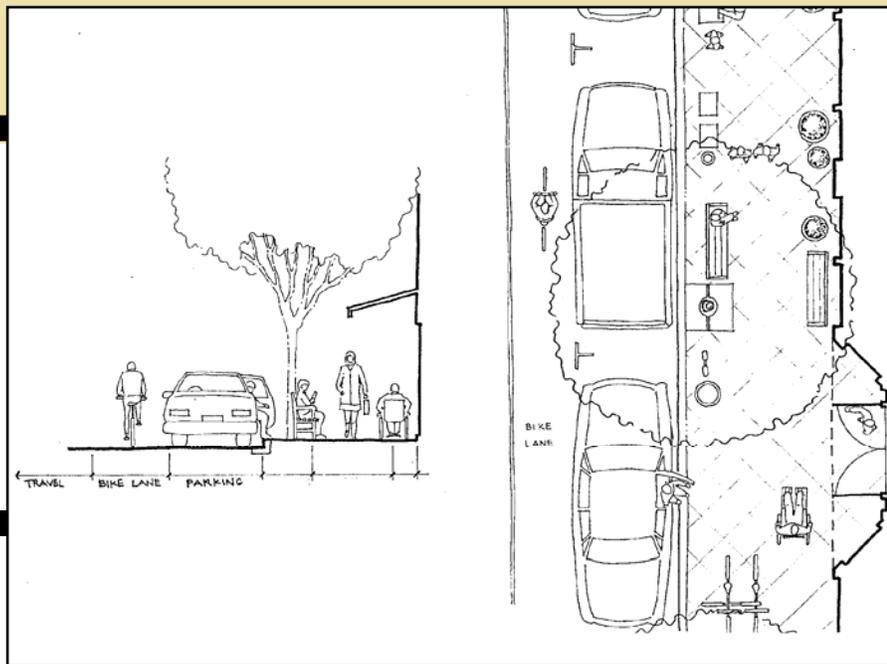




City of Sacramento Pedestrian Master Plan Appendices

Making Sacramento the Walking Capital

June 2006



Prepared By:



APPENDICES

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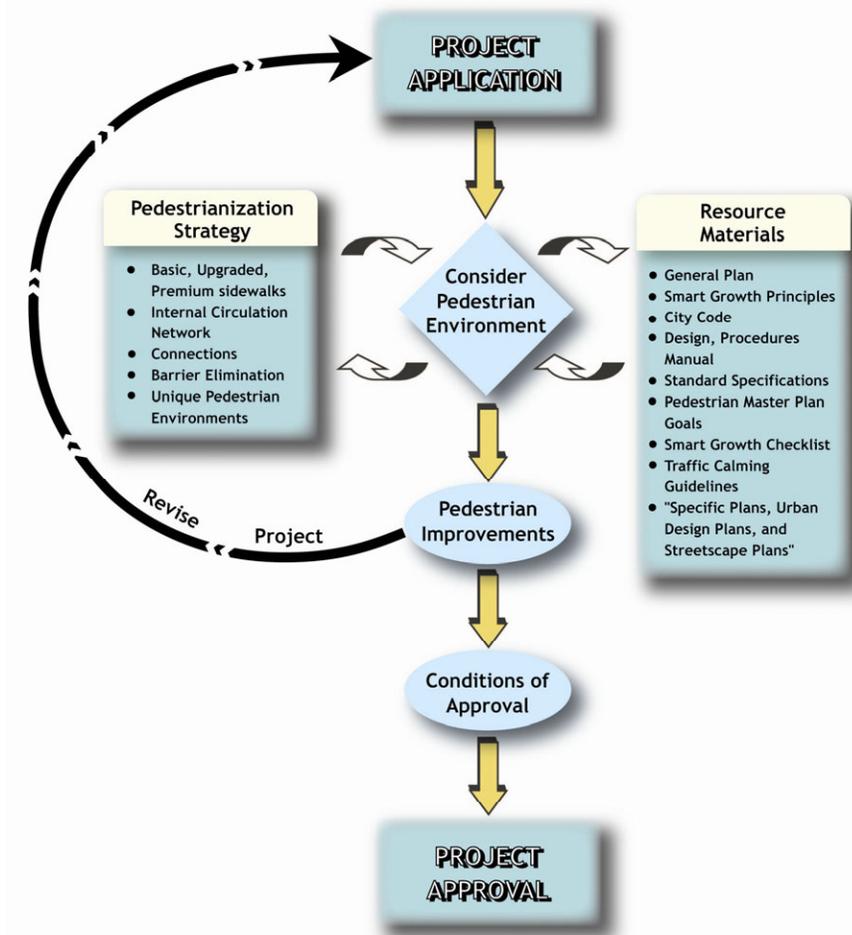
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APPENDIX A: SACRAMENTO PEDESTRIAN REVIEW PROCESS GUIDE

Integration of pedestrian facilities into new development projects is a key element to becoming the walking capital. The following chart outlines the way pedestrian needs should be evaluated as part of Sacramento’s review process.

Flow Chart of City Review Process:



As shown in the above flow chart, consideration of the pedestrian environment involves applying relevant resource materials and



determining an appropriate pedestrianization strategy for a particular project.

When a project application is submitted, City staff should review the project to determine how to best apply pedestrian accommodations. If the proposed project is considered sufficient, City staff will prepare conditions of approval for the project. Otherwise, the project proponent is asked to revise the project to make better pedestrian accommodations. .

The following checklist is meant to assist City staff in considering a project's pedestrian environment. This checklist describes how to reference relevant resources and determine an appropriate pedestrianization strategy.

HOW TO CONSIDER THE PEDESTRIAN ENVIRONMENT: PEDESTRIAN CHECKLIST

Consideration of the pedestrian environment involves the following four steps:

- 1. Reference Resource Material Requirements
- 2. Determine the Project's Pedestrian "Smart Growth" Score
- 3. Determine Appropriate Pedestrian Accommodations
- 4. Assess the Need for Additional Pedestrian Considerations

Step 1: Resource Material Requirements

Many City documents contain policies, standards, and guidelines applicable to pedestrians. The following documents contain the most relevant information, but, depending on the location of the project, other documents may need to be consulted, such as Specific Plans, Urban Design Plans, and Streetscape Plans.

General Plan: Refer to the *General Plan* for discussion and policies relating to overall transportation goals. Goals in the *General Plan* are balanced with respect to various modes of travel, and sections on pedestrian safety and comfort are included. New developments should be consistent with these goals.

Design & Procedures Manual, Pedestrian Friendly Street Standards, and Standard Specifications: Refer to the DPM and *Standard Specifications* for guidance on streets and sidewalk standards.



Jefferson Commons is a new three-story student apartment community that provides 288 units of much need housing for students at California State University, Sacramento.

Source: www.kaufmanmeeks.com

Pedestrian Safety Guidelines: Refer to the Pedestrian Safety Guidelines for guidance on “best practices” for pedestrian safety, especially at pedestrian crossings. See Appendix A3

Traffic Calming Guidelines: Refer to the City’s Traffic Calming Guidelines for guidance on how traffic calming strategies can improve pedestrian conditions and safety.

Other Documents: Other documents specific to a particular location, such as Specific Plans, Urban Design Plans, and Streetscape Plans may have language or policies for pedestrians.

Step 2: Pedestrian Smart Growth Rating

The pedestrian smart growth rating is adapted from the City’s draft *Smart Growth Implementation Guide* as a way to quantitatively assess pedestrian smart growth elements. The rating is intended to measure the relative pedestrian-friendliness of a project development. The following pages contain a rating scorecard to calculate how a development project will measure up to pedestrian needs.. This rating is calculated as an average of all the applicable measures, ranging from 1 to 4. A high rating (between 3 and 4) would indicate a development is likely to be pedestrian oriented. A low rating (2 or less) would indicate a development is unlikely to encourage or facilitate pedestrian activity.



The Fremont Building was a pioneering development project, representing the first large-scale mixed-use building in Sacramento. There was considerable doubt that such a large complex could succeed within the Midtown area, but judging by its incredible success, it is clear the skeptics were wrong.

Source:
www.leonarddevelopment.com/projects/project2.html



Wide sidewalks, a developed tree canopy, and an appropriate scale building façade make this residential street in St. Paul, Minnesota very walkable.

Pedestrian Smart Growth Scorecard (From Sacramento Smart Growth Implementation Guide)

Section 1: Proximity

1.1: Walking distance to transit stop (Bus, Light Rail)	Assessment	Rating	Score:
On site/across the street	Excellent	4	<input type="checkbox"/>
up to 1325 feet (approx. 5 minute walk)	Good	3	
up to 2650 feet (approx. 10 minute walk)	Acceptable	2	
up to 3975 feet (approx. 15 minute walk)	Minimal	1	
Not applicable/transit not available		0	

1.2: Proximity to off-site restaurants, entertainment centers, retail shops, libraries, civic centers, parks services (bank, post office, barber and the like)	Assessment	Rating	Score:
Adjacent/across street	Excellent	4	<input type="checkbox"/>
up to 1325 feet (approx. 5 minute walk)	Good	3	
up to 2650 feet (approx. 10 minute walk)	Acceptable	2	
up to 3975 feet (approx. 15 minute walk)	Minimal	1	
Not applicable/none		0	

1.3: Residential development projects: proximity to grocery, convenience stores, household supplies	Assessment	Rating	Score:
On-site, adjacent/across street	Excellent	4	<input type="checkbox"/>
up to 1325 feet (approx. 5 minute walk)	Good	3	
up to 2650 feet (approx. 10 minute walk)	Acceptable	2	
up to 3975 feet (approx. 15 minute walk)	Minimal	1	
Not applicable		0	

1.4: Residential development projects: proximity to schools or day care	Assessment	Rating	Score:
On-site, adjacent/across street	Excellent	4	<input type="checkbox"/>
up to 1325 feet (approx. 5 minute walk)	Good	3	
up to 2650 feet (approx. 10 minute walk)	Acceptable	2	
up to 3975 feet (approx. 15 minute walk)	Minimal	1	
Not applicable		0	

1.5: Commercial development projects: proximity to residential, restaurant or retail shops services (bank, post office, barber, etc.)	Assessment	Rating	Score:
On-site	Excellent	4	<input type="checkbox"/>
Adjacent/across street	Very good	3	
up to 1325 feet (approx. 5 minute walk)	Acceptable	2	
up to 2650 feet (approx. 10 minute walk)	Minimal	1	
Not applicable		0	

Section 2: Site Optimization and Compactness

2.1: Location of building(s) relative to public sidewalk	Assessment	Rating	Score:
Adjacent	Excellent	4	<input type="checkbox"/>
Separated by open plaza or outdoor seating area	Good	3	
Separated by open landscaped area with connecting pathways	Acceptable	2	
Separated by fenced outdoor yard with connecting pathways	Minimal	1	
Not applicable		0	

2.2: Location of on-site parking relative to public sidewalk	Assessment	Rating	Score:
Located behind or within building	Excellent	4	<input type="checkbox"/>
Located to side of building	Good	3	
Adjacent with connecting pathways	Acceptable	2	
Adjacent with landscape screening	Minimal	1	
Not applicable		0	



Pedestrian Smart Growth Scorecard (Page 2)

Section 3: Accessibility and Mobility

3.1: Provide pedestrian amenities for transit	Assessment	Rating	Score:
Direct pathway to light rail transit station	Excellent	4	<input type="checkbox"/>
Direct pathway to bus shelter with seat, and schedule information	Good	3	
Adjacent to public sidewalk with loading area and seating	Acceptable	2	
Bus stop with signage	Minimal	1	
Not applicable		0	

3.2: Provide direct sidewalk connections	Assessment	Rating	Score:
Multiple entrances along all public sidewalks	Excellent	4	<input type="checkbox"/>
At least one entrance along a public sidewalks	Good	3	
Shaded, well marked pathway from public sidewalk	Acceptable	2	
Paved area from public sidewalk	Minimal	1	
Not applicable		0	

3.3: Relationship to automobile access	Assessment	Rating	Score:
Drive on access to rear of building(s) or alley access	Excellent	4	<input type="checkbox"/>
Driveway along public sidewalk with delineated pedestrian crossings	Good	2	
Driveway across public sidewalk	Minimal	1	
Not applicable		0	

3.4: Facilitate connections to public outdoor space	Assessment	Rating	Score:
Access to multi-use trails or pedestrian pathways	Yes	4	<input type="checkbox"/>
Not applicable		0	

Section 4: Street Network

4.1: Street pattern	Assessment	Rating	Score:
Entire street pattern is a grid	Excellent	4	<input type="checkbox"/>
Street pattern has mix of grid, loops and cul-de-sacs	Good	3	
Street pattern with loops and cul-de-sacs and pedestrian connections	Acceptable	2	
Street pattern with loops and cul-de-sacs	Minimal	1	
Not applicable		0	

4.2: Block lengths (long side)	Assessment	Rating	Score:
Less than 400 feet	Excellent	4	<input type="checkbox"/>
400-500 feet	Good	3	
501-600 feet	Acceptable	2	
Greater than 600 feet	Minimal	1	
Not applicable		0	

4.3: Continuation of existing neighborhood street pattern into new project	Assessment	Rating	Score:
	Yes	4	<input type="checkbox"/>
	No	1	
	Not applicable	0	

Overall Pedestrian Rating

(Total of all scores)/(number of measures scored>0) 4 = Excellent
3 = Good
2 = Moderate
1 = Poor



Step 3: Determine the appropriate pedestrian accommodation

Levels of Pedestrian Improvement

Overall, the City should be made accessible to pedestrians. While certain exceptions may apply, most streets should be targeted to have “basic” facilities. To meet the needs of pedestrians throughout the City, just providing this base level will not be enough to meet the demand. A three-tiered approach is recommended, where more intense improvements are proposed for areas of increased demand.

In locations where pedestrian demand is higher, “upgraded” improvements should be implemented. This level of improvement includes everything in the basic level, plus added features. Projects will be expected to provide all improvements along the street, including sidewalks, lighting and landscaping. Using the “basic,” “upgraded” or “premium” levels of improvements discussed earlier, an appropriate pedestrian accommodation should be applied. At a minimum, “basic” pedestrian improvements will be required of all projects. Along designated pedestrian corridors identified earlier in this section and areas with a high “Pedestrian Demand Rating,” “upgraded” or “premium” pedestrian treatments such as wider sidewalks and enhanced street crossings may be required.

Where pedestrian demand is at its highest, “premium” improvements should be used. These improvements include all of the basic and upgraded level improvements, plus additional elements that make the pedestrian setting an active urban place. Items like extra-wide sidewalks, special lighting, signage, and seating are some of the features included.

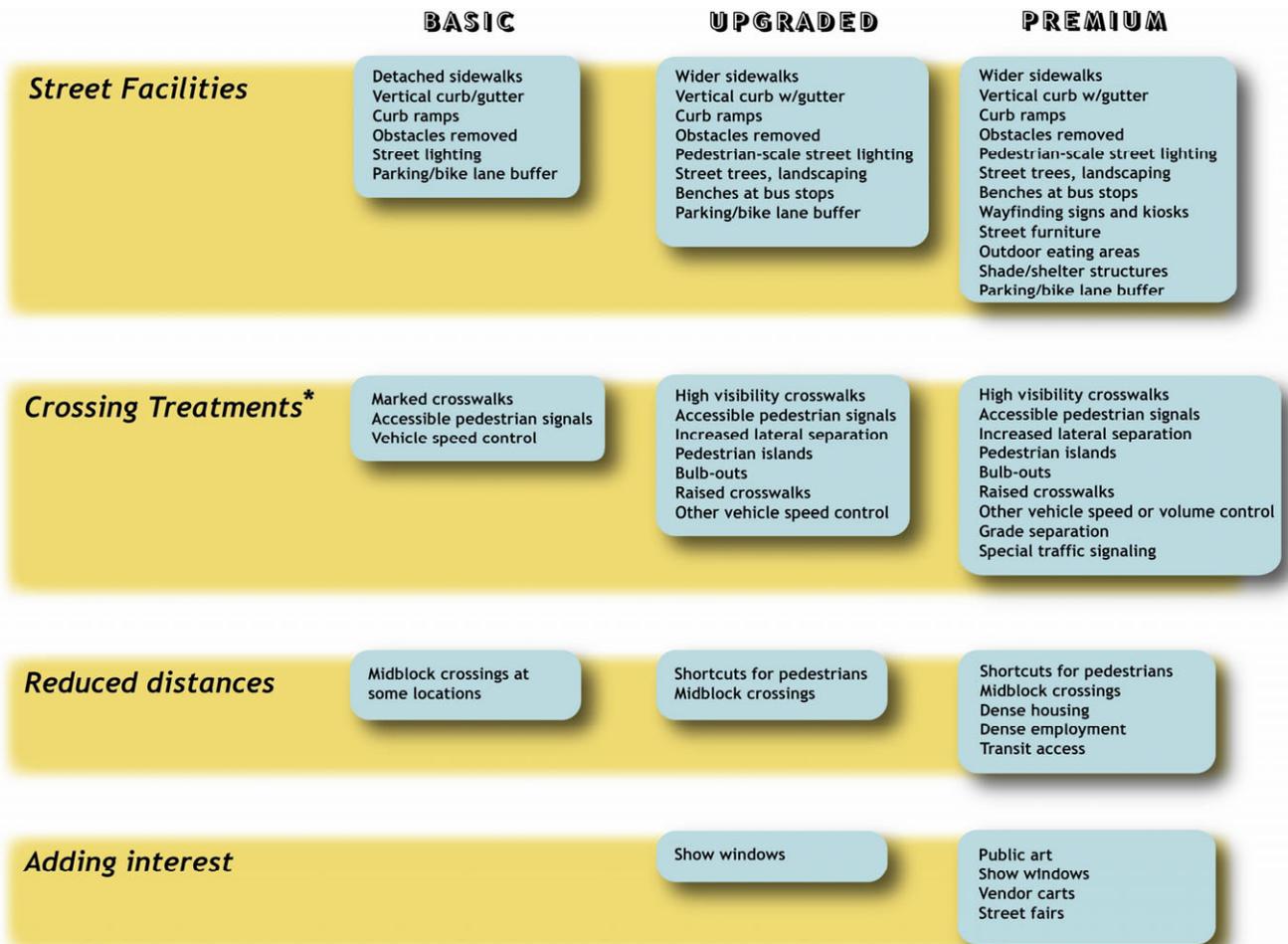
The three levels of improvements are summarized in the chart on the following page:



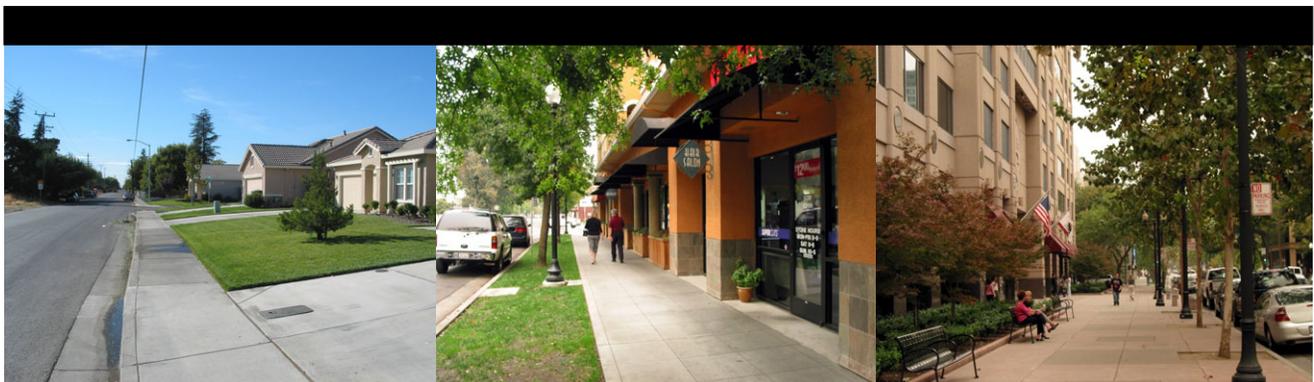
Located just 3.5 miles from downtown Sacramento, Del Paso Nuevo is a 150-acre master planned development that converts a distressed area into a new neighborhood with home-ownership opportunities.

Source: www.hud.gov/offices/cpd/communitydevelopment/programs/cdb/g30/ca/sacramentohousing/index.cfm (photos from web site)

Figure A.1: Levels of Pedestrian Improvements



*Regardless of the environment's rating, the Pedestrian Safety Guidelines provide explicit direction about the type of crossing treatment appropriate at various locations.



BASIC

UPGRADED

PREMIUM

A pedestrian corridors map has been made showing streets that should be considered for “upgrade” or “premium” treatments. Highest pedestrian potential areas may further indicate a need for “premium” treatments. This map is shown in detail in Section V of the Master Plan.

The City has formed a technical advisory committee to develop guidelines for construction of sidewalks in infill locations. The recommendations of this group will be presented to the City Council as part of the Pedestrian Master Plan Implementation program.

Step 4: Need for Additional Pedestrian Considerations

Beyond street improvements, the need for adjacent pedestrian facilities and adequate internal pedestrian circulation should be evaluated.

Evaluation for adjacent needs and internal circulation should include:

- Projects that will have unique pedestrian environments, such as those that will have large open-space components, substantial peaks in pedestrian activity, or require additional pedestrian safety considerations, (such as day care centers and senior centers)
- Projects with high pedestrian traffic adjacent to gaps in the pedestrian network, where projects might be expected to contribute to closing gaps in the pedestrian network
- If there are substantial barriers or impediments to pedestrian travel nearby, projects may need to address strategies for barrier elimination or removal of travel impediments.
- Internal pedestrian circulation, such as internal pathways, pedestrian lighting, and separation from vehicular site access.
- Non-motorized trails connected to existing or proposed trail networks



These pedestrian paths in Albuquerque, New Mexico are visually varied, with soft edges and pleasant ambiance.

DEVELOPMENT APPROVAL

Developers often propose new projects that create the need for pedestrian facilities or improvements. These projects may require improvements beyond the project limits to overcome obstacles and barriers to pedestrian travel.

City staff should evaluate the level of need based on the above pedestrian checklist. The level of improvement should have a clear relationship to the type and magnitude of the project.

Furthermore, the timing of implementing the pedestrian improvements should be included. Ultimately, 100 percent of the pedestrian improvements should occur before or at the time the development is 100 percent complete.

Examples of required improvements include upgraded or premium pedestrian facilities, removal of barriers to pedestrian travel, and improved pedestrian connections to adjacent developments or trails.

RELATIONSHIP TO THE PEDESTRIAN IMPROVEMENT PROGRAM

Section V of the *Pedestrian Master Plan* discusses the Pedestrian Improvement Program. It describes where “upgraded” or “premium” pedestrian treatments should occur. Development projects should consider these locations when preparing condition of project approval.

UNIQUE ENVIRONMENTS, CONNECTIVITY, BARRIER REMOVAL, AND CIRCULATION

Project approval may also be conditioned upon the additional pedestrian considerations described above. These include projects with unique pedestrian environments, projects with pedestrian facilities nearby that it is appropriate to provide a connection to, projects where elimination of physical barriers to pedestrian connectivity should be addressed, and projects with a less than adequate internal pedestrian circulation scheme.



Metro Square is an infill project built in 1999 at a density of 21 units per acre. The project consists of the following 45 dwelling units on nearly a complete city block.

Source: <http://www.lgc.org>

APPENDIX B: PEDESTRIAN DESIGN GUIDELINES

INTRODUCTION

The Design Guidelines presented in this Appendix are meant to supplement the Pedestrian Friendly Street Standards in Section V of the *Design and Procedures Manual*. The guidelines presented here cover two basic levels of the pedestrian environment: the macro level (overall neighborhood design and land use features) and the micro level (corridor and detail level design elements such as corner radii, sidewalk and intersection design). General design principles govern the guidelines.

Walkable communities have:

- **Short block lengths** – no longer than 500 feet with few exceptions.
- **Frequent crossing opportunities** – at least every 300 feet near pedestrian trip generators such as schools, parks, libraries, shopping centers, and hospitals.
- **Different uses located within walking distance of one another** – neighborhoods within $\frac{1}{4}$ - $\frac{1}{2}$ mile of shopping centers and employment centers; all neighborhoods within $\frac{1}{4}$ - $\frac{1}{2}$ mile of a transit stop.
- **Frequent pedestrian amenities** – benches, water fountains, newspaper racks with consistent design and placement in pedestrian districts.
- **Wide sidewalks with buffer zones** – sidewalks at least five – six feet wide (and oftentimes wider) with six-foot planting strips in pedestrian districts.
- **Compact intersections** – with short crossing distances and cycle lengths for pedestrians.



THE BIG PICTURE: CREATING WALKABLE NEIGHBORHOODS

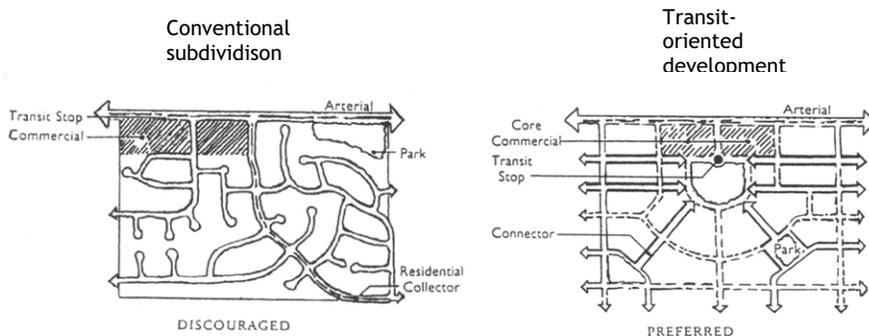
This section examines strategies and guidelines for creating pedestrian-friendly environments in both new and in-fill development. This section is for City staff and developers alike.

STEP ONE: ENCOURAGE WALKABLE LAND USE PATTERNS

The following examples and principles are instrumental in developing model walkable communities.

Transit-Oriented Development

Transit-oriented development (TOD) is highly conducive to pedestrian travel. Medium to high density neighborhoods are oriented around a transit station or hub, with integrated commercial and retail uses. The transit stop is generally designed to be easily accessible on foot. TOD differs from typical subdivision-style development by creating “nodes” of activity where commercial uses, parks, and transit stations can be located close to housing.



Source: *Creating Livable Streets, Portland Metro and Fehr & Peers*

Strategies for creating pedestrian-friendly TOD include:

- Concentrating land uses to encourage walking, especially near transit, and coupled with public space such as plazas, greens, and pocket parks.
- Encouraging shared parking and reducing parking requirements in pedestrian/transit districts.
- Establishing of parking maximums in pedestrian/transit districts.



The 12th and K Street Mixed-Use project Located adjacent to light rail and one block from the Capitol, this project will provide new housing and retail on Sacramento’s K Street Pedestrian Mall.

Source: Fletcher Farr Ayotte PC
www.ffadesign.com

Mixed-Use Development

Mixed-use development combines several different uses in the same development or district. Similar to TOD, mixed land uses encourage walking. Mixed-use development can attract and generate high levels of pedestrian activity, especially if uses are complementary and include residential components.

Principles for pedestrian-friendly mixed-use development include:

- Promoting Smart Growth principles that allow a mix of complementary uses, reducing building setbacks, establishing parking maximums, and discouraging of auto-oriented businesses where appropriate.
- Discouraging blank walls facing the street environment. Orienting doors and windows to face the main street.
- Creating street-level mixed uses that draw pedestrians in from the sidewalk and encourage street interaction.
- Creating landscape screening for parking structures or locating surface parking lots at the rear of buildings. Rooftop parking can also be considered for mixed-use districts.



This new Safeway grocery store at 19th Street and S Street includes other retail shop, restaurants and housing all in one complex.

