of need. For example, the Portland Pedestrian Guide requires "all construction of new public streets" to include sidewalk improvements on both sides, unless the street is a cul-de-sac with four or fewer dwellings or the street has severe topographic or natural resource constraints.

2. In rural areas, paved shoulders should be included in all new construction and reconstruction projects on roadways used by more than 1,000 vehicles per day, as is currently the case in Wisconsin. Paved shoulders have safety and operational advantages for all road users in addition to providing a place for cyclists and pedestrians to operate.

Rumble strips are not recommended where shoulders are used by cyclists unless there is a minimum clear path of four feet in which a bicycle may safely operate.

3. Sidewalks, shared use paths, street crossings (including over- and undercrossings), pedestrian signals, signs, street furniture, transit stops and facilities, and all connecting pathways shall be designed, constructed, operated and maintained so that all pedestrians, including people with disabilities, can travel safely and independently.

4. The design and development of the transportation infrastructure shall improve conditions for bicycling and walking through the following additional steps:

    - Planning projects for the long-term. Transportation facilities are long-term investments that remain in place for many years. The design and construction of new facilities that meet the criteria in item 1) above should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements. For example, a bridge that is likely to remain in place for 50 years might be built with sufficient width for safe bicycle and pedestrian use in anticipation that facilities will be available at either end of the bridge even if that is not currently the case.
    - Addressing the need for cyclists and pedestrians to cross corridors as well as travel along them. Even where cyclists and pedestrians may not commonly use a particular travel corridor that is being improved or constructed, they will likely need to be able to cross that corridor safely and conveniently. Therefore, the design of intersections and interchanges shall accommodate cyclists and pedestrians in a manner that is safe, accessible and convenient.
    - Getting exceptions approved at a senior level. Exceptions for the non-inclusion of bikeways and walkways shall be approved by a senior manager and be documented with supporting data that indicates the basis for the decision.
    - Designing facilities to the best currently available standards and guidelines. The design of facilities for cyclists and pedestrians should follow design guidelines and standards that are commonly used, such as the AASHTO Guide for the Development of Bicycle Facilities, AASHTO's A Policy on Geometric Design of Highways and Streets, and the ITE Recommended Practice "Design and Safety of Pedestrian Facilities".

Policy Approach

"Rewrite the Manuals" Approach

Manuals that are commonly used by highway designers covering roadway geometrics, roadside safety, and bridges should incorporate design information that integrates safe and convenient facilities for cyclists and pedestrians — including people with disabilities - into all new highway construction and reconstruction projects.

In addition to incorporating detailed design information - such as the installation of safe and accessible crossing facilities for pedestrians, or intersections that are safe and convenient for cyclists - these manuals should also be amended to provide flexibility to the highway designer to develop facilities that are in keeping with transportation needs, accessibility, community values, and aesthetics. For example, the Portland Pedestrian Design Guide (1998) applies to every project that is designed and built in the city, but the guide also notes that:

"Site conditions and circumstances often make applying a specific solution difficult. The Pedestrian Design Guide should reduce the need for ad hoc decision by providing a published set of guidelines that are applicable to most situations. Throughout the guidelines, however, care has been taken to provide flexibility to the designer so she or he can tailor the standards to unique circumstances. Even when the specific guideline cannot be met, the designer should attempt to find the solution that best meets the pedestrian design principles described."

In the interim, these manuals may be supplemented by stand-alone bicycle and pedestrian facility manuals that provide detailed design information addressing on-street bicycle facilities, fully accessible sidewalks, crosswalks, and shared use paths, and other improvements.

Examples: Florida and New Jersey DOTs have integrated bicycle and pedestrian facility design information into their standard highway design manuals. Many States and localities have developed their own bicycle and pedestrian facility design manuals, some of which are listed in the final section of this document.