STEP TWO: ELIMINATE BARRIERS

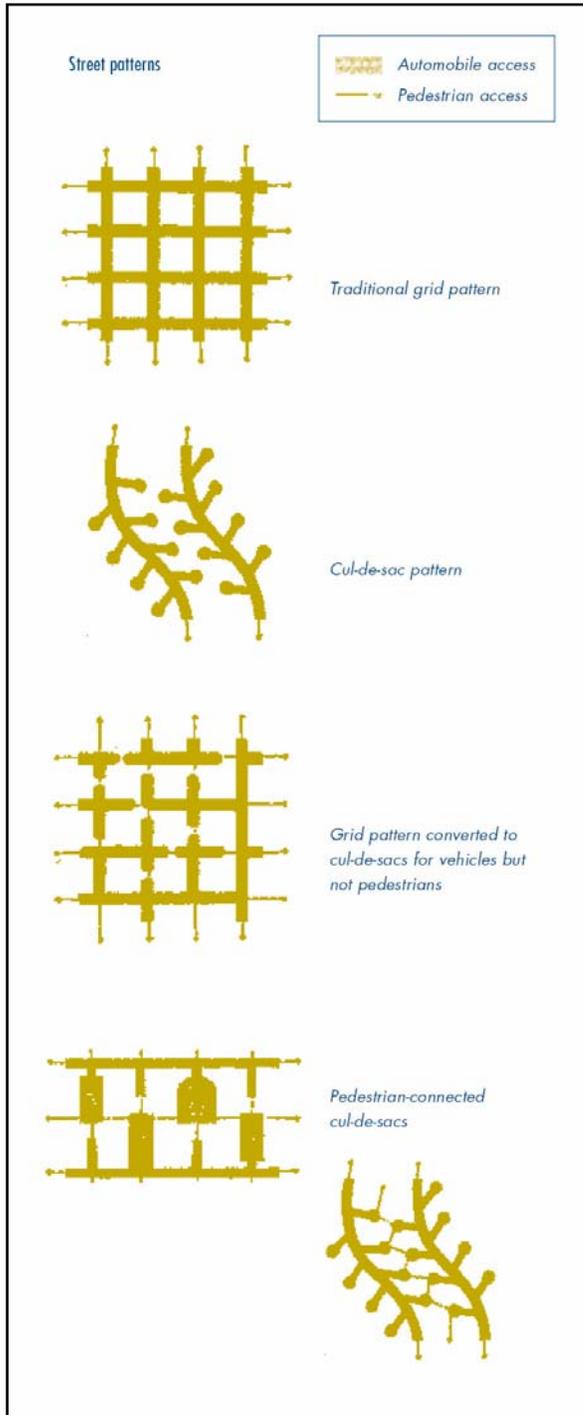
Barriers to walking include long distances, uninviting sidewalks, and lack of quality destinations. Establishing pedestrian shortcuts for access to nearby commercial centers as well as improving streetscapes can eliminate some major obstacles to walking. Principles for elimination of barriers in new developments include:

- Provision of direct connections or shortcuts from residential areas to neighborhood commercial destinations, parks, and trails. Connecting dead-end streets or cul-de-sacs to pedestrian trails or adjacent streets encourages pedestrian connectivity.
- Drawing walkability maps of a proposed development is a useful tool for determining pedestrian access to local destinations.
- Landscaping sidewalks with street trees and attractive views will encourage more pedestrian activity.



Pedestrian shortcuts, connected cul-de-sacs provide substantial improvements for pedestrian walkability and access to neighborhood destinations.

Figure B.1: Potential Ways of Barrier Elimination



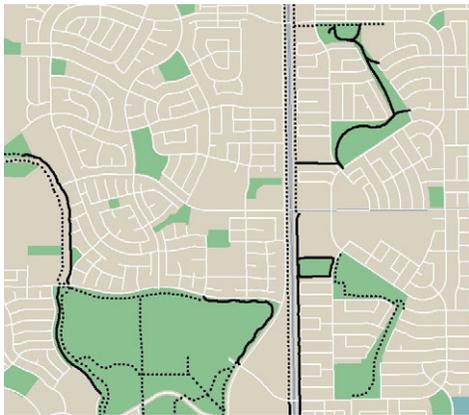
Pedestrian permeable streets can be created through connecting cul-de-sacs and retrofitting grid patterns to reduce through traffic.

Source: Access Magazine, Spring 2004

STEP THREE: CREATE A MULTI-USE TRAILS NETWORK

A multi-use trails network encourages walking for a variety of trip purposes. Access to commercial shopping destinations is possible with a trails network, as are opportunities for recreation and leisure activities. Sacramento’s existing river trails provide access to many citywide destinations, and new neighborhoods can take advantage of this to tie into the existing trails network. New developments can complement the City’s existing trails system by providing easy connections and extending it where possible. Principles for improving and extending the multi-use trails network include:

- Integrating access routes to trail networks and directing access to/from adjacent development encourages walkability and increases property values.
- Providing a clear, direct, and attractive internal pedestrian circulation network to building entrances and the surrounding sidewalk.



Trails networks can complement the roadway system by providing direct connections between destinations. Shown here are trails in the North Natomas area.

STEP FOUR: PROVIDE PEDESTRIAN CONNECTIONS

Connections to existing pedestrian amenities, such as trails, will create the opportunity for increased pedestrian traffic. It will also improve community connectivity and encourage walking as a preferred mode of travel. Principles for providing pedestrian connections include:

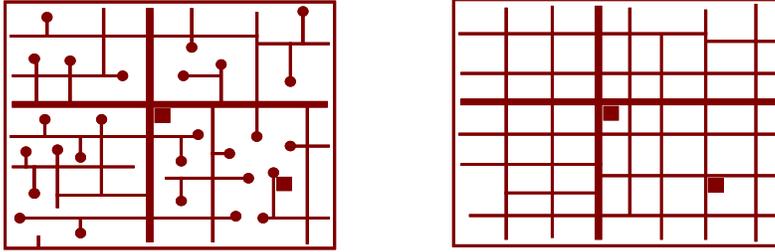
- Integrating access routes to trail networks and direct access to and from communities.
- Providing connections over barriers, such as railroads, waterways or freeways.



The ends of these cul-de-sac streets in North Natomas are connected with a multi-use trail that give pedestrians and bicyclists additional access.

STEP FIVE: STREET LAYOUTS

Newer forms of neighborhood design lack internal connections and concentrate traffic on fewer streets. This can lead to reduced opportunities for pedestrian travel, as destinations are further away than with more traditional grid-based systems. Interconnected through-streets disperse traffic loads across a number of pedestrian-scaled streets and provide direct opportunities for access to local destinations.



Street systems that are not interconnected, like the suburban cul-de-sac, result in longer walking distance and larger arterial streets.

Another option for new neighborhood design is to provide pedestrian connections to destinations while retaining some cul-de-sacs, which remain an attractive quality for many homebuyers.¹

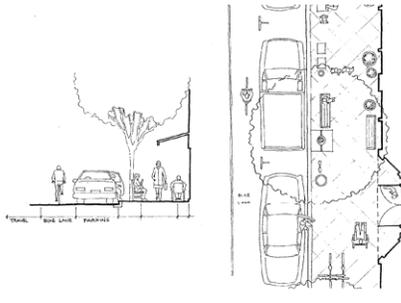
Block lengths in new neighborhoods should follow the recommendations listed in the *Traffic Calming Guidelines*:

“Some street networks leave excessively long blocks without interrupting intersections. Drivers that travel a long distance (500 feet or greater) without being required to slow or stop by traffic control devices can tend to travel at excessive speeds. To minimize this effect, the street network can be designed such that street blocks are interrupted by streets of sufficient traffic volumes to warrant a traffic control device (e.g. a traffic circle or stop sign) on the street of concern.”

¹ See “Reconsidering the Cul-De-Sac” by Michael Southworth and Eran Ben-Joseph, in *Access* magazine, Spring 2004 for more discussion on the appeal of cul-de-sacs to homebuyers.

STEP SIX: STREET CROSS-SECTIONS

The Pedestrian Friendly Street Standards in the *Design & Procedures Manual* are a good starting point for creating walkable streets. Additional treatments, such as wide sidewalks, wide landscaping strips, and landscaped medians, may also be considered in new developments to promote walkability. Reducing building setbacks and encouraging multiple entrance points from the sidewalk helps to make a more active “street wall,” which is a key element to encourage walking. Options such as angled on-street parking may provide a wider buffer for pedestrians and have the effect of calming street traffic and increasing parking capacity. Back-in angled parking is another option that increases visibility for bicyclists and provides easier vehicle loading than traditional front-in angled parking.



Wide sidewalks are encouraged, especially in areas with high expected pedestrian activity and where pedestrian amenities such as street furniture and outdoor seating will be present.

Source: *Creating Livable Streets, Portland Metro and Fehr & Peers*

STEP SEVEN: SITE ACCESS AND ARCHITECTURAL DETAILS

Providing site access for automobiles in a pedestrian friendly manner is an important principle for pedestrianizing neighborhoods. This includes limiting the number of access points for automobiles to minimize potential conflicts. Pedestrian visibility also should be considered wherever they cross in front of automobiles – providing areas clear of trees and other landscape features to insure that motor vehicle drivers can see pedestrians at intersections and driveways is important for maintaining pedestrian safety.

Details oriented towards pedestrians improve the visual quality of the pedestrian setting. Urban design guidelines, architectural design guidelines, and building codes can encourage a high level of architectural detailing.



THE DETAILS: CORRIDOR AND STREET LEVEL

THE PEDESTRIAN ENVIRONMENT

Design guidelines for detail-level pedestrian friendly improvements can be divided up into several elements that constitute the pedestrian environment. These include:

Travelway: The travelway includes sidewalks, pathways, and landscaping treatments that define the pedestrian traveled way.

Buffer: The buffer is the area between the travelway and the roadway. It is often the location of pedestrian amenities such as street furniture, newspaper stands, wayfinding signs, and seating. Other elements in the buffer zone can include parking and bicycle lanes.

Corners: This includes curb ramps planter and sidewalk space at intersection corners.

Street crossings: Street crossings include crossings at intersection and mid-block locations.

The Travelway: Sidewalks and Streets

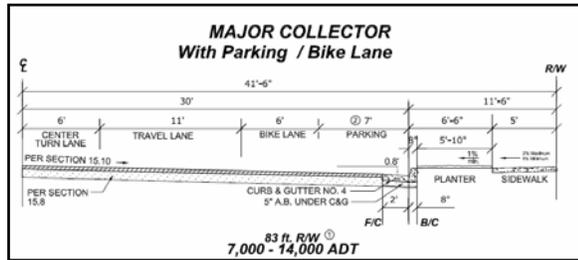
The DPM includes minimum design standards for street cross sections. Where pedestrian activity is likely to be greater, increased sidewalk widths are recommended. Additionally, the allowance of parking on arterial streets is recommended. See Appendix A3 for cross section drawings.

It is important to create sidewalk widths which are appropriate for the activities and pedestrian levels along the street. The minimum width for sidewalks is five feet. This is just enough width for two people to walk side by side, and it assumes that only a minimum amount of pedestrian traffic will use it. The following pages enumerate the approach to setting sidewalk widths for streets based on demand.

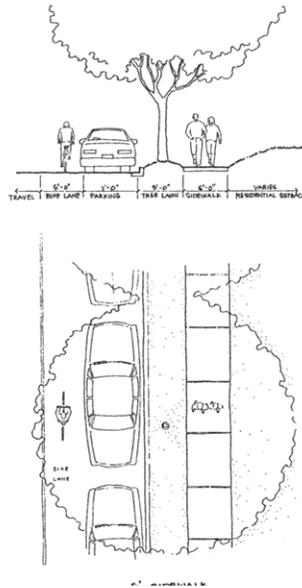


Sidewalk Design: Basic Sidewalks

The DPM describes basic facilities for all street types, including residential streets, collectors, and arterials. Basic facilities include five-foot sidewalks and a vertical curb. When built on a new street they should include a six foot landscape buffer between the sidewalk and the street. When installing sidewalks on existing existing streets, attaching it to the curbs may be necessary to maintain continuity of the street cross section.



Source: Design & Procedures Manual

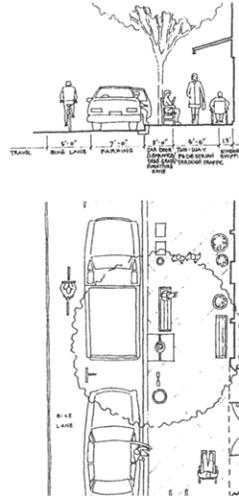


Source: Creating Livable Streets, Portland Metro and Fehr & Peers

Sidewalk Design: Upgraded Sidewalks

The DPM does not show street cross-sections for wider than five-foot sidewalks, but a wider sidewalk could be installed in areas that justify it. Wider sidewalks would provide an adequate pedestrian travelway and space for street furniture and seating. On-street parking and bicycle lanes serve as a buffer to separate the sidewalk from street traffic.

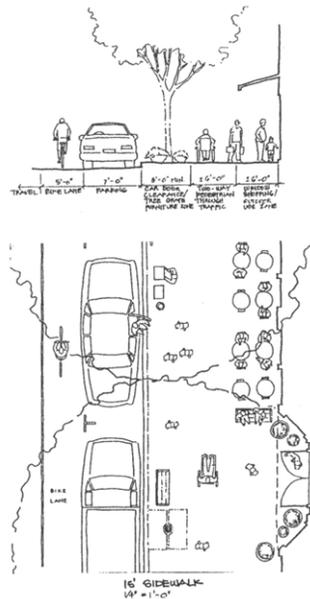
Source: Creating Livable Streets, Portland Metr. Fehr & Peers



Sidewalk Design: Premium Sidewalks

Premium sidewalks include a wide travelway for pedestrians as well as room for other amenities, such as tables, benches, and other pedestrian amenities. Below are illustrations of premium pedestrian facilities, with sidewalks that are approximately 15 or more feet wide, benches, and café-style street seating.

Source: Creating Livable Streets, Portland Metro and Fehr & Peers



Barriers in the Travelway

Utility poles are a common example of a barrier in the pedestrian travelway. They can substantially interfere with pedestrian travel, particularly for wheelchair users.

Recommended solutions for utility poles on sidewalks are:

- a) Expand the sidewalk around the pole
- b) Relocate pole from sidewalk area
- c) Underground utility



One option for dealing with a utility pole in the pedestrian right-of-way is to expand the sidewalk to provide adequate space for pedestrians and wheelchairs to maneuver around it.

The Buffer Zone

Planting strips, parking lanes, and even bicycle lanes provide a buffer between pedestrians on the sidewalk and motor vehicle traffic. Buffer strips are recommended to eliminate driveway cross slopes in the sidewalk, improve pedestrian comfort, and offer landscape/shade opportunities.

There are several elements that can be located in the buffer zone, including lighting, plantings, wayfinding signage, and street furniture. Although this document does not address landscape architecture issues, special care should be taken when selecting and planting street trees. Street trees provide shade and shelter as well as a buffer, but if planted improperly, they can also damage sidewalks.

Pedestrian-scaled street lighting

Pedestrian scaled street lighting improves visibility. Pedestrian scaled street lighting is typically mounted closer to the sidewalk than roadway-oriented lighting. Lighting standards that have architectural detailing will help to fit with a more human scale.

Landscaping Buffers

Street trees improve the pedestrian environment by providing shade and a buffer from automobile traffic. Trees can be planted along landscape strips or in individual tree wells. Landscaping treatments reduce the amount of impervious space along the walkway and can be used for drainage water quality purposes in some locations.

On-street Parking and Bicycle Lane Buffers

In addition to landscaping treatments, on-street parking and bicycle lanes can provide excellent buffers between pedestrians and automobile traffic, especially on streets with high traffic volumes.

Pedestrian amenities

Pedestrian amenities are appropriate for most premium pedestrian areas and many upgraded facilities. They include amenities such as seating, news racks, waste containers, recycling bins, water fountains, outdoor cafes, retail displays, and public art.

Pedestrian-oriented signage

In areas of high pedestrian activity pedestrian oriented signage is useful. This is especially the case where there are many pedestrians who may be unfamiliar with the area and the location of nearby destinations. This kind of signage should be smaller in size and closer to the sidewalk compared to roadway signage.

Outdoor seating, displays, and kiosks

Street cafés and restaurants with windows that open on the street encourage use of the sidewalk for extended time periods. Such uses can be a catalyst for additional pedestrian traffic and a high-quality pedestrian environment.



Newspaper stands and outdoor public restrooms are good examples of pedestrian amenities in San Francisco

Street furniture and newspaper rack ordinances

Street furniture and newspaper rack ordinances encourage a minimum level of visual appeal for urban streetscapes. They can maintain a level of amenity without creating obstacles.



The Corner Zone

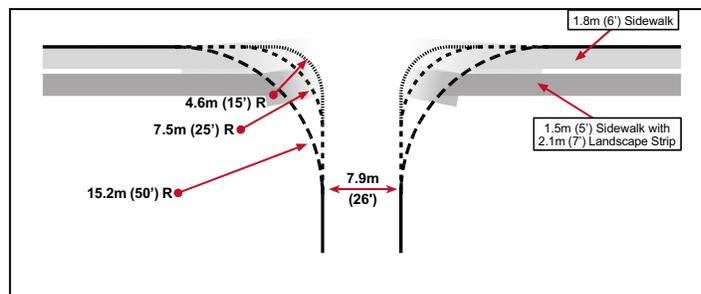
The street corner typically serves as the transition from the sidewalk to a crossing facility. Here, pedestrians perform many important tasks such as activating pedestrian crossing signals, waiting for vehicular traffic to clear, advertising their intent to cross to vehicles, gathering navigational information, and utilizing ramps to access crosswalks.

Good corners are:

- **Clear of obstructions** They have enough space to accommodate the typical number of pedestrians waiting to cross.
- **Visible** Pedestrians waiting to cross should have an unobstructed view of approaching vehicles and approaching motorists should be able to see waiting pedestrians easily.
- **Intuitive** Symbols, marks, and signs used at corners should be universal and clear so that both motorists and pedestrians know what actions or movements to make and expect.
- **Accessible** Everything at the corner, including ramps, landings, call buttons, signs, symbols, marks, and textures, must meet standards dictated by the Access Board, as required by the Americans with Disabilities Act and the *State of California Code of Regulations* Title 24.
- **Discreet** Corners should be separate from vehicle traffic. They should have design features that disallow vehicles from encroaching.

Maximum curb radii

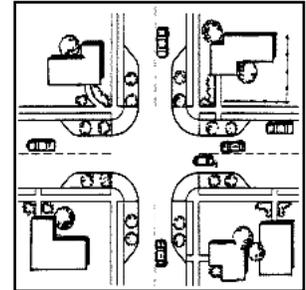
Reduced curb radii have a twofold benefit for pedestrians: First they improve pedestrian visibility by decreasing speeds for turning vehicles and second, they shorten crossing distances. Reduced curb radii are appropriate in pedestrian zones and commercial districts where few long vehicles are expected to be turning. Buses can generally maneuver around curbs with 25 foot radii. Other considerations that factor into the radius are the presence of bike lanes and on-street parking, which increase the effective radius of a curb. Care should be exercised to insure that the radii are coordinated with the design of curb ramps.



Curb radii can have a dramatic effect on pedestrian crossing distances.

Corner bulbouts

Curb extensions or bulbouts are another effective strategy for decreasing pedestrian exposure and decreasing crossing distances at intersections. They are appropriate at locations with usable space next to the curb and at intersections of three or more lanes. Curb extensions should not extend further than six feet into the street adjacent to parallel parking, or 12 feet adjacent to diagonal parking. At locations with no on-street parking, curb extensions should be designed not to impede bicycle travel.



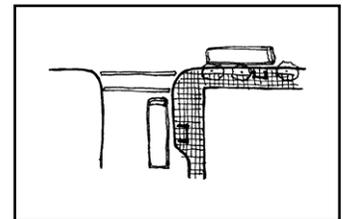
Corner bulbouts decrease crossing distances and improve pedestrian visibility.

Restricted parking near intersections

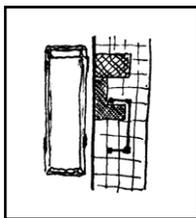
Parked vehicles near intersections reduce sight distances. While reduced sight distances can encourage traffic to travel at slower speeds, they also present a hazard to crossing pedestrians. Removal of parking spaces near intersections allows vehicles to have a clearer view of the curb and pedestrians crossing the roadway.

Bus stop bulbouts and exclusive bus lanes

Transit riders are pedestrians before and after their trip. Bus bulbouts are more pedestrian friendly than bus turnouts. Besides allowing for better visibility of transit riders waiting at stops, they can be an effective traffic calming strategy for traffic adjacent to the curb. Nevertheless, bus turnouts are necessary on streets with high volumes and speeds. Along corridors with high bus frequencies, exclusive bus only lanes improve transit travel times and reliability.



Location of transit stops for pedestrian visibility and safety



Source: Adapted from Architectural Transportation and Barriers Compliance Board

Transit stops can be located for ease of pedestrian access and transferring between lines. At busy intersections, locating the east-west and north-south bus stops on the same corner encourages a more seamless transfer from one bus line to another. Bus stops also should maintain a clear area for disabled access from the bus shelter to a waiting transit vehicle.

Street Crossings

Pedestrian crossings generally fall into two categories: controlled and uncontrolled. Controlled crossings include signalized locations and stop-controlled crossings (both all-way stops and stop-controlled approaches on two- and three-way stops). Uncontrolled crossings include both intersection and mid-block locations.

Pedestrian-friendly crossings are:

- **Compact:** A generally good maxim to follow is “never design more than you need.” Keep turning radii tight; discourage free-right turns; and include pedestrian refuge islands or other special devices at especially wide crossings.
- **Visible:** The pedestrian crossing should be clearly-marked. Maintaining a high-visibility crossing creates an intuitive and safe environment for all users. Visibility also applies to sight distance. *Pedestrians should be clearly visible by motorists up to 250 feet away.*
- **Useful:** One of the first steps in creating a marked, uncontrolled crossing, especially for mid-block locations, is to determine need and location. While identifying pedestrian “desire lines,” or the places where the most pedestrians want to cross, can present special challenges, it is essential in order to ensure a cost-effective and well-used crossing.
- **Safe:** A common misperception about marked uncontrolled crossings is that they give pedestrians a “false sense of security.” Recent research has concluded that not all marked uncontrolled crossings are less safe than marked crossings.

The City’s *Pedestrian Safety Guidelines* contain extensive direction on both controlled and uncontrolled crossing locations.



Alternative pavement treatment at the intersection of J Street and 26th Street

APPENDIX C: INTEGRATION AND IMPLEMENTATION

INTRODUCTION

Appendix C is divided into the following subsections:

- **High Priority Document Updates**
- **Citywide Document Matrix**
- **Implementation Guide**

HIGH-PRIORITY DOCUMENT UPDATES

This section presents recommended updates to the following City documents:

- General Plan
- Pedestrian Safety Guidelines
- Transportation Programming Guide
- Residential Design Standards
- Pedestrian Friendly Street Standards/ Design & Procedures Manual
- General Recommendations for Other Documents

The vision, goals and strategies in the Pedestrian Master Plan outline an approach to making Sacramento a model pedestrian-friendly city. In order to achieve this vision, policies must be applied to current planning practice and documents in Sacramento. The most fundamental of these is the City's General Plan, but policies also need to permeate down to transportation funding procedures, street and development standards, development review procedures, and community/specific plans. Several documents should be updated to fulfill the vision of creating a more pedestrian-friendly Sacramento. Some of the most vital are discussed below.



General Plan

The document assets and needs assessment for the General Plan is a sample of the type of evaluation that was conducted for policy-level documents that affect pedestrian conditions in Sacramento.

The following are specific recommendations for changes to the General Plan.

- Reconsider LOS C standard for Sacramento streets and change to LOS D for all facilities, with consideration of LOS E or F for freeways, main streets, and pedestrian zones.** The City is presently engaged in an update to its *General Plan*. Part of the update process is an ongoing discussion about the utility of the City’s current Level of Service standards, which call for Level of Service C at most intersections. In order to maintain Level of Service C for vehicles, it is often necessary to widen roadways to increase capacity and decrease delays for motorists. This approach often creates wide crossings, multiple turn lanes, and higher speeds, which are not conducive to a comfortable walking environment. It also creates challenges for converting one-way streets to two-way streets. This document encourages the adoption of a lower Level of Service for motorists, particularly in areas with high pedestrian activity or the potential for high pedestrian activity, to allow the City to create compact crossings.

	Main Street				Commercial Street				Industrial Street				Residential Street			
	Vehicles	Transit	Bicycles	Pedestrians	Vehicles	Transit	Bicycles	Pedestrians	Vehicles	Transit	Bicycles	Pedestrians	Vehicles	Transit	Bicycles	Pedestrians
Arterial	E	A	C	A	E	C	C	C	D	D	D	E	D	D	C	B
Collector	D	C	A	B	D	D	C	C	D	D	D	E	C	D	C	B
Local	D	D	B	A	C	C	C	C	C	D	D	E	C	D	C	B

Sample Multi-Modal, Context-Sensitive LOS Standards (not intended for use without further development)



- **Identify specific pedestrian districts and/or corridors for enhancement.**
- **Re-emphasize and incentivize compact mixed-use infill to create a better pedestrian environment.**
- **Include illustrations of pedestrian-oriented streetscape design to assist developers in fostering them.**
- **Include stronger pedestrian language and implementation tools.** For example, it could require that CIP projects include pedestrian elements or give projects with pedestrian improvements higher priority.
- **Explore opportunities to eliminate lanes and reduce roadway widths where appropriate.** Some roads in the City have excess capacity such that roadway space from excess travel lanes could be reallocated to install bicycle lanes, on-street parking, and/or sidewalks. Lane elimination strategies are typically called “road diets” and are effective at improving multimodal travel conditions and managing vehicle speeds. The development of schedule for reexamining potential roadways as road diet candidates.

Pedestrian Safety Guidelines

Prepared in 2002, the Sacramento Pedestrian Safety Guidelines provide an overview of existing programs and documents related to pedestrian safety. Other sections of the document deal with safe street crossings at intersections and mid-block locations.

- **Integrate the Pedestrian Safety Guidelines and Pedestrian Friendly Street Standards documents into Pedestrian Technical Guidelines (PTG) to guide the implementation of the Pedestrian Master Plan.** An integrated document can ensure internal consistency in various levels of plans and serve as a complement to the Pedestrian Master Plan. The PTG document could be developed when the Pedestrian Safety Guidelines and Pedestrian Friendly Street Standards are next updated, and could be more aggressive in promoting sidewalk design sensitive to its context, advocating compact mixed use development and more pedestrian-sensitive site and architectural design, and building a stronger relationship between the pedestrian network and transit.



Implementation and Inter-agency Coordination

Pedestrian-oriented plans and guidelines are only as good as their impact. Several mechanisms exist to make these policy documents more effective. However, without inter-agency coordination, the City has limited influence over its environment. Other entities build and make improvements in Sacramento including State government agencies (such as Caltrans), the County, and the Regional Transit District (RT). The Pedestrian Master Plan Steering Committee, which consisted of representatives from various City departments and RT, noted potential inter-agency tensions: with the State regarding parking requirements of state buildings, with RT regarding coordination of transit and adjacent land uses, and with Caltrans regarding changes at intersections in the City under Caltrans jurisdiction. The City of Sacramento will need to employ strict requirements and strategic coordination to ameliorate potential future conflicts.

Policy Recommendations

- **Establish formal communication with RT on improvements around transit and Caltrans for improvements around interchanges.**

PROJECT FUNDING

Transportation Programming Guide

Projects cannot be built without funding. Sacramento's Transportation Programming Guide (2002) provides a comprehensive structure for prioritizing the City's transportation programs and projects for funding. City staff and a council-appointed Community Advisory Committee developed the guide.

Policy Recommendations

- **Update the Transportation Programming Guide with pedestrian concerns in mind.** Include criteria for assessing pedestrian needs and ensure existing program funding considers pedestrian concerns.
- **Include Pedestrian Demand Score criteria from the Pedestrian Master Plan as a project ranking factor.**



- **Incorporate SWITRS data on pedestrian collisions as a project ranking factor.**

DESIGN STANDARDS

Several strategies are recommended for new neighborhood design. These changes mainly apply to the *Design and Procedures Manual*.

Residential Design Principles

Policy Recommendations

- **Replace design principles with more pedestrian friendly roadway designs.** The design principles include illustrations and diagrams, but, despite the excellent principles, many of them depict pedestrian unfriendly roadway and site designs. These should be replaced.
- **Coordination between planning and permitting is necessary for these principles to have a positive impact on the face of Sacramento.** Clearly stated design codes would promote their implementation.
- Encourage walkable land use patterns, including Transit Oriented Development and Mixed Use Development, following the principles laid out in the Design Guidelines (Appendix B).
- Provide clear, direct, and attractive internal pedestrian networks that connect buildings, neighborhoods, and commercial centers to the adjacent sidewalk.
- Follow the new procedures for development review outlined in this Section (and described in greater detail in Appendix A).
- Avoid “blank walls” wherever possible and create multiple entry points from the sidewalk into new developments.

Design and Procedures Manual / Pedestrian Friendly Street Standards

At a residential street design level, the Pedestrian Friendly Street Standards in the Design & Procedures Manual are revised street design standards that consider pedestrian accommodation on par with the automobile. The goals and objectives are clearly articulated with the guiding policies being to diversify community transportation choices and enhance neighborhood livability.



Policy Recommendations

- **Consider reducing corner radii on streets that do not have a significant number of larger vehicles from the current standard of 27 feet to a smaller radius such as 10-20 feet.** It may be appropriate to reduce curb radii where few large vehicles or buses will be turning and where on-street parking and bicycle lanes enable a greater effective radius than actual. Refer to Appendix B for more detailed discussion of curb radii and their effect on pedestrian crossing distances.
- **Ensure use of and consistency with the *Pedestrian Safety Guidelines*.** Consider special treatments such as pedestrian refuge islands, countdown signals, and others as described in the *Guidelines* where there are wide streets (wider than 60 feet), dual left- or right-turn lanes, or high numbers of turning vehicles.
- **Minimize pedestrian crossing distances by reducing lane widths.** The typical outside travel lane width of 11 feet (where a six foot bicycle lane is present) and the seven foot parking lane appropriately balance traffic needs while minimizing the distance pedestrian must cross and allowing more of the right-of-way to be designated for pedestrian facilities.
- **Provide adequate pedestrian crossing times.** Intersection crossings that are controlled by a signal should ensure adequate pedestrian crossing time is provided.
- **Encourage wider sidewalks in areas with high levels of pedestrian activity.** The width of a sidewalk should be proportional to the demand for pedestrian activity. High activity locations should have wider sidewalks to allow for additional amenities such as seating, window shopping, and conversing with passersby. For a more detailed discussion of appropriate sidewalk widths, see Appendices A and B.
- **Pedestrian-scale lighting standards should be provided all street categories, and the Manual should support the designation of pedestrian-supportive districts and corridors that are appropriate for investment in pedestrian-scale lighting.** A 14-foot light standard required for smaller collectors and residential streets is at a pedestrian scale, and the placement of the standards at all corners of an intersection would provide increased visibility. The “cobra head” style standard at 28 feet - 6 inches does not provide accommodation for pedestrian-scaled lighting, and the



requirements for placement do not require locating standards at each corner. This may compromise pedestrian visibility.

- **Support opportunities to provide angled on-street parking.** Angled on-street parking can enhance the pedestrian environment and improve pedestrian safety by providing a wider buffer between vehicle lanes and the sidewalk. Angled parking can be front-in or back-in, though back-in angled parking is generally more favorable for bicyclists and can provide a traffic calming effect.

Other Documents and Ordinances

A total of 31 documents were reviewed as part of the Pedestrian Master Plan. These documents are listed in Table C-1 below.

Table C-1: Reviewed City Documents	
Document	Date
Citywide Policies	
General Plan	1988, 2000
Pedestrian Safety Guidelines	2002
Pedestrian Friendly Street Standards	draft
Transportation Programming Guide	2002
Design Procedures Manual with Improvement Standards	1990
Residential Design Principles	2000
Standard Specifications for Public Works Construction	1989
Street Design Guide Standards	1999
Traffic Calming Guidelines	2002
Design Guidelines for Bus and Light Rail Facilities	1987
Transition Plan for Curb Ramps	2001
Central City Policies	
Sacramento Central City Community Plan	1980, 1997
Sacramento Urban Design Plan for the Central Business District	1987
Central City Neighborhood Design Plan	-
Sacramento Central Business District Streetscape Study	1992
Community/Corridor Plans	
Airport Meadowview Community Plan	1984
North Sacramento Community Plan	1984
South Sacramento Community Plan	1986
North Natomas Community Plan	1994
South Natomas Community Plan	1988
R Street Corridor Plan	1996
District/Corridor Design Guidelines	
Alkali Flat Urban Design Guidelines	1972
Del Paso Heights Design Guidelines	1989
Oak Park Design Guidelines	1990
Alhambra Corridor Design Guidelines	1991
North Sacramento Commercial, Office, and Industrial Design Guidelines	1994
Del Paso Nuevo Development Guidelines	1998
65 th Street Transit Villages Plan	2001
Parkway Plans	
American River Parkway Plan	1985
Sacramento River Parkway Plan	1993
<i>Note: The Parks and Recreation Master Plan (2004) was developed subsequent to the document review and is not included in this section.</i>	



While it would be impractical to recommend policy changes for each document and ordinance individually, all plans and codes should be updated to ensure consistency with the Pedestrian Master Plan. In addition to the above documents, Sacramento's Zoning Code should be updated to allow the creation of pedestrian overlay zones and other amendments to encourage pedestrian-friendly development.

Policy Recommendations

- **Amend existing documents to be consistent with the Pedestrian Master Plan.** Because of the large number of existing documents, it may be infeasible to amend each for consistency with the Pedestrian Master Plan. A recommended approach is to ensure consistency between documents when they are next scheduled to be updated.
- **Revise Zoning Code to create a pedestrian and/or transit overlay zoning ordinance with: reduced setbacks, building height changes, and reduced parking requirements.**

MATRIX OF REVIEWED CITY DOCUMENTS

REVIEWED CITY DOCUMENTS

Year produced	Citywide Policies										Central City Policies						Community and Corridor Plans						District/Corridor Design Guidelines						Parkway Plans	
	General Plan	Pedestrian Safety Guidelines	Transportation Programming Guide	Residential Design Principles	Design Procedures Improvement Standards Specifications	Design Guide - 1999 Standards & Pedestrian Friendly Street Standards (DRAFT)	City of Sacramento Traffic Calming Guidelines	Design of City of Sacramento for Bus and Light Rail Facilities	City of Sacramento Transition Plan for Cub Ramps	Community Plan 1980, 1997	Urban Design Plan for the CBD Street	Neighborhood Design Plan	Streetscape Study	Meadowview Community Plan	Airport Community Plan	North Sacramento Community Plan	South Natomas Community Plan	North Natomas Community Plan	13 th Street Corridor Plan	Alkali Flat Urban Design Guidelines	Del Paso Heights Design Guidelines	Oak Park Design Guidelines	Altamira Corridor Design Guidelines	Sacramento Office and Industrial Design Guidelines	Del Paso Nuevo Development Guidelines	65th Street Transit Village Plan	American River Parkway Plan	Sacramento River Parkway Plan		
1988, amended through 2000																														
Street Network	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Intersection Elements	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Access to Transit	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Travelway Elements	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Street Character	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Land Use	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Site Design	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Architectural Design	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		
Parking Elements	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△	△		

■ Sufficient Coverage
 ● Marginally Sufficient Coverage
 ○ Marginally Insufficient Coverage
 △ Insufficient Coverage
 ▽ Not Applicable



**SACRAMENTO PEDESTRIAN PLAN
IMPLEMENTATION GUIDE**



EXECUTIVE SUMMARY

Under the direction of City Staff and the lead consulting firm of Fehr and Peers, Nelson\Nygaard Consulting Associates and Community Design + Architecture worked together to produce this implementation guideline to assist the City of Sacramento's existing policies, codes, strategies, standards and guidelines as they affect the City's pedestrian environment.

The objective of this task is to:

1. Identify the strengths and deficiencies of the existing City policies and codes with respect to pedestrian facilities; and
2. Use the methodology developed for a subsequent workshop for the pedestrian master plan Steering Committee.

In total, 31 documents were reviewed. They fell into five general categories:

- Citywide Policies;
- Central City Policies;
- Community/Corridor Plans;
- District/Corridor Design Guidelines; and
- Parkway Plans.

This implementation guideline focuses on the citywide documents. Each document was based on current best practices for pedestrian design that address key aspects of safety and quality of the pedestrian realm. These best practices became the criteria for suggested changes. This includes consideration of the relationship between *pedestrian demand* and *pedestrian walkability* where *demand* is determined by the area land use and development that attracts people to a place and *walkability* is determined by sidewalk and street conditions that influence the level of safety and comfort. These best practices criteria fall into three main categories:

- Connectivity;
- Street Character; and
- Context Character.

Based on this set of criteria, the evaluation identified assets and needs. In general, while each of the documents have strengths, many contain inconsistencies both internally and with each other in the level and scope with which they address the pedestrian environment. This led to three main recommendations:

1. Incorporate the Pedestrian Master Plan into the General Plan and use it as a guiding policy document for Sacramento;



2. Produce a set of Pedestrian Technical Guidelines to create a common framework to guide the implementation of the Pedestrian Master Plan and all subsequent revisions to Sacramento's planning documents; and
3. Use this implementation document to update existing documents for consistency and pedestrian-orientation.

In May 2003, the consulting team presented the draft findings at a two-day workshop with the City of Sacramento's Pedestrian Master Plan Steering Committee. Participants' input and the consultant team's general recommendations are discussed in Chapter 3. On the most general level the primary conclusion developed by the consultant team is that pedestrian conditions in Sacramento are best furthered through strong pro-pedestrian language in the City's General Plan. The General Plan can then guide and inform all subsequent documents, be they more specific in issue or geographic scope.

More specifically, some of the recommendations identified through this process are:

- Update the General Plan Land Use Element to encourage more infill, mixed-use compact development.
- Update the General Plan Circulation Element to revise current level-of-service standards to tolerate higher levels of vehicular congestion and provide parallel assessments of the convenience and comfort of other travel modes including walking.
- Update *Design and Procedures Manual* to address the relationship between street function, sidewalk design, corner radii, adjacent land use and architectural design.
- Change the *Transportation Programming Guide* to require consideration of alternative transportation modes in all roadway projects and amend the programming weighting factors to include greater consideration of alternative transportation modes.
- Amend the *Residential Design Principles* to emphasize the creation of pedestrian networks rather than pedestrian pods and make the principles requirements rather than advisory.
- Develop procedures for regular coordination with RT on improvements around transit facilities and Caltrans for improvements around interchanges.



CHAPTER C-1. INTRODUCTION

Consistency with Adopted Plans

This chapter discusses how planning and implementation tools can be used to create and maintain a safe and attractive pedestrian environment and the ways in which those tools must interact and coordinate so as not to conflict with one another. Each of these important documents must reinforce each other's message and work as an integrated whole to provide effective guidance to a number of different City departments, boards, commissions, citizen groups and private developers.

General Plans

The City's commitment to creating a pedestrian-supportive environment should be reflected in its General Plan. The General Plan expresses the community's vision and defines policy initiatives necessary to achieve the vision. The commitment to a quality pedestrian environment includes developing a Land Use Element which encourages more compact, mixed-use, pedestrian-supportive development, including policies to create zoning and design guidelines for pedestrian-oriented development. The Land Use Element should also establish policies for land uses, site design, and building designs that support pedestrian activity, regardless of land use densities and intensities. In addition to supporting a minimum level of pedestrian improvements throughout the community, the General Plan should also identify specific pedestrian zones and corridors where a particular focus would be put to create a pedestrian supportive environment.

The Circulation Element of the General Plan should aim to balance vehicle and pedestrian conditions. This calls for a change in perspective regarding the vehicular level of service policies governing the nature and extent of roadway improvements required of new development and maintenance of existing roadways. A new approach, for instance, may be to accept degradations in vehicular level of service in specific areas in exchange for improved pedestrian conditions. This balancing of modes supports pedestrian safety as well as economic vitality. The Circulation Element should also establish implementation goals for investment in pedestrian infrastructure and ensure that adequate pedestrian facilities are a part of all transportation investments. The General Plan's environmental documentation should take into account that a multi-modal environment supports auto trip reductions through trip linking and mode shifts from autos to transit, bicycling, and walking.

Modifying and Creating Specific Plans

A Specific Plan is a tool for the systematic implementation of the General Plan. It establishes a link between policies of the General Plan and the specific characteristics and proposals in a defined area. A Specific Plan may be as general as setting forth broad policy concepts, or as detailed as providing direction to every facet of development from the type, location and intensity of uses to the design and capacity of infrastructure.



The Specific Plan can thus establish a policy directive and develop special project-specific site, building, parking, and open space design guidelines and standards that create a pedestrian-supportive environment. The Circulation chapter of the Specific Plans should illustrate pedestrian-supportive streetscape design concepts and plans and a pedestrian circulation plan that considers the most efficient on- and off-roadway pedestrian routes to create an integrated multi-modal circulation network. The Land Use and Community Character chapter should establish the mix of uses and the design standards and guidelines for private development necessary for a pedestrian-supportive environment. The Specific Plan's implementation program should define the shared public and private investment in the pedestrian-supportive multi-modal circulation network, from building new infrastructure to providing street improvements to modifying existing infrastructure.

Design Standards and Guidelines

A city may wish to create a set of pedestrian-oriented standards and guidelines that would essentially be a community's "checklist for walkability," and the document to which all other planning documents refer. The intent of the standards and guidelines document would be to improve pedestrian access and safety by providing a resource to those in the City who are responsible for the conditions of the built environment - be they a lawmaker, planner, designer, developer or community activist. The standards and guidelines document should address the principle issue of how to allocate space equitably to create active public space for pedestrians while at the same time maintaining appropriate space for transit, parking, bicycles, and vehicular movement.

They should address issues of new development as well as the retrofit and improvement of areas that are already developed in the community. The features outlined in this chapter would be an appropriate base outline for such a document because it encompasses a range of considerations from land use and transportation planning to site and detail design.

Pedestrian-Supportive Zoning Codes

Ideally, the City should undertake a complete zoning update to intensify development and modify street standards in designated cores or along corridors. An alternative would be to develop a Pedestrian- or Transit-Overlay Zoning Ordinance. The purpose of which is to create transit and pedestrian oriented environments by applying a set of zoning ordinances on top of the existing zoning. This would encourage an appropriate complementary mixture and density of uses, as well as the desired relationship between the public street system and private development to promote alternative modes of transportation to the automobile.

In order to create a finer-grained detail in architectural and urban form, new zoning might mandate design requirements such as reduced lot sizes and setbacks, and a high level of architectural interest and transparency. Parking requirements may also be reduced by methods such as allowing on-street parking to count towards a development's parking requirement as well as shared parking between sites with differing peak parking demands. The City might also consider maximum parking requirements to prevent developers from fostering excessive automobile dependence by providing more parking than necessary.

Prioritizing Funds for Pedestrians



A good system of plans, standards, guidelines, and zoning policies can provide a strong foundation for the implementation of a pedestrian-oriented city. However, making funds available for pedestrian improvements is just as important. Municipalities typically have systems in place for allocating funds for transportation improvements. These systems can display a bias in favor of auto-mobility at the expense of other transportation modes. Pedestrian-oriented planning documents need to be accompanied by a project ranking system that fosters prioritizing equally among the modes and does not neglect the needs of pedestrians.

Several mechanisms exist to help rank projects for funding based on how well they provide mobility for everyone and make basic needs accessible to the City's residents, employees and visitors. Citywide policies such as those in the General Plan often guide programming systems and should address all transportation modes even-handedly. For example, level-of-service requirements are often used to determine programming priorities. As discussed earlier in this section, LOS requirements should respond specifically to their context. Project ranking systems may also need to be adjusted to help create a more pedestrian-oriented city. Ranking systems should not lump together alternative modes as is typically done with the "catch-all" categories of "Ped/Bike" or "alternative modes." Instead, the needs of each non-automotive mode should be considered independently – because a pleasant street for pedestrians is not necessarily also good for bicyclists and transit riders.

There are many elements that comprise a good pedestrian environment. Safety is a critical consideration in locating improvements, and it should be considered when setting funding priorities. Data such as the Statewide Integrated Traffic Records Systems (SWITRS) will indicate where reported collisions are located. Pedestrian improvements can be prioritized for locations where a high number of collisions involving pedestrians have occurred as indicated by SWITRS data. However, SWITRS data does not indicate unsafe intersections if pedestrians avoid the intersection altogether due to perceived danger. This, in turn, has an impact on pedestrian connectivity. In other words, municipalities need to assemble a multi-faceted ranking system (collision rates, identifying land uses, vehicle speeds and volumes, and gathering community input, etc.) to evaluate projects for funding based on many aspects of pedestrians' needs.



CHAPTER C-2. REVIEW OF CITYWIDE DOCUMENTS

To provide guidance to create policies that support a quality pedestrian environment a series of best practices features have been identified (refer to appropriate in Chapter in PMP). In the analysis of the City's existing Planning documents, these features have been applied consistently in the documents as evaluation criteria.

Citywide documents cover a range of general land use and transportation goals and policies, as well as specific codes and guidelines. They include the City's *General Plan* (1988 with amendments through 2000), *Transportation Programming Guide* (2002), *Residential Design Principles* (2000), *Design Procedures Manual and Improvement Standards* (1990), *Standard Specifications for Public Works Construction* (1989), *Street Design Guide Standards* (1999), and *Pedestrian Friendly Street Standards* (DRAFT), *Traffic Calming Guidelines* (2002), *Design Guidelines for Bus and Light Rail Facilities* (1987), and *Transition Plan for Curb Ramps* (2001).

General Plan

Document Assets

- The plan includes good basic requirements for a better pedestrian environment, especially in the Central City.
- Land Use text describes pedestrian-friendly development patterns.
- The Pedestrianways section includes a good list of basic needs for a pedestrian-friendly environment, from large-scale land use needs to specific streetscape elements.
- Central City Goal C of the Circulation Element requires the development of a balanced approach to City transportation needs.
- The Circulation Element includes goals for pedestrians, bicyclists, and transit riders.

Document Needs

- Policies could re-emphasize and incentivize compact mixed-use infill to create a better pedestrian environment.
- A balanced approach to transportation should be citywide, not just in the Central City.
- A roadway conditions target LOS C results in wider roadways, which lack pedestrian scale.
- The General Plan could provide a more proactive and ambitious requirements for a better pedestrian environment.
- More specific requirements on crossing safety, pedestrian zone overlays, and access to services would improve citywide pedestrian conditions.
- GP could identify specific pedestrian districts and/or corridors for enhancement.
- Illustrations of pedestrian-oriented streetscape design would assist developers in fostering them.
- GP could have stronger implementation tools. For example, it could require that CIP projects include pedestrian elements or give projects with pedestrian improvements higher priority.



The City of Sacramento's *General Plan* was adopted in 1988 with amendments through September 2000. The *General Plan* is a crucial policy document which can help guide a city's development and infrastructure improvements in ways that facilitate and promote pedestrian travel. Subsequent specific plans, zoning ordinances, and other city policies can look to the guidelines provided in the *General Plan* for ways to encourage walking for transportation and recreation.

Two elements of the *General Plan* provide the framework from which a pedestrian-oriented city evolves. The Land Use element guides development practices that can encourage walking through both location and design. A more comprehensive Land Use and Community Character element can provide more focus on urban design that creates a better pedestrian environment. The Circulation element should reflect a balanced approach to the transportation modes, avoiding emphasis on the automobile at the expense of pedestrians.

Land Use Element

The *General Plan's* Land Use Element contains goals and policies that address the needs of pedestrians. The Land Use Element has the potential to positively impact the City's pedestrian-orientation on both a large (demand) and small (walkability) scale. At the larger scale, walking is only possible where origins and destinations are near each other (i.e., mixed-use development) and land uses are at a density great enough to bring origins and destinations close to each other and provide enough people to support a transit system. Zoning for mixed use is a critical part of a pedestrian-oriented city. Road systems must be logically structured so walking is efficient. At the smaller scale, buildings should face the street and have minimum setbacks, and parking should be kept to a minimum and located away from the street.

The Land Use Element discusses potential infill sites and redevelopment potential which is a good approach to growth because it is an efficient use of resources and maintains an environment where it is possible to use alternative modes. However, the images of residential development that the document provides display a bias against pedestrian-friendly design. Specifically, Figure 1 shows high-rise multi-family as a remotely-located, unattractive modern building located in an ocean of parking. Rather than using such stark, unappealing images, high-density housing should be illustrated with attractive architecture, ground-floor retail, sidewalks and transit. Plan-view figures (2-A and 2-B) have pedestrian-unfriendly characteristics such as cul-de-sacs, irregular street patterns, and parking lots next to the street. The illustrations include display of a zero lot line site plan, which allows for pedestrian-oriented density levels. Illustrations of pedestrian-oriented environments, such as the street view of developments, would provide clearer guidance to developers.

The plan includes pedestrian-friendly goals. Goal C emphasizes efficient use of resources including pedestrian-oriented land-use characteristics such as increasing neighborhood density, mixed land use, connection with transit, smaller lot sizes and sub-dividing. Goal E is to provide housing in mixed-use developments to reduce travel time to employment centers. These excellent goals would be more effective with pedestrian-friendly companion images.



Circulation Element

Sacramento's Circulation Element recognizes the need for a balanced transportation system in response to increased traffic congestion. Many of its goals and policies include consideration of non-auto-related uses of the street without naming them specifically. However, the circulation element also includes many pedestrian-unfriendly policies. It does not recognize trade-offs with the automobile; for example, the LOS standard is C or better (Goal D for Streets and Roads), significantly less congestion than what is tolerated in many pedestrian-oriented cities, particularly on streets and in districts that are intended to be pedestrian supportive such as shopping streets and districts. This conservative roadway requirement results in programming being skewed towards auto throughput rather than the functionality of the transportation system. Central City Transportation Goal D is to provide additional parking to support the economic vitality of downtown. Parking encourages shoppers to drive when they could otherwise walk or ride transit, and parking is a land use that is often unfriendly to pedestrians particularly in large expanses or concentrations.

The Circulation Element includes goals for transit riders, pedestrians and bicyclists. Central City Transportation Goal C specifically requires a balanced approach to the transportation system. While subsequent policies specifically address transit, automobile, and pedestrian modes, the language associated with each policy gives a very different emphasis for each mode. For example, the *General Plan* instructs to "encourage" transit use, "maintain" roadways for automobiles, and "consider" pedestrian pathways. Creating a truly balanced transportation system would require much more than "encouraging" and "considering" non-automobile modes. Instead, pedestrian networks must be created and maintained with quantifiable service level objectives that measure convenience and comfort that are required to be met just as with vehicle LOS standards. In appropriate districts and corridors, walking and transit should be given preference over automobiles.



Pedestrian Safety Guidelines

Document Assets

- The Guidelines provide an overview of current City policies regarding crosswalks, pedestrian signals and other elements of pedestrian safety.
- It clearly outlines safety issues regarding pedestrian crossings at controlled and uncontrolled intersection locations and at mid-block crossings and presents a methodology for enhancement.

The City commissioned the production of a set of Pedestrian Safety Guidelines, which was completed in August 2002. The document begins with a comprehensive overview of the programs and methodologies the City of Sacramento employs to improve the pedestrian experience. Programs and documents include:

- The Neighborhood Traffic Management Program that incorporates the City's *Traffic Calming Guidelines*;
- Development Standards as dictated in the City's *Design and Procedures Manual and Improvement Standards*, and the *Standards Specifications for Public Works Construction*;
- Youth programs including *Captain Jerry*, *Kids X-ing* and the *Safe Route to Schools Program*;
- *The City of Sacramento Transition Plan for Curb Ramps*; and
- Pertinent sections of the City's Municipal Code.

The focus of the remainder of the Guidelines is primarily on safe street crossings. The Guidelines provide guidance on establishing a crosswalk installation policy based on the 2002 FHWA study "Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations." In addition to uncontrolled intersections, best practices, including warrants, are provided for pedestrian treatments at controlled approaches (at intersections) and mid-block locations. Crossing enhancements such as signal devices, special striping, pedestrian refuge islands, and curb extensions (referred to as bulbouts in the Criteria) are presented in menu approach for controlled, uncontrolled and mid-block locations. In general, the material is thorough and succinct. Its content should be directly referenced in the Pedestrian Master Plan. .

A very brief chapter on Private Development Best Practices complements the guidelines' discussion of establishing a cohesive pedestrian network. This short chapter primarily references the safe crossings chapter, but ventures into sidewalk design, block length recommendations, and a development's internal pedestrian circulation and access – all important elements. The



Guidelines recommend continuous sidewalks separated by a planter or parking strip and a vertical curb along all new streets next to commercial or residential land uses. Street sections illustrating the recommendations are included in an appendix. One can assume that these cross sections guided the City's Public Works Department's Draft Pedestrian Friendly Street Standards (2003). A recommendation of maximum block length is indirectly established through a citation to the City's Traffic Calming Guidelines. It recommends that in new development interconnecting streets "of sufficient traffic volumes to warrant a traffic control device" interrupt blocks maintaining a maximum street block of no greater than 500'. Finally, at a site design level, the Guidelines recommend clear pedestrian circulation from sidewalk to building entrances.

In terms of an overall evaluation, the *Pedestrian Safety Guidelines* is successful in addressing safety. However, safety is only one aspect (albeit vital) in creating a pedestrian-friendly environment. Pedestrian *convenience* and *comfort* (including aesthetics) are also important considerations in promoting pedestrian walkability, and that land use and development characteristics influence pedestrian demand.

Transportation Programming Guide

Document Assets

- The Transportation Programming Guide provides a clear description of the associated goals, policies, project criteria and ranking system.
- Many programs include pedestrian improvements such as sidewalks, landscaping, traffic signals, and improvements around schools.
- Criteria and ranking for most programs emphasize increasing capacity to relieve congestion and improve air quality.

Document Needs

- Pedestrian concerns are overlooked for most programs, most notably street reconstruction, traffic signals and alternative modes.
- Data on collisions involving pedestrians is available from SWITRS and could provide a good source for project ranking.

Sacramento's *Transportation Programming Guide* (2002) provides a comprehensive structure for prioritizing the City's transportation programs and projects. City staff and a council-appointed Community Advisory Committee developed the guide. It has ten sections: major street improvements, street maintenance, street reconstruction, traffic signals, alternative modes, bridges, streetscape enhancement, sidewalks to schools, speed humps, and development driven projects. The goals and policies associated with these sections are drawn from City documents such as the *General Plan*. They also include criteria and ranking systems. While the City's plans include the vision for the City, how funds are allocated has a greater impact on conditions in Sacramento. As a result, the strengths and weaknesses of the City's plans and the perspective of



the programming authors are amplified in this document. The text below covers recommendations for relevant document sections:

Major streets section –Improvements include widening, extensions/connections, grade separations, and interchange construction and modification. Goals associated with street improvements are from the *General Plan*. The emphasis of the street improvements is to increase capacity to relieve traffic congestion without consideration for the induced demand effect – where the amount of traffic will increase to fill the capacity of the roadway. Improving conditions for pedestrians and other alternative modes balanced with investments in improving traffic progression are a more effective way to address congestion. Street improvement programming is directed by the LOS standard of C or better, which results in an acute auto-oriented skew. The ranking system gives stronger weight to auto flow/congestion. This funding category represents the most money (about \$500M in 2002).