Applying Engineering Judgment to Roadway Design

In rewriting manuals and developing standards for the accommodation of cyclists and pedestrians, there is a temptation to adopt "typical sections" that are applied to roadways without regard to travel speeds, lane widths, vehicle mix, adjacent land uses, traffic volumes and other critical factors. This approach can lead to inadequate provision on major roads (e.g. a four foot bike lane or four foot sidewalk on a six lane high-speed urban arterial) and the over-design of local and neighborhood streets (e.g. striping bike lanes on low volume residential roads), and leaves little room for engineering judgment.

After adopting the policy that cyclists and pedestrians (including people with disabilities) will be fully integrated into the transportation system, State and local governments should encourage engineering judgment in the application of the range of available treatments.

For example:

- Collector and arterial streets shall typically have a minimum of a four foot wide striped bicycle lane, however wider lanes are often necessary in locations with parking, curb and gutter, heavier and/or faster traffic.
- Collector and arterial streets shall typically have a minimum of a five foot sidewalk on both sides of the street, however wider sidewalks and landscaped buffers are necessary in locations with higher pedestrian or traffic volumes, and/or higher vehicle speeds. At intersections, sidewalks may need to be wider to accommodate accessible curb ramps.
- Rural arterials shall typically have a minimum of a four foot paved shoulder; however wider shoulders (or marked bike lanes) and accessible sidewalks and crosswalks are necessary within rural communities and where traffic volumes and speeds increase.

This approach also allows the highway engineer to achieve the performance goal of providing safe, convenient, and comfortable travel for cyclists and pedestrians by other means. For example, if it would be inappropriate to add width to an existing roadway to stripe a bike lane or widen a sidewalk, traffic calming measures can be employed to reduce motor vehicle speeds to levels more compatible with bicycling and walking.

Actions

The United States Department of Transportation encourages States, local governments, professional associations, other government agencies and community organizations to adopt this Policy Statement as an indication of their commitment to accommodating cyclists and pedestrians as an integral element of the transportation system. By so doing, the organization or agency should explicitly adopt one, all, or a combination of the various approaches described above AND should be committed to taking some or all of the actions listed below as appropriate for their situation.

a) Define the exceptional circumstances in which facilities for cyclists and pedestrians will NOT be required in all transportation projects.

b) Adopt new manuals, or amend existing manuals, covering the geometric design of streets, the development of roadside safety facilities, and design of bridges and their approaches so that they comprehensively address the development of bicycle and pedestrian facilities as an integral element of the design of all new and reconstructed roadways.

c) Adopt stand-alone bicycle and pedestrian facility design manuals as an interim step towards the adoption of new typical sections or manuals covering the design of streets and highways.

d) Initiate an intensive re-tooling and re-education of transportation planners and engineers to make the conversant with the new information required to accommodate cyclists and pedestrians. Training should be made available for, if not required of, agency traffic engineers and consultants who perform work in this field.

Conclusion

There is no question that conditions for bicycling and walking need to be improved in every community in the United States; it is no longer acceptable that 6,000 cyclists and pedestrians are killed in traffic every year, that people with disabilities cannot travel without encountering barriers, and that two desirable and efficient modes of travel have been made difficult and uncomfortable.

Every transportation agency has the responsibility and the opportunity to make a difference to the bicycle-friendliness and walkability of our communities. The design information to accommodate cyclists and pedestrians is available, as is the funding. The United States Department of Transportation is committed to doing all it can to improve conditions for bicycling and walking and to make them safer ways to travel.

Additional Information and Resources

General Design Resources

A Policy on Geometric Design of Highways and Streets, 5th Edition 2004 (The Green Book). American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860. http://www.knovel.com/web/portal/browse/display?_EXT_KNOVEL_DISPLAY_bookid=2528

Highway Capacity Manual, Special Report 209, 2000. Transportation Research Board, Box 289, Washington, DC 20055, Phone: (202) 334-3214. Next edition: 2010.

Manual on Uniform Traffic Control Devices, 2009. Federal Highway Administration (FHWA), Superintendent of Documents. P.O. Box 371954, Pittsburgh, PA 15250-7954. Next edition: 2011.