Street reconstruction – Street reconstruction projects involve removing and replacing asphalt concrete, placing new striping and pavement markings, new curb, gutter, traffic controls and sidewalk construction. Reconstruction is necessary when a street has degraded too much for the maintenance program. The project ranking is based primarily on Average Daily Traffic (ADT) over alternative modes (bus and bike routes or lanes only, not pedestrians). Although reconstruction includes sidewalks, the ranking does not consider the pedestrian network or pedestrian safety. This funding category represented about \$34M in 2002.

Traffic signals – Intersection controls are an important tool for balancing priorities in the roadway system. Goals from the *General Plan* that address traffic signals include improving traffic flow, congestion and air quality. Helping people change to alternative modes, including walking, would have a greater benefit to air quality and congestion. As with street improvements, the emphasis for this funding category is to increase roadway capacity. When projects have a tiered ranking, preference is given to those with more collisions, higher pedestrian and bicycle traffic and those closer to schools (in that order). Traffic signals play a key role in pedestrian comfort and safety, and funding criteria should reflect that, including factors such as collisions involving pedestrians and other factors that influence the pedestrian experience.

Alternative modes – The alternative modes program should include pedestrians, but it only addresses the needs of bicyclists. A number of pedestrian facilities could be funded in this category. While only a small portion of the population rides a bicycle for transportation, everyone is a pedestrian at one point or another as they travel around the City.

Streetscape enhancement – The main emphasis of this category is landscaping in commercial and other corridors based on a 1987 policy. The *Commercial Corridors Plan* is part of the *Economic Development Strategy Framework* (EDSF, 2000) that identifies eligible corridors for the program. Improvements for these corridors include various pedestrian-oriented enhancements such as landscaping, lighting, sidewalk improvements, bulbouts, and trash receptacles. Ranking considers ameliorating high traffic volumes in downtown areas where the pedestrian retail experience could be improved with these facilities. In the “other corridors” category (corridors



not included in the EDSF), current appearance is the most important ranking criteria. Pedestrian safety and level of activity should also be included in the goals, policies and ranking.

Sidewalks to schools – Pedestrian and bicycle conditions near schools should be safe from auto traffic. Ranking for this program could include pedestrian collision rates along with the factors already included: average daily traffic (ADT), number of students, speed limit, and existing conditions.

Residential Design Principles

Document Assets

- The Principles describe a pleasant and safe pedestrian environment.
- Requiring multifamily housing to be near transit will foster an efficient land use and transportation system.

Document Needs

- The Principles should have more emphasis on creating a pedestrian network rather than just a good place for people.
- Despite good basic principles, illustrations depict suburban-style residential design with cul-de-sacs and large setbacks that create a pedestrian-unfriendly environment.
- To ensure implementation of the Principles, they should be requirements.

The City of Sacramento’s design principles for single and multifamily residential development are outlined in two documents: *Single Family Residential Design Principles* (1998) and *Multi-Family Residential Design Principles* (2000). These documents cover an array of development characteristics, including considerations for pedestrians. The documents assume that development will consist of single-use pods, including construction of disconnected street facilities, neighborhood boundaries with walls, and limited subdivision entry points.

“Pod-style” subdivision development patterns are by their very nature, not conducive to walking as a mode of transportation. Varied land uses and development densities that bring people and services closer together are key components that make it possible for people to walk from their homes to services or their place of work. Rather than focusing on pedestrian connections between residential developments and activity centers, Sacramento’s residential design guidelines concentrate solely on the quality of the pedestrian environment within a particular single or multifamily residential development. Although the quality of the pedestrian environment within residential developments is important, pedestrian connections between neighborhoods and commercial areas are crucial components of a truly walkable city.



Sacramento's residential design principles include important recommendations that can make walking safe and pleasant in a suburban setting. These include:

- Discouraging wide, monolithic designs in driveways and subdivision walls, and parking in front of buildings;
- Using landscaping in front yards and planting strips to improve the pedestrian experience with a shady and attractive environment;
- Providing consistent, direct and pleasant sidewalks and walkways;
- For housing adjacent to open space, maintaining a visual and physical connection to the open space for passive surveillance and aesthetic purposes as is typical in older neighborhoods.

These recommendations apply to both single and multifamily housing developments.

Multi-family housing is higher density and thus is more conducive to pedestrian activity. Sacramento's principles for multi-family housing recommend that pedestrian and automobile access be given equal weight. In addition to the recommendations mentioned previously, the multi-family housing design principles recommend that housing be located within a walking distance (usually 5 minutes or 1,000 feet) of transit, and that the site design include a walkway to transit. The principles request that multi-family development be organized around, and have a direct pedestrian connection with, a usable common space such as playgrounds, pools and community rooms encouraging both active and passive use of the outdoors.

These principles present both quantitative and qualitative recommendations for housing site design. For example, it is fairly easy to know a single-width driveway from a double-width. However, determining a "fortress" like entryway that creates a "dead" pedestrian space from a more inviting entryway is more challenging. To overcome such challenges, diagrams and illustrations can be used to establish a common understanding of qualitative concepts. These design principles include illustrations and diagrams, but, despite the excellent principles, many of them depict pedestrian unfriendly roadway and site designs. Perhaps the most crucial aspect of design principles is that project engineers and designers be able to understand and adapt them quickly and easily.

Sacramento's principles for residential development outline some important elements of a good environment for pedestrians. However, the quality of their impact is only as good as their implementation and enforcement. Coordination between planning and permitting is necessary for these principles to have a positive impact on the face of Sacramento. Clearly stated design codes would promote their implementation.



Design Procedures Manual and Improvement Standards & Standard Specifications for Public Works Construction

Document Assets

- The Street design Standards section is comprehensive in its approach to pedestrian planning.
- The 20' light standard required for the smaller collectors and residential streets is at a pedestrian scale, and the placement of the standards at all corners of an intersection provide for increased visibility.

Document Needs

- As Sacramento becomes more pedestrian-oriented, the corner curb radius should be reduced to 25' or less where feasible.
- Some criteria for locating pedestrian refuge islands is necessary.
- Taller lighting standards need accommodation for pedestrians.

The purpose of the *Design Procedures Manual and Improvement Standards* (1990) is to provide selected minimum standards to be used in the design and drawing of plans for street improvements. The manual is to be used in conjunction with the *Standard Specifications for Public Works Construction Manual* (1989), which is provided to prospective contractors wishing to bid on work for the City of Sacramento. Both manuals' designated standards represent minimum values, which implies the lowest acceptable limit in design. The pertinence of the *Design Procedures Manual* to the condition of the pedestrian environment is primarily in terms of lighting and street design standards, whereas the *Standard Specifications Manual* addresses issues of sidewalk and curb construction.

Section 15 of the Design Procedures Manual specifically addresses street design standards. In summary, the section is comprehensive in issues related to pedestrian comfort and safety including specifying landscape standards (15.20.3), outlining methodologies for undertaking streetscape master plans (15.20.4), referring to the city's traffic calming guidelines (15.24.1) and specifying pedestrian circulation patterns on private streets to be comparable to standards of a public street with no access restrictions to public facilities (15.23.1).

Standards for crosswalk markings at signalized and unsignalized intersections (15.15.3) reflect an appropriate level of pedestrian safety consideration. Furthermore, all street sections have one option that illustrates the sidewalk being separated from the roadway with a planter strip (plates 15-1 to 15-9). This is a significant improvement to the comfort and safety of pedestrians and again indicates a strong pro-pedestrian stance for the City. As Sacramento becomes more pedestrian-oriented, consideration may also be given to reducing corner radii (specified in Table 15-9) on many streets that do not have a significant number of larger vehicles from the current standard of 27' to a smaller radii such as 20'– 25'.



The design standards allow for dual left turning lanes where volume is expected to exceed 300 left-turning vehicles per hour. In these situations, as well where there are over four lanes in total (including turning lanes) and especially where lane number exceeds six in total, consideration should be given to pedestrian safety and comfort by providing pedestrian refuge islands with a minimum width of four feet, and a preferred width of six feet. Also related to roadway width, the typical outside travel lane width of 11 feet (where a six foot bike lane is present), and the seven foot parking lane appropriately balances traffic needs while minimizing the distance pedestrian must cross, and allowing more of the right-of-way to be designated for pedestrian facilities. In the event that further additional right-of-way is needed to provide for pedestrian facilities (including refuge islands), the city may explore reducing the inside travel lane from 13' to 12'.

Elsewhere in the manual, street lighting specifications for pole height, spacing and placement does not address the specific concerns of providing lighting to the pedestrian. A 20' light standard required for the smaller collectors and residential streets is at a pedestrian scale, and the placement of the standards at all corners of an intersection would provide increased visibility. The second "cobra head" style standard at 28'-6" does not provide accommodation for pedestrian-scaled lighting, and the requirements for placement do not require locating standards at each corner. This may compromise pedestrian visibility. Standards should be provided for other street categories and should support the designation of pedestrian-supportive districts and corridors that are appropriate for the investment in pedestrian-scale lighting.

The illustrations of the "handicapped ramps" (sic) in the *Standard Specifications Manual* do not cover the many conditions where such ramps could be placed. The standards should defer to the *City of Sacramento Transition Plan for Curb Ramps* (2001) for a more complete and comprehensive guide to curb ramps.



Pedestrian Friendly Street Standards

Document Assets

- The revised residential street standards reflect sensitivity to pedestrian safety and comfort.
- The document attempts to classify roadways based on land use type or context.
- The documents propose reasonable lane widths for non-residential streets.
- New residential street standards illustrate 5' sidewalks.
- Rolled curb is eliminated.
- Monolithic sidewalk types are eliminated.

Document Needs

- As Sacramento becomes more pedestrian-oriented, the corner curb radius should be reduced to 25' or less, where feasible.

At a residential street design level, the draft *Pedestrian Friendly Street Standards* are, in fact, precisely what the title suggests - revised street design standards that consider pedestrian accommodation on par with the automobile. The goals and objectives are clearly articulated with the guiding policies being to diversify community transportation choices and enhance neighborhood livability. The draft *Standards* appear to represent the latest research in pedestrian-friendly street design. Of particular note is the reduction in the travel lane width to 11', the reduction of the parking lane to 7', the separation of the sidewalk from the roadway with a 6' minimum planting strip, the increasing of the paved sidewalk width to 5', and the elimination of the rolled curb.

The street classification system used in the *Pedestrian Friendly Street Standards* illustrates the degree to which street standards consider the pedestrian environment. The traditional functional classification system of local, collector, and arterial does not consider the need for streets to accommodate all modes of travel and fulfill livability goals. The design of the street needs to also reflect the type and level of intensity of the adjacent land uses, which, in turn, considers type and number of pedestrians likely to be using the street.



Traffic Calming Guidelines

Document Assets

- The document is a well-organized and researched handbook.
- The scope is appropriately wide in physical and non-physical measure.
- These guidelines include provision of an implementation strategy.

Document Needs

The City of Sacramento *Traffic Calming Guidelines* (2002) is a comprehensive document that addresses issues related to design and implementation of an effective traffic calming strategy. The document's intended audience is primarily City staff and neighborhood residents who will use the *Guidelines* to develop traffic calming plans as part of the Neighborhood Traffic Management Program (NTMP).

In lieu of policy directives, the document establishes goals and objectives. The driving goal is "to improve neighborhood livability by reducing the impact of automobiles in residential neighborhoods, which promotes safe and pleasant conditions for all users of local streets." The three objectives designed to meet this goal are:

- To improve driver behavior, concentration and awareness;
- To reduce speeds and traffic volumes; and
- To enhance the neighborhood environment.

"Three E's" summarize the strategies for achieving the objectives: Education, Engineering and Enforcement. Essentially, this translates into a set of guidelines consisting of a "toolbox" approach to physical and non-physical measures, and a methodology for implementation.

The various measures are well-researched and well-illustrated. The provision of approximate costs and a table illustrating the advantages and disadvantages of each measure create a good starting point from which a more in-depth discussion of tradeoffs and feasibility can build.



Design Guidelines for Bus and Light Rail Facilities

Document Assets

- The document addresses pedestrian access to facilities.
- It advocates for high amenity transit stops and stations.
- Street design requirements appear reasonable.

Document Needs

- The document does not provide guidance on how to negotiate with the City to ensure efficient and safe pedestrian access to facilities.
- The bus document advocates bus turnouts. Bus bulbouts are better for transit and pedestrians than bus turnouts.
- Guidelines for safe pedestrian crossings of LRT rails are absent.

The *Design Guidelines for the Bus and Light Rail Facilities* (1987) created by Sacramento Regional Transit express an understanding of the important relationship between pedestrian access and the effectiveness of the City's transit system. Although not definitively stated, this appears to be the guidelines' primary governing policy.

The guidelines advocate linking access to transit facilities with the existing pedestrian network and providing direct access to adjacent development. The pitfalls of "typical" suburban development are illustrated where soundwalls and disconnected street patterns impede transit connections. What is lacking in the discussion is a methodology for how to negotiate with the City of Sacramento in order to achieve the desired accessibility. Often there is a "gap" in responsibility between the transit authority and the City in terms of which body provides or improves the sidewalks or street crossings adjacent to facilities.

The guidelines advocate for "high density" uses within a quarter mile of transit corridors. The linking of transit to land use is key to improved ridership and accessibility for the pedestrian, but ten dwelling units (du)/acre (as noted) is not generally considered high density. Typically, density levels that support transit are somewhat higher. Ten du/acre may be ambitious, however, considering Sacramento's predominantly lower density character. Regional Transit should periodically review this density in light of changing public policies and market conditions in the Sacramento Region.

In terms of street design, the guidelines appear reasonable in recommending an inner wheel turning radius of 28', although 25' would be better for reducing the amount of pedestrian space that could be "eroded." Additional diagrams illustrate flexibility in how on-street parking restrictions can be used to accommodate a corner radius as low as 15'.

The *Guidelines* advocate for the use of bus turnouts where the bus leaves the flow of traffic, but no mention is made of other options, such as bus bulbouts. Bus bulbouts allow the bus to remain



within the flow of traffic, thereby improving travel time by reducing the time it takes to re-enter traffic flow. The use of bus bulbouts also benefits transit riders and pedestrians by providing more sidewalk area for other amenities.

The guidelines for transit stop and station design comply with ADA requirements and provide adequate guidance on the provision of amenities such as benches, shelters and bicycle storage facilities.

From a safety standpoint, the guidelines fail to address the issue of safely crossing light rail tracks. Recommendations should be made for crossing accommodations for light rail speeds of under and over 35 mph. For under 35 mph, it is important to coordinate light rail signals with traffic signals and provide a pedestrian queuing area in the middle of the crossing (i.e., at the station entrance, exit). Other safe pedestrian facilities are a pedestrian push button that controls the traffic and a timer/countdown device on the pedestrian crossing signal. Where light rail speeds are greater than 35 mph, a single-unit gate should be installed behind the sidewalk (away from the curb). The gates should have adequate visibility (striping, flashing lights) when lowered to alert pedestrians of on coming light rail vehicles.



City of Sacramento Transition Plan for Curb Ramps

Document Assets

- This is a thorough and clearly illustrated document.

Document Needs

- It does not address sidewalk accessibility.

The City of Sacramento, under Title II of ADA, has a responsibility to operate each service, program or activity so that the service, program or activity, when viewed in its entirety, is readily accessible to and usable by individuals with disabilities." In the event that structural changes are necessary, the City of Sacramento developed a transition plan setting forth the steps necessary to complete such changes. In 1994, the City prepared and implemented its *Transition Plan* with respect to City facilities, and in 2001 completed a complementary *Transition Plan* that specifically addresses curb ramps or other sloped areas. The *Transition Plan* outlines a methodology for implementation and includes technical illustrations that cover the range of corner conditions that would be found throughout the City and comply with dimensional regulations specified in ADA.

The document is specific in its intent to address only curb ramps. It states that under Title II of ADA, the City of Sacramento is not required to make its over 2,200 linear miles of sidewalk accessible. Repairs made to the sidewalk follow other specific criteria laid out in their sidewalk repair program. Clearly, making all sidewalks accessible is an enormous undertaking requiring inspection of all sidewalks for obstructions and disrepair.



CHAPTER C-3. REVIEW OF COMMUNITY, DISTRICT, CORRIDOR AND PARKWAY DOCUMENTS

This chapter is a review of existing documents with a more detailed geographic scope. These documents are grouped into the following categories based on their geographic scope:

- Central City documents;
- Community and corridor plans;
- District and corridor design guidelines; and
- Parkway plans.

CENTRAL CITY DOCUMENTS

Sacramento's Central City includes the Central Business District, the Capitol Area, and several historic neighborhoods as well as the Richards Boulevard and Railyards areas. It serves as the economic, cultural and commercial center for both the City and the region and is also a regional transportation hub. Central City plans and design guidelines focus on maintaining and enhancing these characteristics, and include the *Sacramento Central City Community Plan* (1980, 1997), *Sacramento Urban Design Plan for the Central Business District* (1987), *Central City Neighborhood Design Plan*, and the *Sacramento Central Business District Streetscape Study* (1992).



Sacramento Central City Community Plan

Document Assets

- Land use and zoning goals and objectives create an environment in which it is convenient and pleasant to walk.
- The document emphasizes development of a balanced transportation system. It suggests that parking structures should have commercial or office uses on the ground level in order to enhance pedestrian-level activities.
- Improvements to express public transit service on Eighth Street between H and P Streets are coordinated with pedestrian improvements.
- The document provides innovative measures to mitigate the impacts of additional parking on the urban environment and to manage parking demand.
- Policies for the redevelopment of the Railyards, Richards Boulevard and R Street Corridor subareas actively promote pedestrian-oriented development and design.
- R Street Corridor goals and policies actively promote development of a pedestrian and transit-oriented environment, and provide specific policies with respect to pedestrian facilities and amenities.

Document Needs

- For area-wide policies, goals and objectives related to pedestrian facilities and movement are “buried” within other plan elements and are not organized into a comprehensive pedestrian strategy.
- Pedestrian connectivity and accessibility is not well addressed.
- The need for additional parking should be reassessed in light of transit improvements and parking’s detrimental effects on the overall urban and pedestrian environment.
- Traffic and parking management strategies should be evaluated for their impacts on the pedestrian environment. Eliminating on-street parking on certain streets and building additional parking structures may negatively impact pedestrian safety and make walking an unattractive option.
- The Railyards and Richards Boulevards policies do not address the pedestrian environment on major or minor streets, nor do they address pedestrian improvements related to accessing transit facilities.
- Only the R Street Corridor policies specifically address pedestrian improvements to streets and intersection.

The *Central City Community Plan*, which was adopted in 1980 and last amended in 1997, guides public and private development and revitalization in the Central City Area. The Plan provides goals and objectives with respect to land use and zoning, housing, transportation, community services and facilities, and open space. Plan elements address the study area as a whole, and specifically address the Richards Boulevard, Southern Pacific Railyards and R Street Corridor subareas.



Area-wide Goals and Policies

Central City area-wide goals that directly address pedestrian facilities and movement are limited to the following: “Provide for safe pedestrian movement in the Central City circulation system through increased enforcement of pedestrian right-of-way laws and reducing traffic speed and volumes through appropriate means on residential streets.” (p.10) While the plan does not present a comprehensive strategy to improve and maintain the Central City’s pedestrian environment, individual goals and objectives within its various elements address a number of the evaluation criteria.

Land use and zoning goals and objectives include provisions for a mix of uses, higher intensity uses, minimal building setbacks, and the location of neighborhood commercial services within close proximity of residential neighborhoods. All of these goals and objectives help create an environment that makes walking both convenient and pleasant.

With regard to transportation, one of the plan’s primary goals is to develop a balanced transportation system that places less emphasis on the automobile. The plan supports this goal by developing a strategy to improve transit and increase use of alternative commute modes, including transit, ridesharing and bicycling. The plan is relatively silent with respect to pedestrian facilities or networks. It states only that parking structures should have commercial or office uses on the ground floor in order to enhance pedestrian level activities, and that Eighth Street between H and P Streets should be modified for use primarily by transit and pedestrians.

The plan incorporates a number of innovative strategies to balance the construction of additional parking with measures to mitigate its effects on the urban environment. The need for parking is often overestimated, and providing additional parking works against the plan’s goal of reducing automobile trips to the Central City area. Despite efforts to mitigate its negative effects, additional parking and automobile traffic can jeopardize pedestrian safety and create an inhospitable environment for pedestrians. Similarly, the plan does not consider the effects of eliminating parking on major arterials during peak hours on the pedestrian environment. On-street parking provides a buffer between pedestrians and traffic, and such buffers are particularly important on streets with heavy volumes of automobile traffic.

Railyards, Richards Boulevard and R Street Corridor Goals and Policies

In addition to area-wide goals and objectives, the Central City Community Plan also includes specific objectives for redevelopment of the Richards Boulevard, Railyards and R Street Corridor sub-areas. Development goals for these areas focus on higher intensity, mixed-use development that facilitate use of transit and other non-automotive transportation modes. Land use plans support goals for transit improvements and pedestrian orientation by locating diverse types of higher intensity uses within walking distance of planned transit improvements.

Transportation policies for the Railyards and Richards Boulevard subareas contain several specific objectives with regard to pedestrian connections and facilities. The plan states that local streets should be designed and configured to continue the pedestrian scale and character of Central City neighborhood streets so as to create a continuous and accessible pedestrian network



throughout the Central City area. Pedestrian circulation policies focus on opportunities to enhance pedestrian movement and linkages along the existing and planned street network as well as along exclusive pedestrian ways. Pedestrian ways would be designed to link major activity centers and would focus on areas where transportation barriers exist.

Although the elements of the plan that address the Railyards and Richards Boulevard subareas are relatively general, they clearly incorporate measures aimed at fostering an attractive and safe pedestrian environment. The most significant omissions are that the lack of discussion of the pedestrian environment on major and minor streets and pedestrian improvements related to transit facilities.

Goals and policies for the R Street Corridor clearly and specifically emphasize creation of a pedestrian and transit-oriented district. The plan states that goals and policies for the Corridor are designed to ensure that new development is served by a circulation system which enhances pedestrian and transit access. Goals call for clustering development around the Corridor's four light rail stations and linking them by pedestrian routes. Policies also focus on reducing surface parking and reducing parking requirements for new commercial/residential mixed use development (by up to 50%).

The R Street Corridor circulation plan specifically identifies the pedestrian facilities and amenities to be incorporated along streets and intersections. It identifies intersections proposed for pedestrian enhancements that include (but are not limited to) pedestrian controlled signals, enhanced lighting, sidewalk bulbing, and alternative paving materials at crosswalks. The plan states that pedestrian-friendly crossings are particularly needed at locations where a major, high traffic street separates existing and proposed moderate to high intensity commercial and residential development from existing light rail stations.

Policies for the R Street Corridor are aimed at facilitating pedestrian, bicycle and vehicular forms of transportation on R Street, minimizing street frontage devoted to the automobile and minimizing traffic, improving portions of the street that are currently substandard, and designing streets to reflect a pedestrian scale. The R Street Corridor plan provides a good example of how an area-specific plan can fully consider and facilitate the needs of pedestrians.



Central Business District Design Plan

Document Assets

- The document provides an excellent landscape plan.
- It includes a good discussion of paving systems.
- It includes most elements of a good pedestrian environment.
- It includes specific guidelines for main downtown streets.
- The implementation plan will encourage the plan's realization.

Document Needs

- This 1987 plan should be updated with current concerns and technology.
- Intersection recommendations do not include safety concerns or good facilities that are now used in other cities.
- Parking prescription may be excessive, and the plan does not include design requirements so that parking will not impose on the pedestrian experience.
- The plan emphasizes pedestrian improvements for specific places and not the effectiveness of the pedestrian network which is critical to encouraging walk as a realistic mode of transportation.
- While transit is included, the document could put greater emphasis on area-wide design for pedestrians using transit.

The *Sacramento Urban Design Plan for the Central Business District (CBD)* (1987) is intended to provide comprehensive guidance for improving the downtown area and enhancing its “garden city” image. The CBD includes roughly H through N Streets in the north and south, and 3rd through 7th in the west and east, placing particular emphasis on J, I, L, 9th, 10th, 7th, 12th, 15th and 16th Streets. The goal is for the plan to provide, in conjunction with zoning and preservation ordinance, city staff and private interests a common basis for design and development issues. The plan comes in three parts:

- **Urban Design Framework**, addressing context, plan, development, design concepts, and implementation;
- **Architectural Guidelines**, addressing urban form, architecture, and storefronts; and
- **Streetscape Guidelines**, addressing concepts, streetscapes, materials furniture, special occasions, phasing, and costs.

The plan was created through an analysis of previously established policies and a public participation process and adopted in 1987. Physical, financial and economic conditions of that



time were important considerations in creating the plan. This plan description focuses on the Urban Design Framework and the Streetscape Guidelines.

In general, the plan presents an excellent pedestrian-oriented approach. This is not surprising considering it specifically addresses the downtown area (pedestrian-oriented by definition). Central Sacramento has a traditional grid pattern and fine-grained historical architecture very conducive to pedestrian travel. Suburban development and auto-dependence have threatened the viability of Sacramento's CBD, as is the case throughout the US, and this plan attempts to ameliorate that threat.

The Framework Plan provides an overview of the plan priorities and presents some specific concepts, policies and implementation strategies. It prescribes strong pro-pedestrian characteristics such as infill development, historic preservation, reinforcing and enhancing the traditional hierarchy of the street pattern, pedestrian links between activity centers and landmarks, and "place making" such as special events, ground floor commercial, interesting building facades, sidewalk cafes and a general variety of activities. These general strategies are applied to the specific conditions in Sacramento in the other sections of the document.

To encourage development, the Framework Plan suggests private sector incentives, new civic facilities, parking, historic preservation, etc. These mechanisms foster pedestrian-oriented land use, and provide positive incentives to attempt to prevent the "doughnut" effect so common in the 1980s characterized by a mass exodus from the CBD into the suburbs. But making the CBD more accessible by automobile is not necessarily the most effective mechanism to bring people back. Parking lots can be inhospitable to pedestrians, especially where they are near the street or between buildings and the sidewalk. Parking requirements should follow the criteria described in greater detail earlier in this report.

The Streets Guidelines provide a more detailed plan for most of the streets in the CBD including street emphasis (retail, civic center, etc.), paving patterns, and the varieties of trees to be planted. It discusses open space, landscaping, bicycle facilities, transit shelters, public art, intersections, lighting, and pedestrian furniture. These individual design guidelines should dictate a very pedestrian-oriented CBD.

While the recommendations of this plan include pedestrian-oriented characteristics, the plan does not include consideration of the pedestrian network, pedestrian connections within the CBD or with adjacent neighborhoods as a mode of transportation. The discussion of pedestrian routes in the Framework section focuses on alleys, malls, arcades and areas near parks. In order for walking to become a realistic mode of transportation, it is critical that sidewalks are continuous, pleasant and connect with sidewalks throughout the area.

Street intersection conditions have a significant impact on the safety and consistency of the pedestrian network. The Street Guidelines include intersection needs but, probably due to the age of the plan, they do not reflect current technology or safety considerations. These are described in greater detail earlier in this report under evaluation criteria.

Considering its age, the *Sacramento Urban Design Plan for the Central Business District* provides a strong foundation for improving pedestrian conditions in the CBD. It prescribes many improvements which directly and positively impact the pedestrian experience. It also includes an



implementation section with a funding strategy and plan for private sector participation which would improve the plan's chances of being realized.