California Manual on Uniform Traffic Control Devices 2011 Draft. http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/ Next edition: 2012.

Flexibility in Highway Design, 2004. FHWA. HEP 30, 400 Seventh Street SW, Washington, DC 20590. http://www.fhwa.dot.gov/environment/flex/index.htm

Bikeway Facility Design Resources

Guide for the Development of Bicycle Facilities, 2009, American Association of State Highway and Transportation Officials (AASHTO), P.O. Box 96716, Washington, DC, 20090-6716, Phone: (888) 227-4860.

Implementing Bicycle Improvements at the Local Level, 1998, FHWA, HSR 20, 6300 Georgetown Pike, McLean, VA.

Selecting Roadway Design Treatments to Accommodate Bicyclists, 1993. FHWA, R&T Report Center, 9701 Philadelphia Ct., Unit Q; Lanham, MD 20706. (301) 577-1421 (fax only)

North Carolina Bicycle Facilities Planning and Design Guidelines, 1994. North Carolina DOT, P.O. Box 25201, Raleigh, NC 27611. (919) 733-2804.

Bicycle Facility Planning, 1995. Pinsof & Musser. American Planning Association, Planning Advisory Service Report # 459. American Planning Association, 122 S. Michigan Ave, Suite 1600; Chicago, IL 60603.

Florida Bicycle Facilities Planning and Design Manual, 1994. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Evaluation of Shared-use Facilities for Bicycles and Motor Vehicles, 1996. Florida DOT, Pedestrian and Bicycle Safety Office, 605 Suwannee Street, Tallahassee, FL 32399.

Cycle Tracks/Lessons Learned, 2009. Alta Planning + Design.

Innovative Bicycle Treatments, 2002. Institute of Transportation Engineers. 1099 14th Street NW, Suite 300 West, Washington DC 2005-3438

Caltrans Chapter 1000, 2006. California Department of Transportation, 1120 N Street, Sacramento, CA 95814

Bicycle and Pedestrian Design Resources

Oregon Bicycle and Pedestrian Plan, 1995. Oregon Department of Transportation, Bicycle and Pedestrian Program, Room 210, Transportation Building, Salem, OR 97310, Phone: (503) 986-3555

Improving Conditions for Bicyclists and Pedestrians, A Best Practices Report, 1998. FHWA, HEP 10, 400 Seventh Street SW, Washington, DC 20590.

Oakland Pedestrian Master Plan, 2002. City of Oakland, CA. Oakland, CA

Traffic Calming Design Resources

Traffic Calming: State of the Practice. 1999. Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

Florida Department of Transportation's Roundabout Guide. 1996. Florida Department of Transportation, 605 Suwannee St., MS-82, Tallahassee, FL 23299-0450.

National Bicycling and Walking Study. Ten Year Status Report. 2004. Federal Highway Administration (FHWA).

Traffic Calming. 1995. American Planning Association, 122 South Michigan Avenue, Chicago, IL 60603

Traditional Neighborhood Development Street Design Guidelines, Proposed Recommended Practice. 1997. Institute of Transportation Engineers, 525 School Street, SW, Suite 410; Washington, DC 20024.

Making Streets that Work, City of Seattle, 600 Fourth Ave., 12th Floor, Seattle, WA 98104-1873, Phone: (206) 684-4000, Fax: (206) 684-5360.

Traffic Control Manual for In-Street Work, 1994. Seattle Engineering Department, City of Seattle, 600 4th Avenue, Seattle, WA 98104-6967, Phone: (206) 684-5108.

Complete Streets Resources

Complete Streets Design Guidelines, July 2009. Gresham Smith and Partners.