Central City Neighborhood Design Plan

Document Assets

- Design principles and guidelines are focused on maintaining and enhancing the strong pedestrian orientation that already exists in Sacramento's Central City neighborhoods.
- Guidelines are clearly articulated and illustrated with both appropriate and inappropriate examples.

Document Needs

- Signals or safety signage are not addressed along with other intersection improvements designed to enhance pedestrian safety and comfort.
- The plan does not address pedestrian access to transit stops (except for the R Street Corridor).
- Intersection guidelines do not address any particularly distinguishing markings for pedestrian safety other than crosswalks.
- With the exception of the Alhambra and R Street corridors, the plan does not address or identify broader pedestrian networks or pedestrian connectivity between neighborhoods.

The *Central City Neighborhood Design Plan* provides design guidance for public and private projects in Central City neighborhoods. The plan does not apply to the Central Business District, Richards Boulevard or Railyards Special Planning Districts, certain Preservation Areas within the Central City, nor to any state owned sites within the Capitol Area Plan Boundary. The plan's guidelines are part of the city's Design Review program and are used by the *Design Review and Preservation Board* and staff to review proposed projects. The guidelines were written to complement and correlate with the *Central City Community Plan* as well as other plans and ordinances regulating development in the Central City.

The plan's *Design Guidelines* include both mandatory and advisory provisions. The Board and staff use the plan's principles as prescriptive or mandatory elements to determine project compliance with the guidelines. Each design principle includes several advisory guidelines which serve as suggestions on ways to accomplish the principle.

Overall, the plan's principles and guidelines are focused on maintaining and enhancing the strong pedestrian orientation that already exists in Sacramento's Central City neighborhoods. Project design principles require buildings to be oriented toward pedestrians and incorporate all of the elements that contribute to an interesting, attractive and safe pedestrian realm. Principles and guidelines address the impact of garages, parking areas, driveways, and service access on



pedestrians, as well as planting and landscaping, paving and hardscape, street furniture, bicycle parking and storage, signage, street lighting, public spaces and alleyways.

The plan's Public Improvement Guidelines are intended "to identify improvements to the public right-of-way that enhance the safety and security of pedestrians so that the ambiance and aesthetics of the street promote the accessibility and friendliness of the commercial and residential districts that they serve." In addition to streetscape and intersection improvements, the plan also includes bus stop improvements. However, the plan does not address pedestrian access to transit stops (with the exception of the R Street Corridor).

For streets, the guidelines recommend 8' sidewalks, 8' planting strips, 8' on-street parking widths and 32' drive lanes (all within an 80' right-of-way). For intersections, guidelines recommend a 7' curb radius, ramps (with grooves at the sidewalk edge) and marked crosswalks. For streets with large traffic volumes, the guidelines recommend construction of bulbouts. The guidelines do not address signals or safety signage, nor do they address any particularly distinguishing markings for pedestrian safety other than crosswalks.

With the exception of the Alhambra and R Street corridors, the *Neighborhood Design Plan* does not address or identify broader pedestrian networks or pedestrian connectivity between neighborhoods.

The Sacramento Central Business District Streetscape Study

Document Assets

- The document provides a detailed, comprehensive analysis and recommendations for pedestrian-oriented improvements in the Central Business District.

Document Needs

- None

The *Sacramento Central Business District Streetscape Study* (1992) was commissioned by the Sacramento Housing and Redevelopment Agency (SHRA) to help insure the successful redevelopment of the city's Central Business District. The study examines potential improvements to the specific vehicular and pedestrian nodes and corridors with the aim of reinforcing the connections between the Downtown Plaza Project and Old Sacramento, the Southern Pacific Railyards, the K Street Mall and Capitol Mall. The study includes a detailed analysis of opportunities and constraints, as well as comprehensive guidelines for sidewalk and street paving, lighting, graphics and signage, landscaping, safety improvements and street furnishings. Pedestrian access to and amenities at transit facilities are also addressed. All guidelines meet the criteria developed for this analysis, and may be able to serve as an example for other areas within the city.



COMMUNITY AND CORRIDOR PLANS

Developing a Community Plan is akin to developing a "mini" general plan for a specific area, and carries the same legal force as a general plan. As with general plans, the community planning process must follow certain procedures and cover specific subject areas or "elements" including an Implementation section. Five community plans within the City of Sacramento have been reviewed chronologically and evaluated in terms of pedestrian issues: the *Airport Meadowview Community Plan* (1982), the *North Sacramento Community Plan* (1984), the *South Sacramento Community Plan* (1986), the *South Natomas Community Plan* (1988), the *North Natomas Community Plan* (1994), and the *R Street Corridor Plan* (1996). The five plans vary in the extent and manner they address pedestrian connectivity, street character and context character. In general, the earlier plans rarely make specific mention of pedestrian concerns while the last plan produced, the North Natomas Community Plan, takes a much more comprehensive approach to pedestrian issues. This is most likely due to the fact that pedestrian concerns are now more often incorporated into community planning.

Airport-Meadowview Community Plan

Document Assets

- Plan goals include creating a mix of land uses and improving accessibility for all travel modes.
- The document does include specific policies to support stated goals.

Document Needs

- It does not state an understanding of how proposed street widening will impact the pedestrian environment.
- Pedestrian improvements are not addressed by the plan's implementation measures.

The *Airport-Meadowview Community Plan* (1982) makes an effort to address "alternative modes" of travel, and does separate out the needs of the bicyclist from the needs of the pedestrian. Goals include statements about making the community "a safe and easy place to travel by foot, bike, car, bus or train" (p. A-33), or creating a pedestrian/bike circulation network, but the policies do not support these goals. Among the street-related policies, for example, are items calling for future development to provide good "internal circulation" (p. 61), yet the plan discourages pedestrian accessways at the end of cul-de-sacs for "safety reasons." Further, several policies call for widening key roads through the area to six lanes and for widening highway interchanges to two lanes each way. These dimensions have significant impacts on pedestrian circulation which the plan does not address.

Beyond street design, the pedestrian environment is also dependant upon the character and mix of land uses. The Airport Meadowview Community Plan includes a goal to provide for a mix of land uses that will lead to a more "attractive, healthy living environment." Although not



explicitly stated, fulfillment of this goal may also lead to improvements to the pedestrian environment.

In terms of implementation, no mention is made of pedestrian improvements.

North Sacramento Community Plan

Document Assets

- The plan expresses concern for pedestrian safety and convenience.
- Plan goals advocate for a mix of uses and densities.
- The plan acknowledges the need for some level of traffic calming in neighborhoods.

Document Needs

- The plan misses the opportunity to discuss how pedestrian accessibility can be a policy to achieve several stated goals.

The *North Sacramento Community Plan* (1984) makes some specific recommendations with regard to pedestrian circulation. The plan calls for improvements to streets to support pedestrian activity, including the provision of basic amenities such as sidewalks and crosswalks for safety and convenience. The mention of "convenience" is notable in that there is an implicit understanding that the pedestrian must not only feel safe, but also feel that they have good mobility and accessibility. Otherwise, the plan focuses on street improvements that benefit vehicular circulation, although it notes that traffic speeds are a concern and suggests the use of "undulations" (speed humps) in residential neighborhoods. Though it does not directly link this discussion to pedestrian safety, the plan's consideration of a basic traffic calming strategy is notable.

The plan also includes goals for integrating land use and density changes with the transportation network. The plan state that a range of commercial uses should be provided to meet the daily needs of residents, and that a mix of housing types should be constructed so as to "preserve existing levels of transit ridership." The plan, though, does not make the link between these goals and the importance of pedestrian accessibility. The discussion of the Marconi Station provided an opportunity to make this link, but it was not addressed in the plan. The plan gives no guidance as to how development around the station could be more intense, and essentially states that the current uses are adequate.



South Sacramento Community Plan

Document Assets

- Street beautification and canopy tree planting is this plan's emphasis.
- It advocates infill development.
- The plan describes specifies pedestrian improvements on Franklin Boulevard.

Document Needs

- The plan includes few supporting policies for pedestrian accessibility.
- It primarily advocates low-density development.

The *South Sacramento Community Plan* (1986) does little to address the pedestrian realm other than emphasize the importance of canopy street tree planting as a means of improving community character and comfort. A brief statement is also made to "avoid the excessive use of subdivision walls," although this appears to be tied more to street beautification than to pedestrian accessibility and connectivity. Goals for land use are unclear and mixed in terms of benefiting the pedestrian. There is a focus on promoting infill development by offering incentives such as allowing narrower street widths, which could benefit the pedestrian, but another incentive would allow developers to not provide full pedestrian accommodations on both sides of the street. Little is made for the need to mix land uses. The plan describes high-density residential ("high" is not defined) as "perceived" to be "detrimental."

The plan does express concern for pedestrian facilities along Franklin Boulevard; otherwise, the plan emphasizes improving traffic flow and adhering to the City's Street Design Guidelines. Although there is a goal to "encourage fuel efficient methods of transportation," no supporting policies or actions are stated that could advocate for the very fuel-efficient travel mode of walking.



South Natomas Community Plan

Document Assets

- The plan advocates for improvements to street character and form.
- It promotes pedestrian access to transit in employment areas.

Document Needs

- The plan's concern for air quality could be an opportunity to improve pedestrian conditions.
- The plan's transportation concerns focus on the automobile.
- The plan promotes primarily low-density development.

The *South Natomas Community Plan* (1988), specifically expresses concern about air quality but makes no mention of how the plan's mitigation program could include pedestrian improvements. Although bicycle access is highlighted, discussions of pedestrian access are limited to the transit section: "pedestrian access to workplaces from transit should be as direct as possible." Street character policies, however, do directly address improving the pedestrian environment: "Dwellings should have varied setbacks from streets, varied entry orientation, and differing forms and heights to avoid monotony without creating a chaotic streetscape."

Similar to the *South Sacramento Community Plan*, "concentrations of medium and high density housing" are discouraged (presumably precluding development around transit stations), and the primary transportation goals focus on maintaining certain vehicular levels of service without mention of their affect on pedestrians.



North Natomas Community Plan

Document Assets

- The Plan promotes a mixed-use, walkable town center.
- It integrates transit and pedestrian accessibility.
- It calls for improved street crossings for school access.

Document Needs

- The plan generally discusses bicycle and pedestrian accommodation as one.
- Pedestrian circulation is separated out from general circulation discussion.

The *North Natomas Community Plan* (1994) is a good example of how community plans can support pedestrian activity on the neighborhood scale. The plan articulates a clear vision of a mixed-use, intense, walkable town center integrated with transit and connected to surrounding residential neighborhoods. The implementing policies for the town center specifically call for mid-block pedestrian connections to break down the scale of development and for streets to be designed to support multiple types of users. The schools section includes a policy to improve street crossings as part of the Safe Routes to School program.

The plan integrates policies directed toward the transit systems and pedestrian circulation network. They include direct pedestrian connections, short spacing between stops, and transit centers as the focus of neighborhood activity. In addition, policies aimed at reducing street widths and ensuring that private development does not impede pedestrian circulation are key components of the comprehensive vision of the area articulated in the plan.

One minor deficiency is that guiding policies in the *Circulation* section concentrate primarily on vehicular and transit mobility with only general statements about pedestrian- and bicycle-friendly design. In particular, pedestrian and bike accommodations are generally discussed as a unit rather than acknowledging that each mode has unique concerns and are, at times, in conflict with one another.



'R' Street Corridor Plan

Document Assets

- Street improvement goals and land use goals that dramatically improve the pedestrian environment are supported by clear and specific policies.

Document Needs

- None.

The *'R' Street Corridor Plan* (1996) calls for a number of street improvements that meet the evaluation criteria stated at the beginning of this chapter. An expressed goal of designating R Street as a local pedestrian-scale street is supported with policies and actions for improvements that "could include, but are not limited to, pedestrian controlled signals, enhanced lighting, sidewalk bulbing, and alternative paving materials at cross-walks" (p. 15), as well as limited auto access and curb cuts from adjacent properties. The plan further emphasizes a goal to promote multiple modes of circulation through adoption of new street standards that improve intersections and facilitate pedestrian access to transit facilities across high traffic volume streets. The policies for improving pedestrian conditions on R Street encourage both bicycle and pedestrian circulation.

Beyond street improvements, the plan also advocates for a mixed-use neighborhood with a goal to "Provide a mix of uses to support an extended hour central city." To achieve this, the policies designate 80% residential and 20% ground floor retail use and reduce commercial parking requirements by 50% where the parking area can be shared to accommodate residential uses. A complementary goal advocates using transit stations in the corridor to focus development. Policies that support this goal encourage mixed use within 660 feet of the transit station and reduced parking standards, thereby reducing the amount of land devoted to surface parking.



District/Corridor Design Guidelines

District/Corridor Design Guidelines address issues affecting the pedestrian environment, and often focus on the street improvements that will be used to revitalize an existing neighborhood or important commercial corridor. They differ from Community Plans in that they generally deal more with specific implementation designs and strategies, rather than focusing on larger policy issues. Eight district/corridor design guidelines, produced over the past 30 years, have been reviewed and evaluated in terms of pedestrian issues: *Alkali Flat Urban Design Guidelines* (1972), *Del Paso Heights Design Guidelines* (1989), *Oak Park Design Guidelines* (1990), *Alhambra Corridor Design Guidelines* (1991), *North Sacramento Commercial, Office & Industrial Design Guidelines* (1994), *Del Paso Nuevo Development Guidelines* (1998), and the *65th Street Transit Villages Plan* (2001). While the plans vary widely in their treatment of pedestrian design considerations, they all address pedestrian issues. Some offer specific public improvement opportunities, while others give more general guidelines for new development. In the last 30+ years, the district/corridor guidelines have improved consistently in their approach to pedestrian-oriented development and circulation.

Alkali Flat Urban Design Guidelines

Document Assets

- The Guidelines address the specific need for increased pedestrian space and buffering from roadway.
- It produced innovative streetscape designs.

Document Needs

- Design details must consider universal accessibility.

The *Alkali Flat Urban Design Guidelines* (1972) developed concept streetscape improvements for the 12th Street corridor. Although over 30 years old, the plan is notable in its efforts to combine an improved pedestrian experience along the street with an attempt to revitalize the commercial area while continuing to accommodate similar levels of vehicular traffic. General recommendations include encouraging first floor neighborhood retail services and alley access, and converting one way streets to two way streets in order to gain the use of right turn lanes for potential future landscaping and sidewalk treatments (the document does not provide specific detail of how this would work).

The most notable element of the plan is that it recognizes that many street improvement programs are merely cosmetic and do not address key issues. This plan, however, is deliberate in directly addressing the need to physically provide a buffer between traffic and pedestrians while maintaining a desirable visual effect. Improvements focus on adding additional sidewalk to expand the pedestrian realm and creating public space pockets at corner and midblock locations by occupying the parking lane. Both options are good examples of pedestrian-oriented street improvements. The first option calls for the extension of the existing sidewalk by 4' into the



parking lane at appropriate intersections. This improvement would allow greater width for the pedestrian realm without any impacts on accessibility. The second option takes a more aggressive approach to pedestrian improvements with a 6.5' extension of the pedestrian realm, but is slightly problematic in the design detail. It does not include the relocation of curbs and gutters, so the expanded pedestrian realm is at street level, protected from vehicular traffic by a buffer of planters and low walls. Although the additional space provides opportunities for increased landscaping, seating and bicycle parking accommodation, the grade change between sidewalk and street level poses an accessibility issue that could be overcome by simply installing a curb ramp.

Del Paso Heights Design Guidelines

Document Assets

- The Guidelines promotes infill and small-lot development.
- They emphasize an attractive pedestrian environment with opportunities for "passive surveillance."

Document Needs

- Limiting access to neighborhoods needs to be closely examined for its impact on the pedestrian experience.
- A comprehensive set of traffic calming measures could replace the street closures.

The *Del Paso Heights Design Guidelines* (1989) understand the importance of an improved pedestrian environment for community identity and, to a lesser degree, security. Site design guidelines advocate infill development and subdivision of larger lots to improve site utilization, lower unit costs, provide a high degree of security (through limited access) and facilitate neighborhood interaction. At the street level, detailed design guidelines illustrate pedestrian scale elements such as arbors, verandas and porches, low fences and a de-emphasis of the garage.

The plan also recommends limiting vehicular access to neighborhoods by closing access to several streets. Presumably, pedestrian access would be maintained, but the plan does not clarify this. While the motive for this is probably an improved sense of neighborhood security, closing street access is contrary to the best practices criteria. Reducing access focuses auto traffic to a limited number of through streets. These streets become less safe and comfortable for pedestrians, while they remain the only way for people to travel on foot as well as by car. To create a positive pedestrian experience, the high volume streets need an even higher level of pedestrian improvements to mitigate the increased volume of automobile traffic. A comprehensive set of traffic calming measures could achieve traffic goals that are similar to what could be achieved with street closures while maintaining an interconnected street system and a pedestrian supportive environment.



Oak Park Design Guidelines

Document Assets

- The Guidelines promote a "street friendly" neighborhood.

Document Needs

- The guidelines could address issues such as street crossings and street design. Since they too have a bearing on a neighborhood's quality of life.

The *Oak Park Design Guidelines* (1990) is comprised of a set of design guidelines that "creates a sense of neighborhood pride which improves the quality of life while increasing property values." The focus of the architectural guidelines is to direct new residential development in such a way as to respect the historic context of the predominately single-family neighborhood. From a pedestrian standpoint, the guidelines support a safe and attractive pedestrian environment by advocating that residential development address the street as directly as possible by de-emphasizing garages and encouraging front porches and articulated entryways.

Alhambra Corridor Design Guidelines

Document Assets

- The Guidelines emphasize the pedestrian experience.
- They advocate for a finer grain of pedestrian connections by using alleys.

Document Needs

- None.

The *Alhambra Corridor Design Guidelines* (1991) include a strong statement at the outset about the importance of pedestrian features: "The Alhambra Corridor . . . has existing pedestrian opportunities that should be enhanced through the appropriate design of new development and the inclusion of pedestrian access features" (p.3). Throughout the guidelines, emphasis is placed on context-sensitive development and increasing pedestrian connectivity through the increased use of alleys as pedestrian linkages in the commercial areas (with an appropriate level of lighting, landscaping and visual access to development. Strategies include minimizing the presence of garage doors on the alleys while, at the same time, minimizing curb cuts on main streets to provide a continuous pedestrian experience, and creating continuous pedestrian pathways through the corridor. Issues relating to site and building design are addressed as well.

Further, the document explicitly addresses the pedestrian experience in each land use section with the heading "Pedestrian Friendly Features." Typical elements include public art, smaller architectural features, clear window glazing, courtyards, fountains,



unique landscaping, a unified sidewalk texture, and an overly generous 10' planting strip.

North Sacramento Commercial, Office, Industrial Design Guidelines

Document Assets

- These thorough and well-illustrated architectural and site design guidelines will improve the pedestrian environment.
- The Guidelines have a strong, clear focus on pedestrian supportive development and public improvements.
- They include traffic calming improvements at intersections.

Document Needs

- The Guidelines need to provide more direction in creating a pedestrian network.
- Design guidelines for sidewalks would be very helpful.

The North Sacramento Redevelopment Area was established in 1992 and is composed of approximately 1,186 acres adjacent to the downtown. The area is bound on the east by the Southern Pacific railroad tracks/Altos Avenue, and the north by Eleanor Avenue/Del Paso Boulevard, and Craigmont Street. *The North Sacramento Commercial, Office, and Industrial Design Guidelines* (1994) address pedestrian conditions with a comprehensive and well-illustrated set of design guidelines specific to commercial or industrial land uses. The site design and architectural elements section for each land use focus on creating and maintaining an attractive and interesting streetscape for the pedestrian. Example guidelines include site design with parking in the rear, building frontages that are well articulated and at a pedestrian scale, and a continuous pedestrian network. On the latter element, the guidelines could be more definitive in terms of making a strong statement on how to prioritize pedestrian facilities and connections through the area.



Del Paso Nuevo Development Guidelines

Document Assets

- The Guidelines have a strong, clear focus on pedestrian supportive development and public improvements.
- They include traffic calming improvements at intersections.
- Proposed street sections do not meet the internally stated goals for pedestrian orientation.

Document Needs

- The Guidelines could promote greater intensities of land use.

The Del Paso Nuevo planning area is a 154 acre planned community is approximately 3.5 miles north of downtown. The community will eventually accommodate 850 homes, five areas of commercial development, three acres of civic uses and a nine-acre neighborhood Park. The Del Paso Nuevo Special Planning District Development Guidelines (1998) is a redevelopment master plan that incorporates key components of pedestrian planning principles and principles known as the “New Urbanism” at its core. These planning principles stress the importance of interconnected streets, land use patterns that support alternative means of transportation, and street designs that allow for multiple user groups. The plan makes clear the importance of providing pedestrian connections to and from transit stops, and of creating pleasant pedestrian environments on main walking routes.

The plan outlines an approach to traffic calming combining passive (narrow streets, on-street parking, etc.) and active (built-in features such as traffic circles, bulb-outs, etc.) techniques. These techniques include “intersection portals” intended to reduce vehicular speeds by flaring the curbs at intersections, “traffic circles” consisting of 10’-20’ diameter raised planters located in the middle of an intersection, and “enhanced crosswalks” including painted walks, raised surfaces, and/or changes in colors or texture intended to cause vehicles to reduce speed when entering the plan area.

These traffic-calming recommendations meet the evaluation criteria well. However, the street sections included in the plan are more problematic, particularly with regard to universal accessibility. The guidelines call for only a 4’ wide sidewalk in residential areas. Unless there are specific plans for wider passing areas every 200 feet, sidewalks should be a minimum of 5’ wide in order to meet ADA requirements; a 5’ to 6’ foot wide sidewalk is desired if the plan is successful in creating more pedestrian activity in the area.

The site design and building design principles and guidelines strongly support pedestrian circulation in the area. Buildings are to be oriented to the street, minimizing impact of parking and providing active uses adjacent to sidewalks. The site planning guidelines also make a strong



effort to minimize lot sizes and increase pedestrian interconnectivity in the area. The only drawback to the development guidelines are density thresholds that are slightly below what would more effectively achieve some of the goals. The majority of the area covered by the plan has a density limit of 4-8 dwelling units/acre, while the most intense area allows only 7-15 du/acre (with one small parcel allowing 11-29 du/acre). While the circulation network can be designed to support pedestrian activity, if there is not sufficient intensity of use, walking will not become a serious potential transportation mode and origins will be spread out so much that while the increase in walking for recreation may be noticeable, increased walking for transportation is likely to be negligible.

65th Street Transit Village Plan

Document Assets

- The plan emphasizes pedestrian connections and pedestrian supportive land use patterns.
- It makes a connection between pedestrian comfort and safety and transit ridership.

Document Needs

- Proposed street sections are not internally consistent with the goals and objectives of the plan.
- Specifically, proposed auto travel lanes are too wide, sidewalks too narrow, and rolled curb does not protect sidewalk from cars parking on it.

The 65th Street Transit Village Planning Area is centrally located within the East Sacramento Community Plan Area. The 49 acre project area includes property within a one-quarter mile walking distance of the 65th Street LRT Station. The area is situated approximately one mile south of the California State University, Sacramento (CSUS) to which the city recently constructed a ped/bike tunnel beneath the UP rail line. The *65th Street Transit Village Plan* (2001) is, in many respects, the model of how this type of planning document can address pedestrian issues and support pedestrian activity. The urban design principles outlined at the beginning of the plan lay the framework for the rest of the plan. One of the principles (“Enhance Pedestrian/Bike/Transit Linkages”) states that the plan strengthens pedestrian and bike linkages in order to “connect the surrounding neighborhood to the station and adjacent employment and commercial uses.” Stating principles in this way at the beginning of a plan can help keep discussion focused on pedestrian issues.

This plan recognizes the important interconnections among land use, pedestrian comfort, street connectivity, and pedestrian activity. Much of the language of the plan is focused on increasing transit ridership (much more so than the other documents reviewed in this section), creating vital pedestrian environments through land use and site planning, and implementing public improvements aimed at enhancing pedestrian conditions. Improving access and reducing the scale of blocks are also constant themes that run throughout the guidelines.



The Circulation/Infrastructure section focuses on improving pedestrian circulation as part of a balanced overall circulation system. Goals call for the provision of access between and through developments, safe multi-use streets, and the transformation of area streets in order to “promote balanced transportation system and direct pedestrian access to the area.” (p. 20)

Where the plan breaks down, however, is in the physical design and implementation portions of the document. The proposed street sections shown for Elvas Avenue, Folsom Boulevard, and 65th Street do not meet several of the evaluation criteria. Only Elvas Street from 65th to Folsom shows on-street parking, and other portions of the same street show rolled curbs. Lane widths are sometimes greater than necessary, and the paved areas of sidewalks are narrower than they should be.

The transition from goals and principles to standards and policies is often difficult. The physical designs based on good goals and objectives must be internally consistent. Otherwise, the goals will not be achieved, no matter how lofty. While the physical design portions of the *65th Street Transit Villages Plan* are not as strong as they could be, this plan is the high point in 20 years of evolution in the District/Corridor Plans in Sacramento.



RIVER PARKWAY PLANS

Sacramento River Parkway Plan

Document Assets

- A thorough plan that emphasizes recreational opportunities.

Document Needs

- It does not ensure proper pedestrian accommodations where trail is shared with a street (rolled curb).
- The plan emphasizes recreational rather than utilitarian uses.

The Sacramento River Parkway Plan (1993) emphasizes the trail's recreational function rather than its use as a potential means to connect different activity centers. This is evident in the description of the Off-Street Trail in the Trail Policies section that reads: "Whenever feasible, the trail will be located on the waterside berm of the levee to provide greater separation between the Parkway and adjacent uses in order to reduce potential conflicts."

While the 12' shared bike/ped path is adequate, the on-street bike and sidewalk lane dimensions illustrated in Diagram 8 - 6 are substandard. Bike lanes should be a minimum of 5' with a preferred width of 6', and the sidewalk should be at least 5' in width. The use of the rolled curb provides little protection from cars parking on the sidewalk.

American River Parkway Plan

Document Assets

- A thorough plan that emphasizes recreational opportunities.

Document Needs

- The plan emphasizes recreational rather than utilitarian uses.

Similar to the Sacramento River Parkway Plan, The American River Parkway Plan (1985), this plan focuses on the pedestrian as a recreational user. Pedestrian access generally leads to hiking trails, but at the time the plan was written the trails were often shared with cyclists and equestrians. The plan recommends a separate trails system for each user group, with the pedestrian trail remaining unpaved. Accessibility issues are to be addressed by the creating "designated handicapped (sic) accessible trails installed at acceptable width and grade at several locations within the Parkway.



APPENDIX D: PUBLIC OUTREACH

SUMMARY OF PUBLIC OUTREACH MEETING AGENDAS:

City of Sacramento Pedestrian Master Plan Steering Committee Kick-Off Meeting

AGENDA

March 20, 2003

1. Background (Ed Cox)
 - a. History behind the Pedestrian Plan
 - b. Pedestrian Safety Guidelines

2. Work Program (Matthew Ridgway)
 - a. Major work elements
 - b. 65th/Highway 50 example

3. Make-Up and Role of the Steering Committee (Steve Brown)

4. Schedule (Matthew Ridgway)

5. Committee Homework Assignment



Sacramento Pedestrian Master Plan

Steering Committee Meeting

September 15, 2003

Agenda

2:00 to 2:15 PM **Welcome and Introduction (Cox)**

- Summary of work to date
- Expectations for meeting

2:15 to 2:30 PM **Status Report (Brown/Ridgway)**

- Review/Handout of Criteria
- Details of Criteria Application
- Feedback from Public Workshops

2:30 to 3:45 PM **Pedestrian Capital Improvement
Program (Allen)**

- Overview of Pedestrian Capital Improvement Program
- Midtown Test Application
- Discussion

3:45 to 4:00 PM **Wrap-Up**

- Next Steps
- Review of Walking Audits



Sacramento Pedestrian Master Plan

Steering Committee Workshop

May 19 and 20, 2003

Library Galleria

Agenda

May 19

9:15 to 9:30 AM Registration

9:30 to 10:30 AM Welcome and Introduction (Ridgway/Erickson)

- Introduction to the Pedestrian Plan
- Expectations for Workshop
- Basics of the Pedestrian Environment

10:30 to 11:45 AM Evaluation Criteria (Erickson/Wilson)

11:45 AM to Noon Workbook Exercise (Hexter)

Noon to 2:00 PM Box Lunch / Walking Tour

2:00 PM to 4:00 PM Discussion of “High Importance” Policies
and Standards

May 20

1:00 to 2:30 PM Summary of Day 1 and Wrap-Up of “High
Importance” Policies and Standards

2:45 to 4:00 PM Introduction to the Pedestrian Capital Improvement
Program (Ped CIP) (Alen)

- Explanation of Ped CIP
- GIS Approach to the Ped CIP





- ④ INCLUDE PED MOBILITY, INCL. NON-AUTO LINKS, NETWORKS
- ④ SEPARATE #1/3 OF ST. NETWORK
- ↳ STREETS & NON-ROADWAY

- ④ ALLOW FOR DIVERSITY OF ROAD PERMEABILITY AMENITIES, E.G. RURAL ASPECT OF GRAVEL. **DON'T TAKE EVERYTHING!**
- ↳ BUT ONLY WITH GUIDELINES FOR SERVICES
- ↳ ALLOW FOR NON-CONVENTIONAL SERVICES

- ④ CREATE NEW CATEGORY ON ROAD CLASSIFICATION
- ↳ APPLY CLEAR MEASURES FOR MID-BLOCK CROSSINGS
- ↳ VISIBILITY OF BUS PARKING → SET STATIONARY BUS
- ↳ INVESTIGATE / TEST CLICKING DEVICES CROSSWALKS
- ↳ URBAN DRIVE THRU!
- ④ CREATE CATEGORY FOR PILOT PROJECTS
- ④ VIDEO DETECTION OF CROSSING FEELS
- ④ POSSIBLE INTERACT. SON TO PED BRIDGES
- ↳ IN COOP. W/ CALTRANS

- ④ CITY AS CATALYST FOR TED. IMPROVEMENTS
- ④ ENGAGE RT. IN DISCUSSION RE. PED ACCESS TO TRANSIT
- ↳ INCLUDE WHEELCHAIRS
- ↳ INCLUDE CHAIRS IN ACCESSIBILITY TO RT.

- ④ RECS. RE. PED TRAVEL CRITERIA WITH GIVEN RADIUS/DISTANCE FROM STATIONS
- ↳ AFFORDING PRIORITIES THRU CIP
- ↳ 1/4 - 1/2 MILE MIN. DEPENDING ON DENSITIES
- ↳ PROVIDE GEN. REC. TO RT.

- ④ SET FORTH SINGLE MIN. STANDARDS FOR BICYCLIST MOES ON TARGETED STREETS
- ↳ DON'T MAKE OVERLY COMPLEX
- ④ PERFORMANCE CRITERIA BY MODE BASED ON MIN. STANDARDS

- ④ ADD STREET KIOSKS AS IMPROV. RE. AMENITIES
- ↳ INCL. PED. ACTIVITY AND SIDEWALK ELEVATIONS
- ④ PROMOTING UNDERGROUND UTILITIES
- ↳ RETRO-FITTING STREETSAPES
- ④ MODIFY (NOT JUST UPDATE) ZONING CODE TO PROMOTE PED-FRIENDLY DEV.
- ↳ URBAN DRIVE THRU!
- ④ CONSIDER ZONING OF PED OVERLAY ZONE

- ④ LANDSCAPE FOR COMFORT / BEAUTY
- ↳ INCL. IN BLDG. DESIGN CRITERIA
- ↳ INVOLVE LOCAL RESIDENTS IN PLANTINGS

- ④ COPY STREET TREE POLICY
- ↳ INSURE BRANCHES GREATER HEIGHT FOR CLEARANCE
- ④ INCLUDE POLICY RE. LAND USE AROUND TRANSIT
- ④ ALLOW AREA PARKING IN LEO OF SPECIFIC BIZ RES. ENTIREMENTS
- ④ INCLUDE ELEM. BENEFITS OF WALKING
- ④ SEEK ALT. DELIVERY SOLUTIONS FOR COMMERCIAL AREAS

- ④ HIGH PRIORITY TREATMENT AREAS
- ④ ADDRESS ENFORCEMENT OF LANDS ADMIN. RULES
- ④ EDUCATION
- ④ TRENDS ON SPEED, VOLUME,
- ④ 25th + SLAT 24th + CASTRO
- ④ CONSULT INVESTIGATIONS DATABASE FOR IMPORTANT CROSSINGS
- ④ L.R.T. @ ROOSEVELT → BIKE BRIDGE
- ↳ MULTIMODAL - MULTI-MODAL CONNECTIONS
- ↳ GENERAL NEED FOR PED BRIDGES
- ④ CALEXPLO. & LINKED USE AREA
- ④ ADVENTURE (SHOPPING CENTER)
- ↳ HERITAGE & CHALLENGE AREAS.
- ④ ↓ STREET BY SK. CENTER
- ④ FREEWAY CROSSINGS OVER UNDERPASSES
- ↳ BRAMP INTERCHANGE REDESIGN
- ↳ BRIDGWAY → WEST TO OAK PARK
- ↳ HAS POTENTIAL FOR IMPROV.
- ↳ LURS FOR INFILL DEV.
- ④ 15th + 16th FREEWAY PROHIBITION OF TRUCKS
- ④ POLICE SPONS. OF DANGEROUS MOTORIST VIOLATIONS IN PED DANG. AREAS

- ④ ADDRESS INTERSECTION CROSSINGS WHERE NOT 90° TO ROAD
- ④ STROCKTON BLVD.
- ④ TRAIN STATION ACCESS DOWN TOWN
- ④ EL CAMINO BLVD. ADJACENT TO LERSTATION
- ④ BIKE LAKE ON TREECEL



SAMPLE INVITATION TO PUBLIC WORKSHOP:

YOU ARE INVITED!

City of Sacramento's Pedestrian Master Plan Community Workshop

The City of Sacramento Public Works Department is sponsoring Community Workshops on a Pedestrian Master Plan. At the workshop you will:

- Learn about the Pedestrian Master Plan project
- Help identify problem areas for pedestrians in your neighborhood
- Suggest potential solutions to these issues
- Provide your opinion about possible changes to the City's policies, codes and standards that would enhance safety and walkability throughout Sacramento.



What is the Pedestrian Master Plan?

The PMP is being developed by the City of Sacramento Public Works Department with the involvement of a Steering Committee made up of City departments, representatives from the County, neighborhood representatives and local advocacy groups.

The Plan will contain three major elements:

- **Policies** - Major policies could include changes to the General Plan to encourage more compact, mixed-use, pedestrian-supportive development.
- **Design Standards** - The Plan will recommend changes to current City standards for roadways and sidewalks.
- **Capital Improvements** - The Plan will identify improvements to streets and intersections to improve the walking environment.

Please attend the workshop most convenient for you:

Monday, July 7th – 6:00 - 8:00 p.m.
 Neighborhood Services Area 2
 Paratransit Auditorium
 2501 Florin Road

Tuesday, July 8 – 6:00 - 8:00 p.m.
 Neighborhood Services Area 1
 Hart Senior Citizen's Center
 915 27th Street

Wednesday, July 9 – 6:00 - 8:00 p.m.
 Neighborhood Services Area 4
 South Natomas Community Center
 2921 Truxel Road

Thursday, July 10 – 6:00 - 8:00 p.m.
 Neighborhood Services Area 3
 George Sim Community Center
 6201 Logan Street

For additional information, contact Ed Cox (916) 264-8434

APPENDIX E: PEDESTRIAN FRIENDLY STREET STANDARDS



RESOLUTION NO. 2004-118

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF FEB 24 2004

RESOLUTION TO APPROVE PEDESTRIAN FRIENDLY STREET STANDARDS BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

1. The Pedestrian Friendly Street Standards shown in the attached Resolution, to Amend Section Five of the General Plan, Resolution No. 2004-119, are hereby approved.
2. The city's street system should encourage alternate mode use, especially walking and bicycling, by working toward a balance of all street users. To achieve this, the city has identified the following objectives for the city's streets:
 - a. Residential streets and street networks should be designed to discourage speeds above 25 mph.
 - b. Residential street networks should be designed to encourage only neighborhood traffic and should seek to minimize traffic volumes on residential streets.
 - c. Street design should enhance and improve the pedestrian safety and comfort and encourage non-motorized travel modes.
 - d. Employ traffic calming measures when the size and/or shape of a residential subdivision project limits the number of alternative designs.
 - e. Discourage parking on sidewalks.
 - f. Enhance and beautify the streetscape and pedestrian environment by bringing landscaping closer to the street.
 - g. Balance street design so that it does not favor motorized traffic.
 - h. Streets should not be barriers to personal interaction.
3. To assist in the implementation of the Pedestrian Friendly Street Standards, a number of Implementation objectives have been defined. These include:
 - a. City and landowners will work to meet the Goals of the standards in a way that is compatible with the project.
 - b. Allow flexibility in the application of city standards to avoid affecting housing densities, specifically in medium density zones.
 - c. Avoid adding undue delay or design cost to the project review process.

HEATHER FARGO

MAYOR

ATTEST:

SHIRLEY CONCOLINO

CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-118

DATE ADOPTED: FEB 24 2004

ORDINANCE NO. 2004-007

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF FEB 24 2004

AN ORDINANCE AMENDING SECTIONS 18.04.010, 18.04.170, 18.04.180, 18.04.190, 16.40.020 AND 16.40.110 OF THE SACRAMENTO CITY CODE RELATING TO THE CITY STREET STANDARDS.

BE IT ENACTED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

SECTION 1

Sections 18.04.010, 18.04.170, 18.04.180 and 18.04.190 of Chapter 18.04 of the Sacramento City Code are amended to read as follows:

18.04.010 Legislative intent and findings; Definitions.

A. It is the purpose and intent of this chapter to require a building permittee or parking facility permittee to dedicate property for street purposes and to improve such dedicated property in accordance with the requirements and standards set forth herein. The council finds and determines that the regulations set forth in this chapter are both reasonable and necessary for the following reasons:

1. That the population growth and industrial growth of the Sacramento metropolitan area during the past two decades has been accompanied by an even greater increase in the number of vehicles used on the streets within the city with resulting street and highway deficiencies; and
2. That plans for the improvements of streets within the city have been prepared but that the lack of public funds for the implementation of such plans has prevented the attainment of goals set forth therein and will prevent their attainment for decades in the future; and
3. That the improvement and development of property for uses other than those set forth in Section 18.04.040 of this chapter generate an increase of traffic in the immediate vicinity of such property and that the improvements of such streets confer a direct benefit upon the owners and users of the developed property. (Prior code § 38.11.120)

B. Definitions. The following definitions shall apply to this Chapter 18.04:

1. "Adopted street standards" shall mean the standard street sections adopted on October 9, 1998, by City Council Resolution No. 98-510, or as may thereafter be amended from time to time by City Council action.
2. "Right-of-way width guidelines" shall mean the right-of-way width guidelines adopted on May 6, 1999, by City Council Resolution 99-209, or as may thereafter be amended from time to time by City Council action.

FOR CITY CLERK USE ONLY

ORDINANCE NO.: 2004-007

DATE ADOPTED: FEB 24 2004

18.04.170 Dedications to conform to right-of-way lines.

Dedications required under this chapter shall conform to and shall be governed by the right-of-way widths established for city streets under all applicable provisions and procedures of the adopted street standards and the right-of-way width guidelines provided that in the event of any conflict between the adopted street standards and the right-of-way width guidelines, the required dedication shall conform to the adopted street standards then in effect; and provided further that:

- A. For any streets designated as an on-street bikeway in the Sacramento bikeway master plan adopted by city council Resolution No. 76-195 or any successor resolution then in effect, an additional ten (10) feet of right-of-way width shall be dedicated, unless the adopted street standards for the subject roadway includes bikelanes.
- B. In the event of any conflict between the right-of-way width specified above and a right-of-way width which may be specified in an element of the general plan or in any applicable specific plan, the required dedication shall conform to the applicable general plan or specific plan requirement(s).

A copy of the city's current right-of-way width guidelines shall be maintained for public review in the office of the city clerk, and also shall be included in the city of Sacramento department of public works design and procedures manual. (Ord. 99-017 § 2 (part); prior code § 38.11.136)

18.04.180 Alternate dedication standards.

If the right-of-way width for a street has not been designated in the adopted street standards or in the right-of-way width guidelines, or in an element of the general plan, or in any applicable specific plan, the dedication required for such street under this chapter shall conform to and be governed by the right-of-way width determined by the city's director of public works or the director's designated representative in accordance with standards that are commonly used for the design of a similar public street. (Ord. 99-017 § 2 (part); prior code § 38.11.137)

FOR CITY CLERK USE ONLY

ORDINANCE NO.: 2004-007
DATE ADOPTED: FEB 24 2004

18.04.190 Standard Street Sections.

A. The right-of-way improvement standards applicable to the land dedicated pursuant to this chapter are as follows:

	Range of Average Daily Traffic	Sidewalk (feet)	Planter - measured to face-of-curb (feet)	Curb Type ^a	Parking Lane (feet)	Bike Lane (feet)	Travel Lanes (feet)	Median (feet)	Half Street (feet)	Total Right-of-Way Dedication (feet)
Local - Residential	0-4000	5	6 1/2 ^b	Vertical	7	0	8	N/A	26 1/2	53
Local - Commercial	0-14000	5	6 1/2	Vertical	7	0	11	N/A	29 1/2	59
Local - Industrial	0-14000	5	6 1/2	Vertical	8	0	12	N/A	31 1/2	63
Collector Minor - No Parking	4000-7000	5	6 1/2	Vertical	0	6	11	N/A	28 1/2	57
Collector Minor - With Parking	4000-7000	5	6 1/2	Vertical	7	6	11	N/A	35 1/2	71
Collector Major - No Parking	7000-14000	5	6 1/2	Vertical	0	6	11	12	34 1/2	69
Collector Major - With Parking	7000-14000	5	6 1/2	Vertical	7	6	11	12	41 1/2	83
4 Lane Arterial - No Parking	14000-27000	6	8 1/2	Vertical	0	6	11 / 12	12	49 1/2	99
4 Lane Arterial - With Parking	14000-27000	6	8 1/2	Vertical	7	6	11 / 12	12	56 1/2	113
6 Lane Arterial	27000-48000	6	8 1/2	Vertical	0	6	11 / 11 / 12	12	60 1/2	121

^a Rolled curb only may be constructed at street elbows and cul-de-sacs with approval by the City Manager or the designee.

^b The planter width only may be reduced or the planter removed to meet residential housing densities or to conform to existing street rights-of-way with approval by the City Manager or the designee.

In the event that the proposed right-of-way width is not one of the widths specified above, the city's director of public works or the director's designated representative shall determine the improvement standards in accordance with standards that are commonly used for the design of a similar width public street.

B. Minor deviations from the requirements set forth above may be approved by the city's director of public works or the director's designated representative.

FOR CITY CLERK USE ONLY

ORDINANCE NO.: 2004-007

DATE ADOPTED: FEB 24 2004

C. All improvements required to be made by the provisions of this chapter shall be constructed and completed in accordance with the applicable provisions of (i) the current standard specifications of the city, as adopted by the city council, and (ii) the street design standards of the city department of public works' current design and procedures manual. (Ord. 99-017 § 2 (part); prior code § 38.11.138)

D. Modifications of the Standard Streets for in-fill developments:

It is recognized that the standard streets may not be directly applicable to in-fill development. As a result, the street standards are intended to be flexible when applied to in-fill projects so the standards may be modified to fit a particular situation. Examples of reasons for modification of the standards include the need to match existing improvements, to promote high residential density in the medium- and high density zones, to ensure a safe and appropriate design, and/or to accommodate physical design constraints. When determining whether a standard or non-standard street design is appropriate for an in-fill project, a case-by-case evaluation of each location should be used to determine the appropriate street design and the guidelines listed below should be applied. In all cases, proper engineering judgment and practices must be applied to the design of the street.

1. Determination of the appropriate street improvements for a particular project should be made upon consultation with the City Manager's designee for overseeing in-fill development.
2. In general, the street standards should be applied to projects with more than 200 feet of street frontage and where street frontage improvements are required.
3. If the site has less than 200 feet of street frontage, required street improvements should match existing improvements on the roadway.
4. The 200-foot length requirement may be modified if the site is on a corner, the site is on a block that does not have any other frontage improvements, there is an opportunity to adequately transition street improvements to other existing improvements, or some other similar limitations exist. If necessary to separate the sidewalk from the curb, the use of pedestrian access easement(s) outside of the right-of-way, or other similar modification, may be used.

SECTION 2

Sections 16.40.020, 16.40.110 of Chapter 16.40 of the Sacramento City Code are amended to read as follows:

16.40.020 General access requirements.

Each local street providing access to lots within a subdivision shall connect directly to, or by way of one or more local streets to a collector street or arterial street.

Each route of access to collector streets or arterial streets and its point of connection therewith shall be adequate to safely accommodate the composition and volume of vehicular traffic generated by the land uses that it serves. However, residential subdivisions shall be designed to encourage vehicle speeds less than 25 mph and traffic volumes less than 4000 Average Daily Traffic.

In determining the adequacy of a route of access, the deployment of fire equipment or other services under emergency conditions shall be considered.

A tentative map that makes use of a local street that passes through a predominately residential neighborhood as a route of access to industrial, commercial or other subdivisions generating traffic that would conflict with the residential character of the neighborhood may be denied. (Ord. 99-017 § 4; prior code § 40.10.1002)

FOR CITY CLERK USE ONLY

ORDINANCE NO.: 2004-007

DATE ADOPTED: FEB 24 2004

S. Rayburn

RESOLUTION NO. 2004-119

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF FEB 24 2004

RESOLUTION TO AMEND SECTION 5 OF THE GENERAL PLAN, RELATING TO STREET STANDARDS

BE IT RESOLVED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

The City of Sacramento General Plan (adopted by Resolution CC88-058), as thereafter amended) is amended as follows:

1. Under "Goals, Policies, Actions for Streets and Roads, Figure 1A, Figure 1B, Figure 1C, and Figure 1D, depicting current street design standards are deleted and replaced with Figure 1A, Figure 1B, Figure 1C, Figure 1D, Figure 1E, Figure 1F, Figure 1G, Figure 1H, Figure 1I, and Figure 1J, attached hereto as Exhibit A.
2. Under "Goals, Policies, Actions for Streets and Roads," Goal A, revise Policy 3 to read as follows:

Policy 3

Maintain and keep the City's street design standards current.

- Action a): Begin a study to update and modernize the City's street design standards to support the goals and policies of the Circulation Element.
- Action b): Use adopted street design standards during the review of development projects.

Current street design standards used by the City are shown in Figures 1A-1J. Alternative street sections are available that may be used within specified areas of the City or under certain circumstances.

1. Under "Goals, Policies, Actions for Streets and Roads," Goal A, add Policy 5 as follows:

Policy 5

Continue wherever possible to design streets and to approve development applications in such manner as to encourage vehicular speeds of less than 25 mph in residential neighborhoods.

1. Under "Goals, Policies, Actions for Streets and Roads," Goal C, amend Policy 1 to read as follows:

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

DATE ADOPTED: FEB 24 2004

Policy 1

Continue wherever possible to design streets and to approve development applications in such manner as to minimize vehicular volumes and parking problems in residential neighborhoods.

HEATHER FARGO

MAYOR

ATTEST:

SHIRLEY CONCOLINO

CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

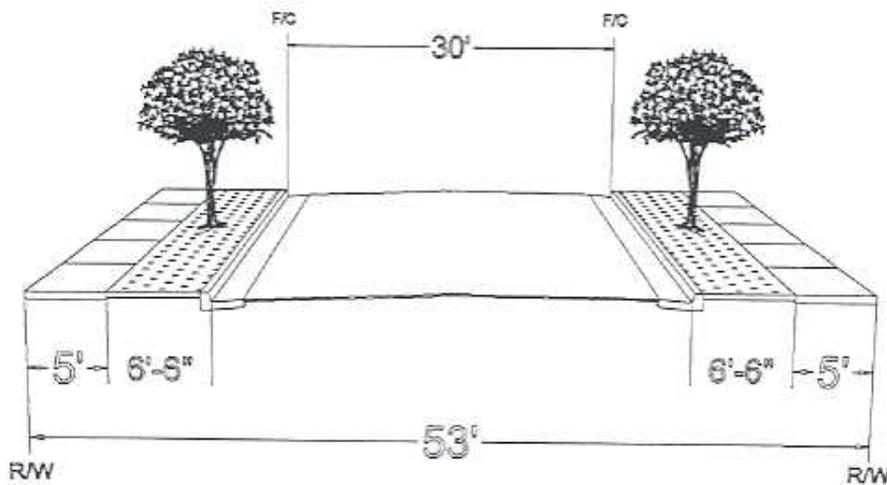
DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **A**

Residential Street

Bike Lane	No
Parking	Yes



53' Right-Of-Way
 (0-4000 ADT)

Notes

- ① Dimensions shown are approximate.
- ② Rolled curb only may be constructed at street elbows and cul-de-sacs with approval by the City Manager or the designee.
- ③ The planter width only may be reduced or the planter removed to meet residential housing densities or to conform to existing street rights-of-way with approval by the City Manager or the designee.

MINOR DEVIATIONS FROM THE STANDARDS REQUIRE THE APPROVAL OF THE CITY MANAGER OR THE DESIGNEE.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

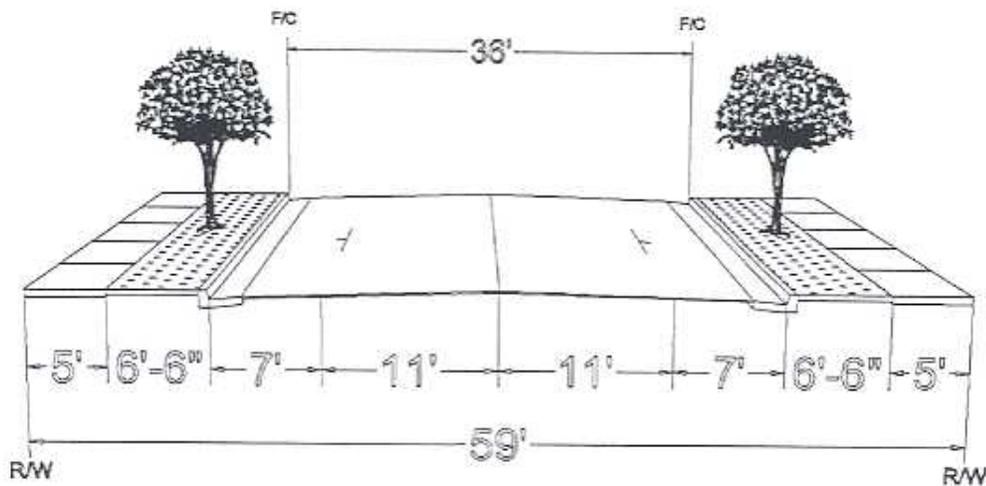
DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **B**

Local Commercial Street

Bike Lane	No
Parking	Yes



59' Right-Of-Way
 (0-14,000 ADT)

Notes

- ① Dimensions shown are approximate.

MINOR DEVIATIONS FROM THE STANDARDS
 REQUIRE THE APPROVAL OF THE CITY
 MANAGER OR THE DESIGNEE.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

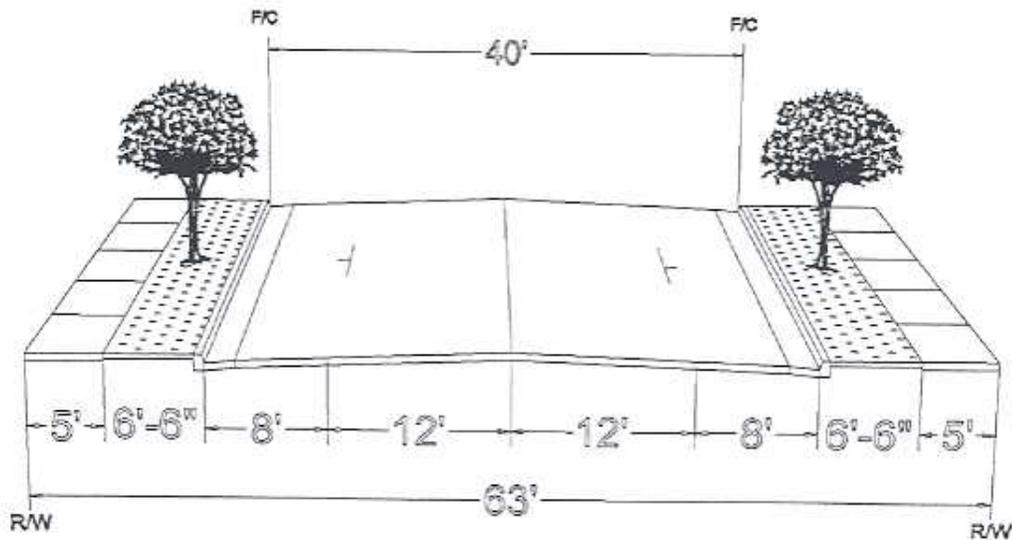
DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **C**

Local Industrial Street

Bike Lane	No
Parking	Yes



63' Right-Of-Way
 (0-14,000 ADT)

Notes

- ① Dimensions shown are approximate.

MINOR DEVIATIONS FROM THE STANDARDS
 REQUIRE THE APPROVAL OF THE CITY MANAGER
 OR THE DESIGNEE.

FOR CITY CLERK USE ONLY

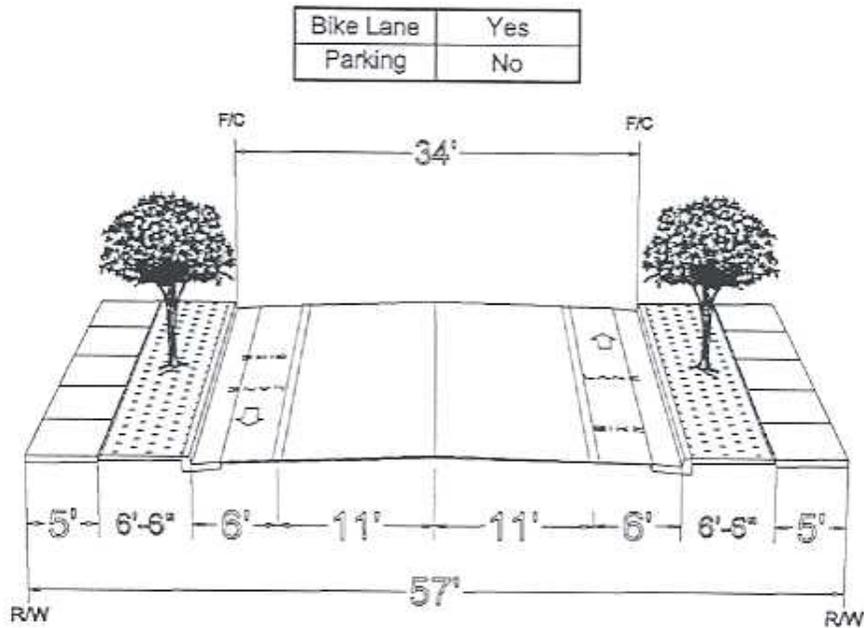
RESOLUTION NO.: 2004-119

DATE ADOPTED: FFR 2 & 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **D**

Collector Street-Minor



57' Right-Of-Way
 (4,000-7,000 ADT)

Notes

- ① Dimensions shown are approximate.