Urban Street Design Guidelines, 2007. Charlotte Department of Transportation, Charlotte, NC

Best Practices for Complete Streets, 2005. Sacramento Transportation & Air Quality Collaborative, Sacramento, CA

Implementing Complete Streets. National Complete Streets Coalition, 1707 L Street NW, Suite 250, Washington DC 20036. www.completestreets.org

Main Streets: Flexibility in Design & Operations, 2005, California Department of Transportation, 1120 N Street, Sacramento, CA 95814

Complete Streets Implementation Action Plan: Implementation of Deputy Directive 64-R1: Complete Streets - Integrating the Transportation System, 2010. California Department of Transportation, 1120 N Street, Sacramento, CA 95814

Appendix J: Bicycle and Pedestrian Count Sheets

This section includes the bike/pedestrian count sheets. University Avenue at Harbinson Avenue and 70th Street were taken in the spring to capture pedestrian and bicycle activity during the school year.

70th Street and University Avenue

Date: June 10, 2010

Weather: Cloudy

	Bicyclists			Pedestrians			Other		
	Female	Male	Hourly Totals	Female	Male	Hourly Totals	Female	Male	Hourly Totals
6-7am	5	4	9	4	4	8	0	0	0
7-8am	2	4	6	5	3	8	0	2	2
8-9am	0	9	9	4	11	15	0	2	2
9-10am	0	1	1	0	3	3	0	0	0
10-11am	0	2	2	3	5	8	0	0	0
11-12pm	1	0	1	4	6	10	0	0	0
12-1pm	3	2	5	12	11	23	2	0	2
1-2pm	1	0	1	13	31	44	1	1	2
2-3pm	0	7	7	2	6	8	0	2	2
3-4pm	0	8	8	16	21	37	0	0	0
4-5pm	0	3	3	3	5	8	0	1	1
5-6pm	1	5	6	7	16	23	0	2	2
Totals	**13**	**45**		**73**	**122**		**3**	**10**	
Daily Totals	**58**			**195**			**13**		

Harbinson Avenue and University Avenue

Date: June 10, 2010
Weather: Cloudy

	Bicyclists		Hourly	Pedestrians		Hourly	Other		Hourly
	Female	Male	Totals	Female	Male	Totals	Female	Male	Totals
6-7am	1	3	4	0	4	4	0	0	0
7-8am	2	3	5	5	4	9	0	2	2
8-9am	0	8	8	4	11	15	0	1	1
9-10am	0	1	1	1	2	3	0	0	0
10-11am	1	0	1	1	4	5	0	0	0
11-12pm	1	0	1	1	4	5	0	0	0
12-1pm	1	2	3	10	4	14	2	0	2
1-2pm	0	6	6	17	35	52	0	1	1
2-3pm	0	4	4	3	3	6	0	3	3
3-4pm	0	7	7	18	18	36	0	0	0
4-5pm	0	6	6	0	3	3	0	0	0
5-6pm	1	5	6	5	15	20	0	2	2
Totals	**7**	**45**		**65**	**107**		**2**	**9**	
Daily Totals	**52**			**172**			**11**		

Allison Avenue and Spring Street

Date: August 3, 2010 6am-6pm

Morning: Overcast 65-75 degrees, Afternoon: Hot, 88 degrees

	Bicyclists		Hourly Totals	Pedestrians		Hourly Totals	Other		Hourly Totals
	Female	Male		Female	Male		Female	Male	
6-7am		2	2	14	21	35			0
7-8am		3	3	17	20	37			0
8-9am	1	2	3	10	14	24			0
9-10am	2	2	4	21	22	43		2	2
10-11am		1	1	22	16	38	2		2
11-12pm	1	3	4	23	32	55	3	1	4
12-1pm		3	3	28	33	61		3	3
1-2pm	1	6	7	18	21	39	2	3	5
2-3pm	1	5	6	29	28	57		1	1
3-4pm	1	3	4	29	34	63	1	3	4
4-5pm	2	5	7	33	40	73	1	1	2
5-6pm	3	6	9	42	47	89	2	3	5
Totals	**12**	**41**		**286**	**328**		**11**	**17**	
Daily Totals	**53**			**614**			**28**		