MINOR DEVIATIONS FROM THE STANDARDS
 REQUIRE THE APPROVAL OF THE CITY
 MANAGER OR THE DESIGNEE.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

DATE ADOPTED: FEB 24 2004

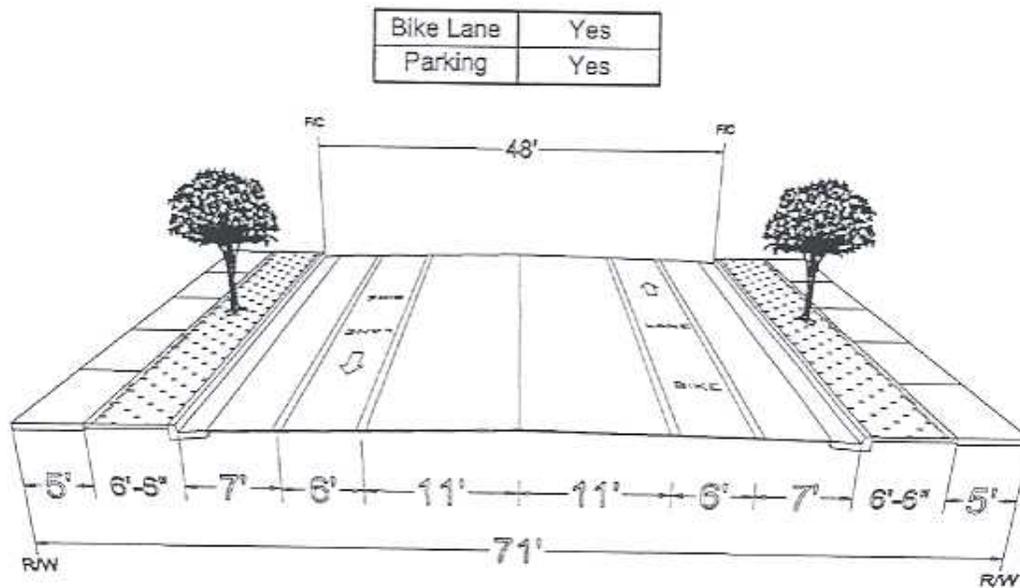
Figure 1-E

EXHIBIT A

PEDESTRIAN FRIENDLY STREET STANDARDS
TYPICAL CROSS-SECTIONS
CITY OF SACRAMENTO

Street **E**

Collector Street-Minor



71' Right-Of-Way
(4,000-7,000 ADT)

Notes

- ① Dimensions shown are approximate.

MINOR DEVIATIONS FROM THE STANDARDS
REQUIRE THE APPROVAL OF THE CITY
MANAGER OR THE DESIGNEE.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

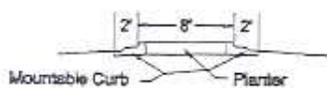
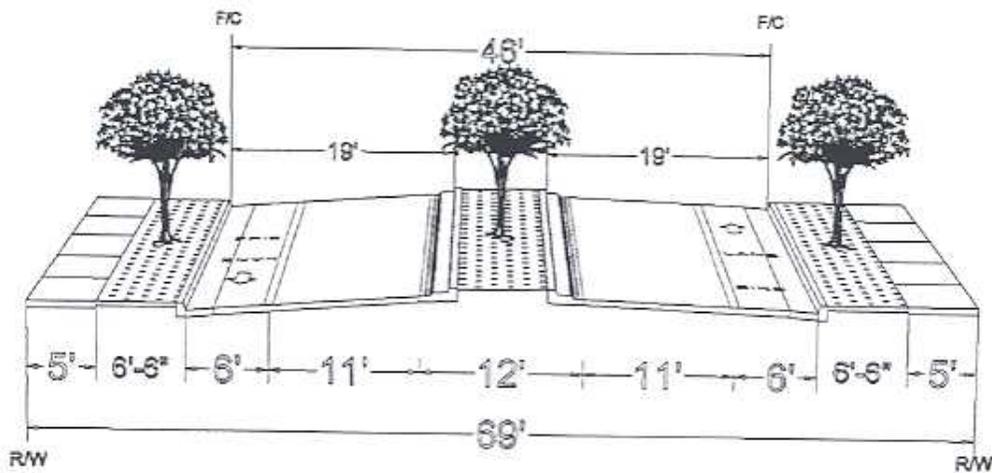
DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **F**

Collector Street-Major

Bike Lane	Yes
Parking	No



69' Right-Of-Way
 (7,000-14,000 ADT)

Notes

- ① Dimensions shown are approximate.
- ② The City Manager or the designee will determine whether a turn lane or a landscaped median is installed.
- ③ Median and median landscaping to be mountable.

MINOR DEVIATIONS FROM THE STANDARDS REQUIRE
 THE APPROVAL OF THE CITY MANAGER OR THE
 DESIGNEE.

FOR CITY CLERK USE ONLY

RESOLUTION NO.: 2004-119

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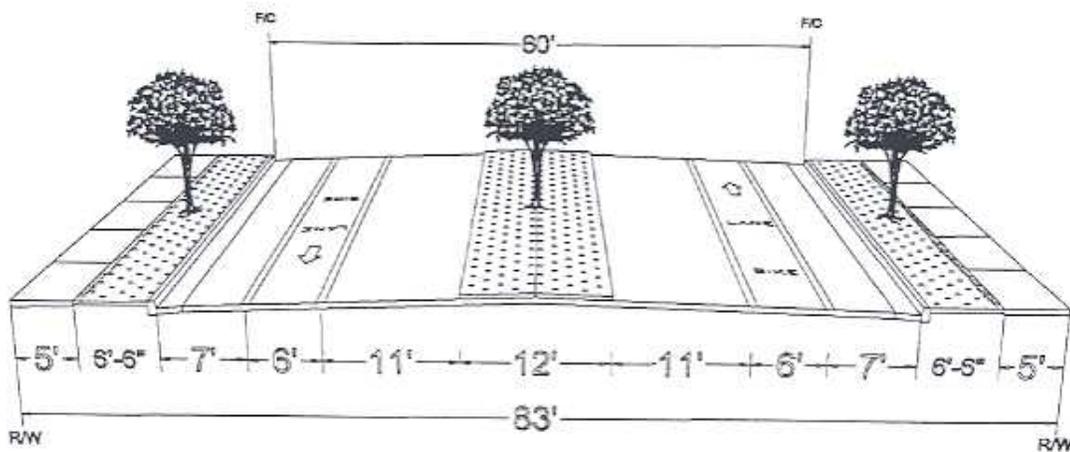
PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street

G

Collector Street-Major

Bike Lane	Yes
Parking	Yes



83' Right-Of-Way
 (7,000-14,000 ADT)

Notes

- ① Dimensions shown are approximate.
- ② The City Manager or the designee will determine whether a turn lane or a landscaped median is installed.

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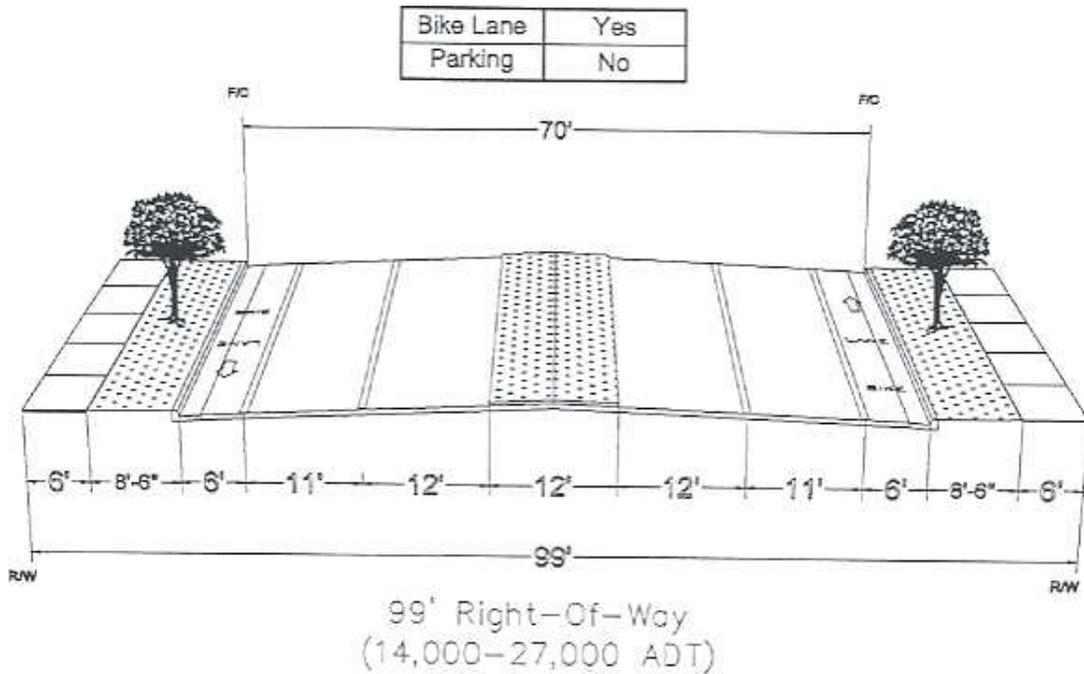
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RESOLUTION NO.: 2004-119
 DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO



Four-Lane Arterial



Notes

- ① Dimensions shown are approximate.
- ② The City Manager or the designee will determine whether a turn lane or a landscaped median is installed.

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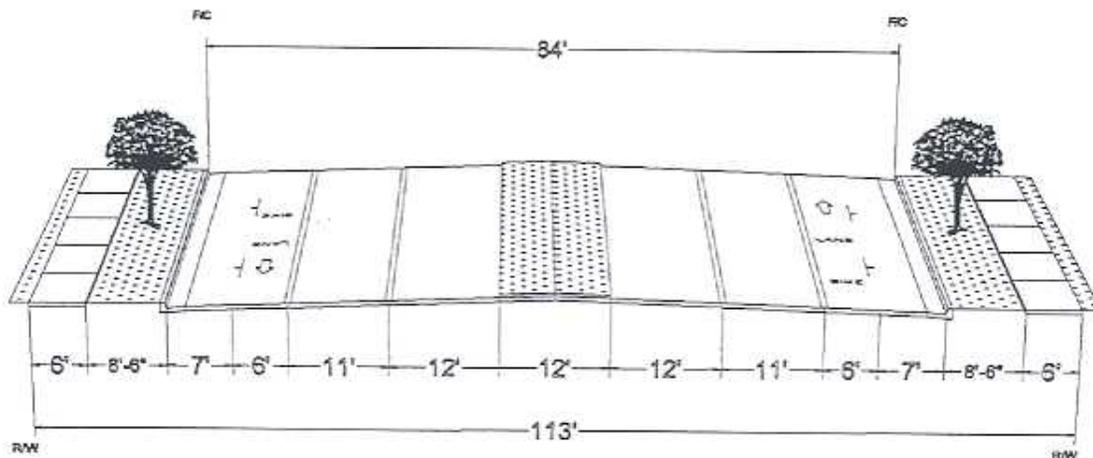
DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **I**

Four-Lane Arterial

Bike Lane	Yes
Parking	Yes



113' Right-Of-Way
 (14,000-27,000 ADT)

Notes

- ① Dimensions shown are approximate.
- ② The City Manager or the designee will determine whether a turn lane or a landscaped median is installed.

MINOR DEVIATIONS FROM THE STANDARDS
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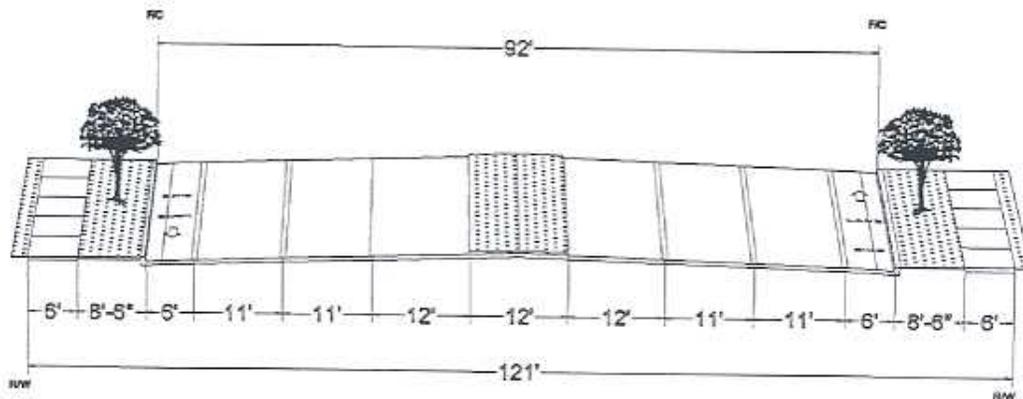
RESOLUTION NO.: 2004-119
 DATE ADOPTED: FEB 24 2004

PEDESTRIAN FRIENDLY STREET STANDARDS
 TYPICAL CROSS-SECTIONS
 CITY OF SACRAMENTO

Street **J**
 Exhibit B

Six-Lane Arterial

Bike Lane	Yes
Parking	No



121' Right-Of-Way
 (27,000-48,000 ADT)

Notes

- ① Dimensions shown are approximate.
- ② The City Manager or the designee will determine whether a turn lane or a landscaped median is installed.

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RESOLUTION NO.: 2004-119

DATE ADOPTED: FEB 24 2004

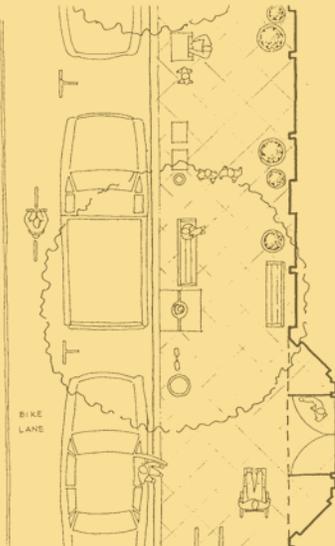
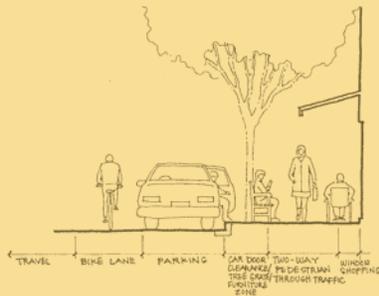
APPENDIX F: PEDESTRIAN SAFETY GUIDELINES





Pedestrian Safety Guidelines

Pedestrian Safety Guidelines



City of Sacramento
Public Works Department
Traffic Engineering Division
1000 I Street, Suite 170
Sacramento, CA 95814

Adopted by City Council January 9, 2003



DEPARTMENT OF
PUBLIC WORKS

CITY OF SACRAMENTO
CALIFORNIA

660 J STREET
SUITE 250
SACRAMENTO, CA
95814-2800

OFFICE OF THE DIRECTOR

PH 916-808-7100
FAX 916-264-5573

Dear Pedestrian Safety Advocate:

The City of Sacramento's Strategic Plan mission is "to protect, preserve and enhance the quality of life for present and future generations." To that end, the Department of Public Works has prepared, in collaboration with **WalkSacramento**, Dan Burden of Walkable Communities and the Sacramento Disabilities Advisory Commission, the attached **Pedestrian Safety Guidelines** to enhance pedestrian safety in our city.

Pedestrians are the most vulnerable of all roadway users. Especially so, are children and seniors citizens. In fact, studies have shown that a pedestrian struck by a vehicle going 35 MPH has only a 20% survival rate. The pedestrian has legal rights and responsibilities to use the roadway as provided in the California Vehicle Code.

The **Pedestrian Safety Guidelines** were adopted by City Council on January 9th, 2003 and are intended to provide residents, staff, safety advocates, developers, and consultant's information on the current best practices to enhance pedestrian safety for existing areas as well as new developments. These guidelines are also available on the City's website at www.pwsacramento.com/traffic/publications.html.

Thank you for your interest in enhancing pedestrian safety in the City of Sacramento. I hope you find these **Pedestrian Safety Guidelines** helpful in making our great City the walking capital of the country.

Sincerely,

Michael Kashiwagi, Director
Department of Public Works
City of Sacramento

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References

Alan Jacobs *Great Streets*

Designing Sidewalks and Trails for Access Part II, FHWA

Charlie Zegeer et al, *Safety Effects of Marked vs. Unmarked Crosswalks*

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EXECUTIVE SUMMARY

The City of Sacramento's Department of Public Works, Traffic Engineering Services Division commissioned the Pedestrian Safety Guidelines which support the following two City Strategic Plan goals:

- 1) Enhance and Preserve the Neighborhoods,
- 2) Improve and Diversify the Transportation System.

This document is intended to serve as a reference guide for staff, citizens, and developers when determining the best engineering solutions to pedestrian safety concerns. A comprehensive pedestrian safety strategy contains a three-pronged approach including engineering, enforcement, and education programs. This guide focuses on physical elements, such as pedestrian crossing treatments and intersection design. It documents the best practices related to numerous pedestrian treatments including pedestrian signals, pedestrian refuge islands, compact intersections, sidewalks, and crosswalks.

HOW TO USE THIS DOCUMENT

The section below outlines how to use this document if you are a citizen, staff member, or developer.

IF YOU ARE A CITIZEN...

You should use this guide to determine the best location for crosswalks in your neighborhood and other places you walk. You can also use the guide to get information about current city policies regarding crosswalks, pedestrian signals, and other elements of pedestrian safety.

...SEE CHAPTERS ONE AND TWO

IF YOU ARE A CITY STAFF MEMBER...

You should use this document to determine the best practices for improving pedestrian safety on existing streets and in development areas. This document contains information on innovative crosswalk treatments as well as optimal intersection design.

...SEE CHAPTERS TWO AND THREE

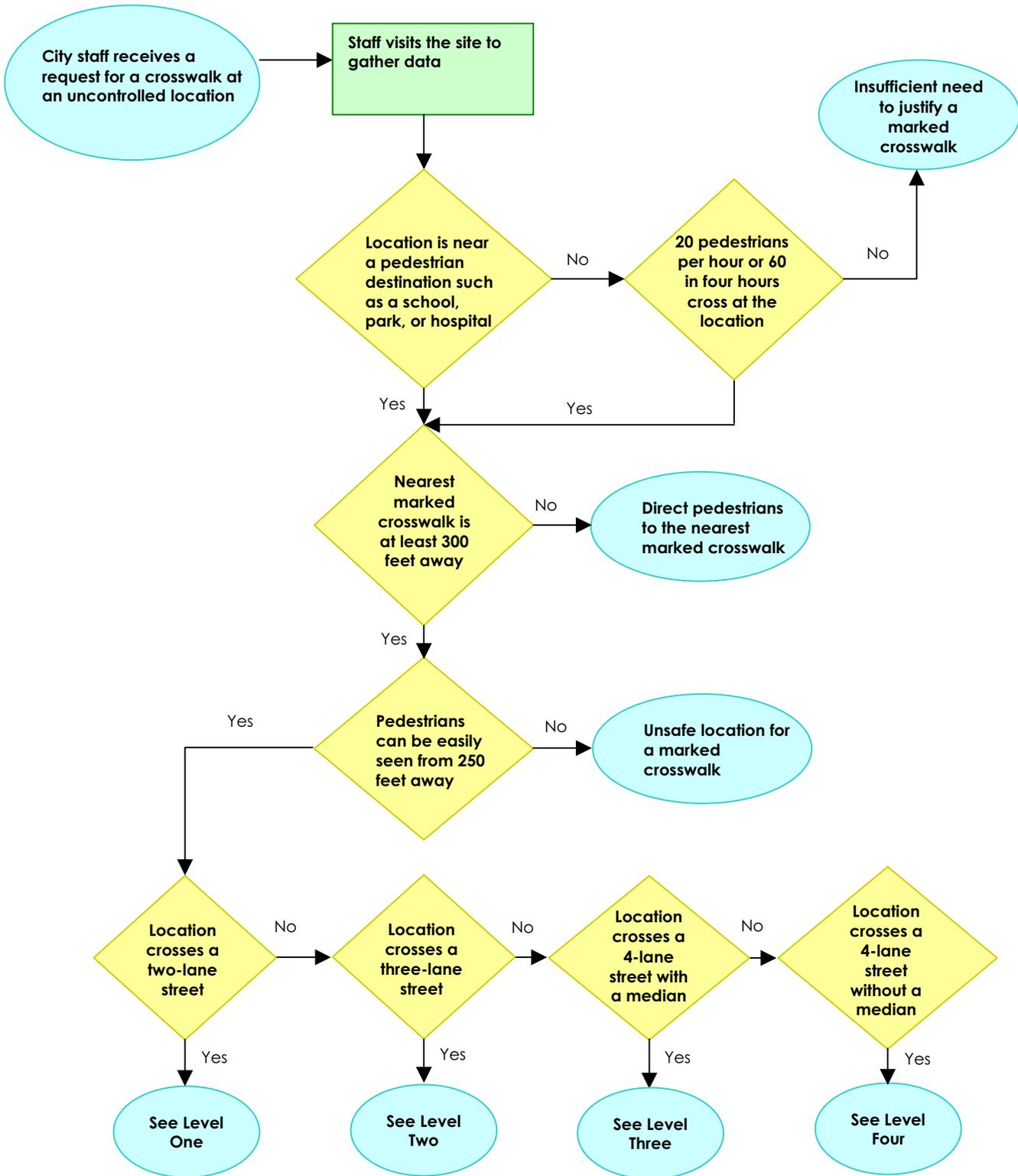
IF YOU ARE A DEVELOPER...

You should use this document to determine the best practices for improving pedestrian safety and walkability.

...SEE CHAPTER THREE

One of the most vital strategies to prevent collisions involving pedestrians is to ensure they cross the street at the safest location and to ensure that the locations where pedestrians are likely to cross are as safe as possible. A large portion of this document is devoted to determining when and how to treat pedestrian crossings, whether at signalized or unsignalized locations. The following page contains a flow chart to help readers determine the best crossing treatments for different types of streets at uncontrolled locations.

CROSSWALK PLACEMENT FLOWCHART FOR UNCONTROLLED LOCATIONS



The following charts summarize the type of crossing treatments appropriate on different streets.

LEVEL ONE: TWO LANE STREETS

NUMBER OF CARS (average daily traffic)	POSTED SPEED		40 miles per hour or more
	30 miles per hour or less	35 miles per hour	
Up to 15,000 cars per day	Triple-four	Triple-four	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p.41-42)
15,000 cars or more per day		Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p.41-42)	Pedestrian signal or bridge (see p.42, 45)

LEVEL TWO: THREE-LANE STREETS

NUMBER OF CARS (average daily traffic)	POSTED SPEED		
	30 miles per hour or less	35 miles per hour	40 miles per hour or more
9,000 cars or fewer per day	Triple-four	Triple-four	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 39-40)
9,000-12,000 cars per day		Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 41-42)	
12,000-15,000 cars per day	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 41-42)	Pedestrian signal or bridge (see p. 42, 45)	Pedestrian signal or bridge (see p. 42, 45)
15,000 cars or more per day		Pedestrian signal or bridge (see p. 42, 45)	

LEVEL THREE: FOUR OR MORE LANES WITH A RAISED MEDIAN

NUMBER OF CARS (average daily traffic)	POSTED SPEED		
	30 miles per hour or less	35 miles per hour	40 miles per hour or more
9,000 cars or fewer per day	Triple-four	Triple-four	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 41-42)
9,000-12,000 cars per day		Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p.41-42)	
12,000-15,000 cars per day			
15,000 cars or more per day	Pedestrian signal or bridge (see p. 42, 45)	Pedestrian signal or bridge (see p. 42, 45)	

LEVEL FOUR: FOUR OR MORE LANES WITHOUT A RAISED MEDIAN

NUMBER OF CARS (average daily traffic)	POSTED SPEED		
	30 miles per hour or less	35 miles per hour	40 miles per hour or more
9,000 cars or fewer per day	Triple-four	Triple-four plus a pedestrian refuge or other Level 1 device (see p. 39)	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 41-42)
9,000-12,000 cars per day	Triple-four plus a pedestrian refuge or other Level 1 device (see p. 41)	Triple-four plus a pedestrian refuge, overhead flashing beacons, or other Level 1 and 2 devices (see p. 41-42)	Pedestrian signal or bridge (see p. 42, 45)
12,000-15,000 cars per day			
15,000 cars or more per day	Pedestrian signal or bridge (see p. 42, 45)	Pedestrian signal or bridge (see p. 42, 45)	

“Good streets have places to walk with leisure and safety. They are where you can meet people. They invite you to do that. The best streets are comfortable”
- Alan Jacobs
Great Streets

INTRODUCTION

The Pedestrian Safety Guidelines provides a “best practices” guide to pedestrian safety. The Safety Guidelines are divided into three parts:

- Existing Conditions
- Safe Crossings
- Development Areas

The Existing Conditions section is a compendium of all City programs and practices, both formal and informal, related to pedestrian safety. The Safe Crossings section explores best practices related to pedestrian crossing treatments. This section outlines conditions under which it is safe and desirable to mark a crosswalk. It defines crossing treatments and includes a toolbox of treatments for various crossing conditions. The third section identifies model guidelines for pedestrian safety in development and re-development projects.

The Safety Guidelines were developed with the cooperation of a committee that met monthly for six months. Committee members included representatives from Traffic Engineering, Development Services, Project Delivery, and two representatives from **Walk**Sacramento. Dan Burden, of Walkable Communities, Inc. also reviewed the guidelines.

Regional and local pedestrian planning efforts provide a backdrop for this report. In October 2001, the Sacramento Safe Communities Project, composed of the Snell Safety Center, **Walk** Sacramento, and the Greater Sacramento Safe Kids Coalition, held a Pedestrian Summit funded by the California Department of Health services. Currently, the City of Sacramento has begun a development of a Pedestrian Master Plan.

PEDESTRIANS RIGHTS AND RESPONSIBILITIES

Per the 2002 California Vehicle Code (CVC) section 21949: "The Legislature hereby finds and declares that it is the policy of the State of California that safe and convenient pedestrian travel and access, whether by foot, wheelchair, walker, or stroller, be provided to the residents of the state."

Per CVC 21950

(a) "The driver of a vehicle shall yield the right-of-way to a pedestrian crossing the roadway within any marked crosswalk or within any unmarked crosswalk at an intersection, except as otherwise provided in this chapter."

(b) " This section does not relieve a pedestrian from the duty of using due care for his or her safety. No pedestrian may suddenly leave a curb or other place of safety and walk or run into the path of a vehicle that is so close as to constitute an immediate hazard. No pedestrian may unnecessarily stop or delay traffic while in a marked or unmarked crosswalk."

Per CVC 21954

(a) "Every pedestrian upon a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right-of-way to all vehicles upon the roadway so near as to constitute an immediate hazard."

(b) "The provisions of this section shall not relieve the driver of a vehicle from the duty to exercise due care for the safety of any pedestrian upon a roadway."

CHAPTER ONE EXISTING CONDITIONS

In 2000, California police agencies reported 14,506 pedestrians injured with 689 killed on their roadways. In 2001, the Sacramento Police Department reported 267 pedestrian collisions with twelve pedestrian fatalities. Of these 267 reported collisions, the pedestrian was deemed at fault in 109 or 41% of the time.

In an August 2002 study titled “*Pedestrian Safety in California: Five Years of Progress & Pitfalls*” released by the Surface Transportation Policy Project California Walks, ranked Sacramento 23rd out of 58 California cities as most dangerous for pedestrians.