La Mesa Boulevard and Spring Street

Date: August 3, 2010 6am - 6pm

Morning: Overcast 65-75 degrees, Afternoon: Hot, 88 degrees

	Bicyclists		Hourly	Pedestrians		Hourly	Other		Hourly
	Female	Male	Totals	Female	Male	Totals	Female	Male	Totals
6-7am	1		1	28	15	43			0
7-8am	1	1	2	19	27	46		1	1
8-9am	4	1	5	21	25	46			0
9-10am	1	5	6	25	33	58	2	4	6
10-11am	1	2	3	28	22	50	2	3	5
11-12pm		3	3	27	30	57	3	1	4
12-1pm			0	43	39	82	3	4	7
1-2pm	1	4	5	40	35	75	2	1	3
2-3pm	2	5	7	34	40	74		2	2
3-4pm	1	3	4	34	47	81	1	2	3
4-5pm	2	6	8	38	48	86	1	2	3
5-6pm	4	7	11	46	53	99	2	5	7
Totals	**18**	**37**		**383**	**414**		**16**	**25**	
Daily Totals	**55**			**797**			**41**		

Amaya Drive and Fletcher Parkway

Date: July 14, 2010

Weather: Sunny and warm

	Bicyclists		Hourly Totals	Pedestrians		Hourly Totals	Other		Hourly Totals
	Female	Male		Female	Male		Female	Male	
6-7am		3	3	6	3	9			0
7-8am		5	5	8	10	18		1	1
8-9am		1	1	6	8	14	1	2	3
9-10am		3	3	6	16	22		1	1
10-11am	1	4	5	7	15	22		1	1
11-12pm		5	5		4	4		4	4
12-1pm		6	6	1	4	5		4	4
1-2pm	1	6	7	4	7	11	1	1	2
2-3pm		1	1	4	7	11			0
3-4pm		3	3	7	10	17		4	4
4-5pm		1	1	13	9	22		1	1
5-6pm		2	2	4	7	11		1	1
Totals	**2**	**40**		**66**	**100**		**2**	**20**	
Daily Totals	**42**			**166**			**22**		

Grossmont Center and Murray Drive

Date: July 21, 2010

Weather: Cloudy overcast in the morning, sunny and warm in the afternoon

	Bicyclists		Hourly	Pedestrians		Hourly	Other		Hourly
	Female	Male	Totals	Female	Male	Totals	Female	Male	Totals
6-7am	3	1	4		1	1	1		1
7-8am	1	3	4	2	3	5			0
8-9am		3	3	6	7	13			0
9-10am			0	10	5	15			0
10-11am		3	3	8	8	16			0
11-12pm			0	13	11	24		2	2
12-1pm			0	15	20	35		1	1
1-2pm	1	1	2	27	17	44		2	2
2-3pm		3	3	21	15	36		2	2
3-4pm		1	1	22	11	33		1	1
4-5pm		2	2	17	8	25	1	1	2
5-6pm	1	1	2	15	11	26		2	2
Totals	6	18		156	117		2	11	
Daily Totals	24			273			13		

Lake Murray Boulevard and Baltimore Drive

Date: July 28, 2010

Morning: Overcast 63 degrees, Afternoon: Mostly Sunny, 66 degrees

	Bicyclists		Hourly	Pedestrians		Hourly	Other		Hourly
	Female	Male	Totals	Female	Male	Totals	Female	Male	Totals
6-7am		3	3	9	14	23		2	2
7-8am	1	3	4	11	13	24			0
8-9am	2	2	4	19	13	32			0
9-10am	2	2	4	21	22	43			0
10-11am	1	5	6	18	15	33	1		1
11-12pm		5	5	16	19	35		1	1
12-1pm		3	3	28	33	61		3	3
1-2pm		6	6	9	17	26	3	2	5
2-3pm		3	3	7	12	19		2	2
3-4pm	1	1	2	12	15	27	1		1
4-5pm	2	4	6	11	14	25		1	1
5-6pm	2	7	9	12	14	26		2	2
Totals	**11**	**44**		**173**	**201**		**5**	**13**	
Daily Totals	**55**			**374**			**18**		