Approximately five percent of all trips in the Sacramento area are made on foot.¹ However, collision data for the year 2000 shows that 32% of all traffic fatalities were pedestrians. These statistics mirror nationwide collision and census figures – while only three percent of all trips are made on foot, 14 percent of traffic fatalities are pedestrians. Pedestrian injuries and fatalities are consistently disproportionate to the number of trips made by this mode because pedestrians are the most vulnerable road user, and street design has typically focused on reducing congestion for automobiles, while ignoring the need for pedestrian safety.

¹ Travel survey prepared by DKS Associates for the Sacramento Area Council of Governments (SACOG) as referenced in the Sacramento Pedestrian Summit Strategic Plan, page 6



10th and I Streets in Downtown I I I I

Cities traditionally build wide, multi-lane streets (see example below) to maximize storage space and reduce delay for vehicles. While these streets may be successful at reducing congestion, they lengthen the amount of time that a pedestrian is exposed to traffic as he or she crosses the street. The City of Sacramento presently has several programs and policies in place to address this concern. This section summarizes various programs that impact pedestrian safety.



Azevedo Drive – South Natomas

1.1 TRAFFIC ENGINEERING SERVICES

The Traffic Engineering Services (TES) Division of the Public Works Department is most immediately concerned with pedestrian safety. Traffic Engineering Services oversees signal design and timing, crosswalk installation, and new infrastructure projects. Staff from this division investigate collision statistics and approve construction plans for all roadway projects.

The City of Sacramento has a comprehensive Neighborhood Traffic Management Program, designed to slow speeds, enhance safety, and improve livability on residential streets. The City's traffic calming program, administered by Traffic Engineering Services, has the potential to decrease the pedestrian injury rate by slowing speeds and lowering traffic volumes on local streets.

Crosswalk installation is another key element of pedestrian safety. Traffic Engineering Services developed the high-visibility "triple-four" crosswalk and has a process in place of evaluating candidate locations for new crosswalks.

The City has two strong programs that target young pedestrians. Traffic Engineering Services implements the Captain Jerry Traffic Safety Program, an educational outreach program designed to raise elementary school children's awareness of a host of traffic safety issues, including pedestrian safety. The Captain Jerry program reaches about 5,000 children annually. The Kids X-ing Program, administered by the

“The driving goal of traffic calming is to improve neighborhood livability by reducing the impact of traffic in residential neighborhoods, which promotes safe and pleasant conditions for all users of local streets.”

**- City of Sacramento
Neighborhood Traffic
Management Program**

Neighborhood Services Department, is a grant-funded program that places senior citizen crossing guards at local schools.

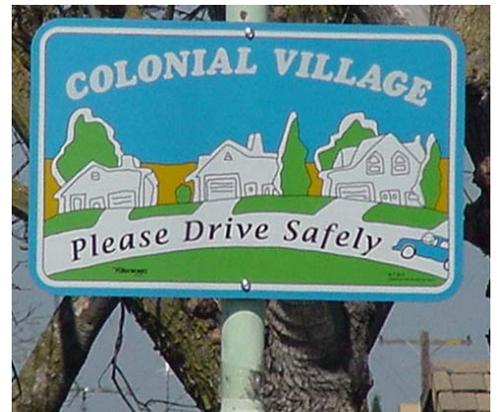
The above programs demonstrate a commitment to pedestrian safety. The Pedestrian Safety Guidelines will refine and strengthen the department's existing practices. The following pages describe the above-mentioned programs and policies in greater detail.

TRAFFIC CALMING

NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

The City's strategy is to move traffic safely and efficiently through the use of signal systems on the arterials while taking a neighborhood-based approach to calming traffic on residential and collector streets. This strategy relies upon the Neighborhood Traffic Management Program (NTMP) to implement traffic calming projects in residential areas of the City with inappropriate traffic speeds or volume. The goal of the NTMP is, **"To improve neighborhood livability by reducing the impact of traffic in residential neighborhoods, which promotes safe and pleasant conditions for all users of local streets."**² The City Council adopted the NTMP in December 1995, and 26 neighborhoods are currently participating. The principles of traffic calming identified in the NTMP apply to both existing and planned neighborhoods.

² *Sacramento Citywide Traffic Calming Guidelines 2nd Draft, 1/3/01, p.2*



Neighborhood Entry Sign

The NTMP's process begins with a neighborhood meeting, to which all residents and business owners (if applicable) are invited. Staff from the Public Works Department explains the program and raise awareness about various traffic calming measures. At this meeting, residents have the opportunity to sign up and participate on a Traffic Calming Committee (TCC).

The TCC takes a proactive role in creating a Phase I traffic calming plan. The traffic-calming plan utilizes signage, striping, speed humps, traffic circles, and chokers after careful consideration of traffic data gathered and comments received from a resident survey. These changes, along with police enforcement and educational outreach are the outgrowth of regular TCC meetings. Upon receiving a majority favorable vote, Phase I is followed with a 3-6 month evaluation period where after data is collected and presented to the neighborhood. Due to the high costs, traffic circles are initially installed using temporary devices. After the monitoring period, the neighborhood votes a second time to determine if the traffic circle should be removed or replaced with a permanent design. Phase II includes implementation of a more restrictive traffic calming program, consisting of hardscape improvements that restrict access to the neighborhood.

The City has guidelines for the installation of speed humps, although the NTMP tends to include a broader range of other devices such as speed tables and raised crosswalks. Speed humps may be installed on streets where the

*City
of
Sacramento
Traffic
Engineering
Services
Division*

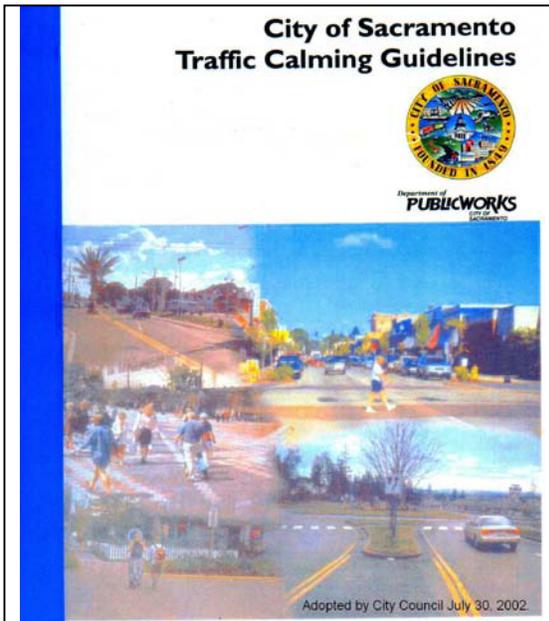
(916) 264-5307

<http://www.pwsacramento.com/traffic/index.html>

85th percentile speed, or the speed at which 85% of vehicles are at or below, is five miles an hour above the posted speed limit. The speed limit on residential streets is 25 miles per hour. Speed humps are placed 250-300 feet apart for best results.

TRAFFIC CALMING GUIDELINES

The City adopted Traffic Calming Guidelines in July 2002. Development Services will utilize the Guidelines when reviewing planned development to ensure that neighborhood designs do not create conditions favorable to speeding or cut-through traffic. The Traffic Calming Guidelines establish optimum lane widths, block lengths, and system geography (i.e. a series of collectors with a deviating path, rather than a long, direct collector that might invite cut-through traffic). The NTMP will utilize the guidelines in educating neighborhoods about traffic calming devices and determining the design guidelines and warrants for each device.



The NTMP strives to meet its goal through three primary objectives:

- . To improve driver behavior, concentration, and awareness;**
- . To reduce speeds and traffic volumes; and**
- . To enhance the neighborhood environment.**

- NTMP

PEDESTRIAN CROSSING POLICIES

SIGNAL TIMING

The Department of Public Works uses a four-foot-per-second crossing time for pedestrians at signalized intersections, consistent with Caltrans standards. The crossing period includes both the WALK and the FLASHING DON'T WALK (FDW) phases. The number of seconds allocated to the FDW phase is determined by dividing the width of the intersection (in feet) by four. For example, at a 48-foot wide intersection, the total time allocated for a pedestrian to cross the street is 16 seconds – four seconds for the WALK phase, and 12 seconds for the FDW phase.³

Certain locations where signal timing is instrumental in reducing the delay for drivers, the number of seconds allocated to the FDW phase is determined by measuring to the middle of the lane farthest from the curb and dividing that measurement (in feet) by four. At locations with high numbers of older adults, the City uses a crossing speed of three and a half feet per second. Unless there is a high incidence of collisions due to red-light running, the City does not generally include an all-red phase at most intersections.

³ $(48/4)+4=16$

Pedestrians are legitimate users of the transportation system and they should, therefore, be able to use this system safely.

- Pedestrian Crash Types, FHWA



Pedestrian Signal Head

There are some notable exceptions to the City's signal timing practice. At intersections with wide medians i.e. Capitol Mall, especially those with pedestrian signal heads or pushbuttons located in the median, the phases (WALK and FDW) are determined by measuring the distance to the median rather than the far-side curb. The City will often allocate more time to the WALK phase due to the excessive width of the street (up to 90 feet), rather than using this measurement to derive an exceptionally long FDW phase. At most of the downtown intersections where signals are all pre-timed (rather than actuated by approaching traffic), more time is allocated to the WALK phase.



Capitol Mall

ACTUATED SIGNALS

While all downtown traffic signals are pre-timed, all of those outside the downtown area are “fully actuated” or “semi-actuated”. At a “fully actuated” signal, a pedestrian must push the button to activate the pedestrian signal head. Signals such as this are often located in outlying areas with low pedestrian volumes and high traffic volumes.

At a semi-actuated signal, a pedestrian will always get the WALK sign across the minor street, but will not receive a WALK signal to cross the major street unless s/he pushes a button. When traffic engineers determine signal timing, the timing is often contingent upon pedestrian crossing speeds and the width of the street.

At some locations, “green time” for vehicles on a side street must be set according to the amount of time a pedestrian needs to cross the major street and may be longer than vehicles would need. In certain instances, giving a large amount of “green time” to accommodate pedestrians can increase congestion on the major street. At these locations, traffic engineers may utilize fully or semi-actuated pedestrian signal heads and install pedestrian pushbuttons so that the side street only gets a long amount of “green time” when a pedestrian is present.



Pedestrian pushbutton at 24th Street and Fruitridge Road

SIGNAL INNOVATIONS

Sacramento uses two innovative treatments at selected intersections: the Leading Pedestrian Interval (LPI) and the pedestrian countdown signal. The LPI is a period of time, usually between three and five seconds, when vehicles in every direction receive a red signal (called all-red time). While vehicles have an all-red phase, pedestrians get a WALK signal, allowing them to establish their presence in the crosswalk before autos get a green light in the same direction. A study for the Insurance Institute of Highway Safety demonstrated that LPIs reduce the number of pedestrian/vehicle conflicts per 100 pedestrians to almost zeros.⁴ The LPI is especially effective at intersections with a high number of conflicts between left or right-turning vehicles and pedestrians. The LPI is currently in place at four intersections: I Street at 9th, 10th, and 13th Streets and at 10th and J Street.

The Department of Public Works has installed pedestrian countdown signals at North 12th Street/North B Street, and 4th Street and J Street and plans to implement them at Stockton Boulevard/Fruitridge Road and 5th Street and J Street intersections. Pedestrian countdown signals display the amount of time left in the clearance interval (the FDW phase of the pedestrian signal) in seconds. Pedestrian countdown signals have been shown to improve pedestrian compliance with signals and reduce pedestrian “dashes” into the crosswalk. They are useful at wide intersections.

⁴ Van Houten, Ron et al; *Field Evaluation of a Leading Pedestrian Interval Signal Phase at Three Urban Intersections*, Insurance Institute for Highway Safety, April 1997, Arlington, VA.



Pedestrian countdown signal at North 12th and North B Streets

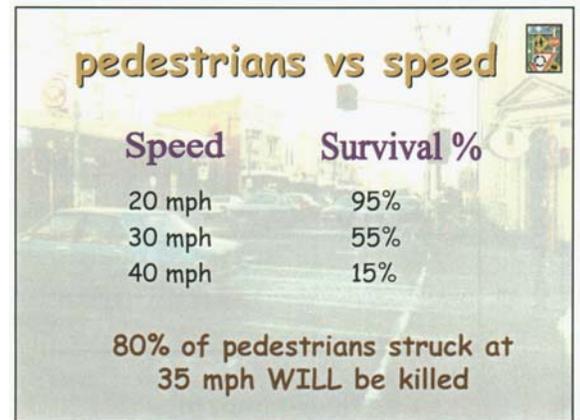
CROSSWALK INVESTIGATION

Traffic Engineering regularly receives requests from the public to establish marked crosswalks at uncontrolled locations. Investigators utilize a standard field survey sheet to assist engineers in making a determination about whether to mark crosswalks at these locations. Uncontrolled locations may be intersections with no stop signs or signals; intersections with a minor street stop sign but no control on the major through street; and at mid-block locations.

Investigators create a diagram of the location including (but not limited to) the location of existing signs and markings, bus stops, streetlights, and curb ramps. They also note adjacent land uses, roadway widths, the proximity of the pedestrian generator (such as a park, school, retail center, library, etc.), and the location where most pedestrians cross the street.

Investigators record the most recent three-year collision data, traffic volumes, and posted speeds. They identify the age of the pedestrians and record more subjective observations such as driver/pedestrian behavior and interaction and whether or not there are sufficient gaps in traffic for pedestrians to cross the street. Finally, investigators make recommendations to mark the crosswalk; leave the location unmarked; or defer to the judgment of a traffic engineer.

If the investigator or Traffic Engineer elects to mark a crosswalk at an uncontrolled location to channelize pedestrians to the safest location,



they utilize a “Triple Four Crosswalk” design. This design offers maximum visibility to both drivers and pedestrians. It is marked with thermoplastic, rather than regular paint, to ensure that it has a high degree of reflectivity and will perform well over time. Measurements of the triple four crosswalks have been modified to provide a “triple-six” and “triple-eight” (see illustration below). These crosswalks, partnered with standard pedestrian crossing signs in advance of and adjacent to the crosswalk, channel pedestrians to safe crossing locations and alert drivers to the presence of pedestrians.

At signalized intersections that have unique configurations or signal operations as well as heavy pedestrian traffic, the City will install high-visibility crosswalks. Two signalized intersections: 7th/K Streets and 12th/K Streets have high-visibility crosswalks to further challenge pedestrians.



A pedestrian waits for the walk signal at 12th and K Streets

1.2 YOUTH PROGRAMS

Captain Jerry

Public Works employee Jerry Way started the Captain Jerry Traffic Safety program in 1992. Investigators from Traffic Engineering send letters to local elementary schools offering to present information at a student assembly about traffic safety, focused on four elements:

- Pedestrian safety
- Bicycle safety
- School bus safety
- Seatbelt safety

Staff from Traffic Engineering bring a portable traffic signal to the school and demonstrate the safe way to approach a crosswalk, using the **“Stop, Look, and Listen!”** message. The program recommends crossing at signalized locations with marked crosswalks, but emphasizes that if there is no marked crosswalk or signal, it is still legal and safest to cross from a corner rather than a mid-block location. Following the presentation, staff follow-up with a survey to ensure that the presentation was appropriate to the audience, entertaining, and clear.

The Captain Jerry Traffic Safety program has an accompanying brochure aimed at parents that is posted at Adult Community Centers. The brochure, **“Let’s Keep our Kids Safe,”** outlines the same message delivered to children during the school assembly. It includes sections on scooter and vehicle safety as well as guidance for parents.



Funded by the State of California Office of Traffic Safety, through the Business, Transportation, and Housing Agency, and the Federal Highway Administration

Kids X-ing

“Kids X-ing” is currently a federally funded program, implemented by the City of Sacramento’s Department of Public Works starting in 1997; it is now administered by the Neighborhood Services Department. The program places crossing guards at Sacramento elementary schools. Thirty-five schools within the Sacramento City Unified School District, North Sacramento School District, Del Paso Heights School District, and Robla School District have thus far benefited from the program. The federal funding expires after five years, and schools are expected to incrementally assume the cost of the program over the five-year period. The program is designed to be cost effective by using senior volunteers and student-operated crossing guard programs.

The crossing-guard training program contains several elements: information about bicycle and pedestrian collision types, applicable sections of the California Vehicle Code, first aid, filing accident reports; and signing, striping, and traffic controls that relate to school crossings.

Safe Routes to School

The City of Sacramento has Safe Routes to School maps and is on file with Traffic Engineering Services. The City applies for Safe Routes to School projects that appear on its Capital Improvement List.

1.3 DEVELOPMENT SERVICES

The City’s Development Services Division subject to a plan check



Picture courtesy of the Captain Jerry brochure

and review conducts developers who wish to build in the City of Sacramento. This Division works with developers as they draft their construction documents and plan layouts. As the agency responsible for new streets, sidewalks, and street improvements, Development Services is in a unique position to affect pedestrian safety by requiring that all facilities meet high design standards. Development Services has an array of standards for new and re-development plans. These standards represent accepted minimums and maximums utilized by many California cities.

Development Standards

Development plans are subject to the City's 1999 *Street Standards*, the *Design and Procedures Manual and Improvement Standards*, and the *Standard Specifications for Public Works Construction* (currently under revision). The *Street Standards* are adopted by City Council and incorporated into City code. The *Design and Procedures Manual and Improvement Standards* and the *Standard Specifications for Public Works Construction* are Public Works manuals designed to communicate City code to developers. The *Street Standards* establish cross sections and minimum widths for new streets based on the size and type of the development. The *Street Standards* also include measurements for other elements of the cross section such as parking, planting strips, sidewalks, medians, and bicycle lanes.

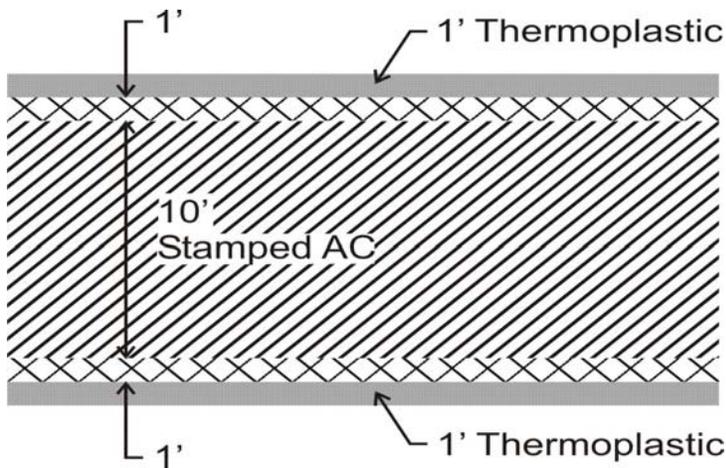
Standard Specifications for Public Works Construction is a manual detailing the type of



North Natomas Sub-division

materials required for construction projects. Recently, the City developed an informal standard for textured crosswalks. This standard draws upon experience indicating that low-vision pedestrians can better identify the crosswalk if white lines border it.

FIGURE 1.2 TEXTURED CROSSWALK



*Current practice for installing textured crosswalks.
The center is stamped to simulate bricks.*

The Design and Procedures Manual and Improvement Standards contains basic guidance for developers in preparing their improvement plans including applicable standards. The Manual also contains typical street widths, shown in the table on the following pages. Recently, the City revised its policy to recommend 10-foot lanes for residential areas whenever possible instead of 12-foot lanes. This policy change is not yet reflected in the current Street Standards, which are under review.

Table 1.1 Typical Street Widths and Elements⁵

Designations	Base R/W Width (in feet)	Average Daily Traffic	Planter Strip	Elements per Side
Minor Residential	41	0-2,000	Optional	12.5-foot lane Two-foot gutter Five-foot Sidewalk
Residential	51	2,000-4,000	Required	12.5-foot lane Two-foot gutter Six-foot planter Four-foot sidewalk
Commercial	49	0-7,000	Optional	12-foot lane Eight-foot parking (includes two-foot gutter) 4.8 foot sidewalk
Major Commercial	61	7,000-14,000	Required	12-foot travel lane Eight-foot parking (includes two-foot gutter) 6.6-foot planter Four-foot sidewalk
Industrial	53	0-7,000	Optional	12-foot lane 10-foot parking stall (includes two-foot gutter) Five-foot sidewalk
Major Industrial	65	7,000-14,000	Required	12-foot lanes 10-foot parking stall (includes two-foot gutter) Six-foot planter Four-foot sidewalk
Minor Collector	47-61	4,000-7,000	Required	12-foot lane Optional: Seven-foot

⁵ See Appendix A for drawings

Table 1.1 Typical Street Widths and Elements⁵

Designations	Base R/W Width (in feet)	Average Daily Traffic	Planter Strip	Elements per Side
Collector	59-73	4,000-7,000	Required	parking stall (includes two-foot gutter) 6.5-foot planter Five-foot sidewalk 12-foot lanes Optional: Seven-foot parking stall (includes two-foot gutter) Five-foot sidewalk
Divided Major (4 lanes)	103	14,000-24,000	Required	One 13-foot and one 11-foot lane 14-foot median/turn pocket (three-foot gutter) Optional: seven-foot parking stall Optional: Six-foot bike lane 8.5-foot planter Six-foot sidewalk
Divided Major (6 lanes)	117	24,000-36,000	Required	13/11/13-foot lanes 14-foot median/turn pocket (three-foot gutter) 7.4-foot planter Six-foot sidewalk

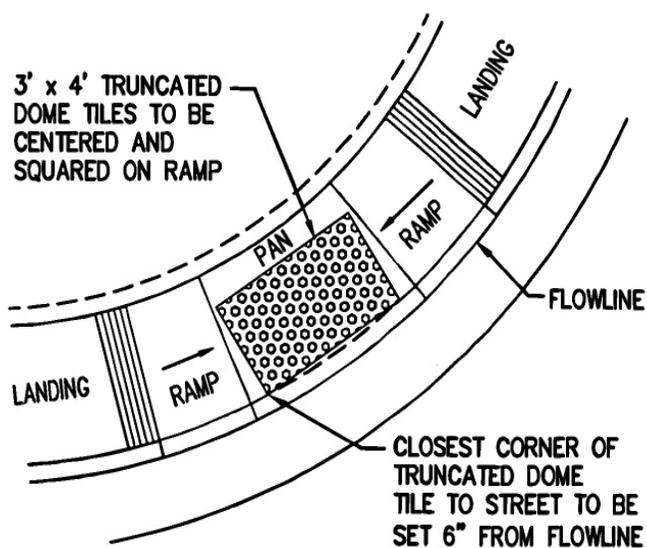
1.4 ADA TRANSITION PLAN

On January 9, 2001, the City of Sacramento adopted a Transition Plan for curb ramps designed to provide a schedule to bring the City's curb ramps into compliance with the 1990 Americans with Disabilities Act (ADA). Congress passed the ADA as companion legislation to the 1964 Civil Rights Act and Section 504 of the 1973 Rehabilitation Act. The ADA addresses five major components:

- Title I: Employment
- Title II: Public Services
- Title III: Public Accommodations
- Title IV: Telecommunications
- Title V: Miscellaneous Provisions

Title II directs local agencies to adopt a Transition Plan outlining physical improvements to ensure that persons with disabilities have access to programs, services and activities. The City of Sacramento adopted a Transition Plan in 1992, to make all City facilities accessible.

FIGURE 1.3 TRUNCATED DOME



CURB RAMP PRIORITIZATION

The City of Sacramento performed a survey of intersections throughout the City. By dividing the City into 12 sections, curb ramps were evaluated based upon the ADA Accessibility Guidelines. The City surveyed all intersections in the central downtown area as pedestrians use this area heavily. The results of the survey are housed at Public Works, available for public examination upon request.

The City's ADA Advisory Group created the priority for new construction and reconstruction of curb ramps throughout the City. The City allocates funding each year for the construction/reconstruction of 1,500 curb ramps. Re-surfacing projects and private development also contribute to the City's construction / reconstruction of curb ramps.

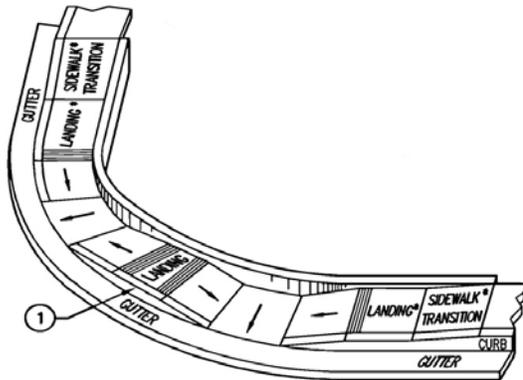


Two curb ramps at a corner on H Street and 20th Streets

CURB RAMP DESIGN GUIDELINES

The City's Project Delivery Division maintains definitions and standards for Curb Ramp Elements. These Standards state, **“When a curb ramp slope is less than 6.67% then the ramp shall have truncated domes.”** Dual curb ramps are desirable to direct pedestrians to the correct alignment of the crosswalk, and the standards state that, where feasible, **“opposing curb ramps shall align.”** The standards contain graphic and written descriptions of curb ramp requirements. Measurements in the standards are minimums, while slopes are maximums. While it is desirable to have symmetrical designs, engineers may approve asymmetrical ramp measurements in order to meet the dual ramp requirement.

FIGURE 1.4 DUAL RAMP



AUDIBLE SIGNALS

Audible signals are installed on a request basis. The request comes to the Public Works ADA Coordinator and the evaluation process is started:

- Public Works ADA Coordinator talks with the requestor and determines the need for the audible signal.

- Traffic Engineering Services checks the intersection equipment to see if it is appropriate for an audible signal, if not then;
- Electrical engineers determine if the electrical is adequate for an audible signal.

When these steps have been approved, the installation is scheduled and completed.

1.5 MUNICIPAL CODE

The other regulatory document that all City departments must abide by is the Municipal Code. Four sections of the code address pedestrian travel and safety. They are summarized below.

The City of Sacramento Municipal Code addresses pedestrians in Titles 10 and 12. Title 10 (*Vehicles and Traffic*) regulates pedestrian travel generally while Title 12 (*Streets, Sidewalks, and Public Places*) applies to the walking environment – streets, sidewalks and other public spaces.

Section 10.20 (*Pedestrians*) of Title 10 notes that the City will mark a crosswalk “**where the City Traffic Engineer determines that there is particular hazard to pedestrians crossing the roadway.**”⁶ The City of Sacramento requires that pedestrians cross in a crosswalk when there is a marked crossing location within 300 feet. This requirement is a further refinement of the California Vehicle Code (CVC) regulation that requires drivers to yield to pedestrians crossing at an intersection, whether or not there is a marked crosswalk.⁷

Title 12 (*Streets, Sidewalks, and Public Places*) concerns sidewalk obstructions and includes a

⁶ Section 10.20.010 *Crosswalks—Establishment, Designation, and Maintenance*

⁷ CVC Section 21950



section on pedestrian malls, such as the K Street Mall, that specifically precludes roller skates, in-line skates, and “any device having wheels”⁸ from operating on the mall. “**Pedestrian Malls**” are specific areas of the City described within Title 12.

Other relevant sections of the Municipal Code include Titles 16 (*Subdivisions*) and 18 (*Additional Development Requirements*). These two sections address subdivision and development requirements. Title 16 establishes maximum block lengths (1,500 feet, except in the case of cul-de-sac streets which may be up to 500 feet long) and minimum corner radii (20 feet). This title also defines minimum curve radii for various land uses. Residential uses have the smallest radii while arterial streets have the largest. Title 16 requires the implementation of trails that are shown in the General Plan or adopted specific plans. It also allows for 10-foot minimum pedestrian ways as needed for access to schools, shopping centers, or other pedestrian destinations.

Title 18 (*Additional Development Requirements*) contains provisions for development fees in various parts of the City. This Title also includes minimum and maximum widths for one-car and two-car driveways, as well as minimum driveway lengths, measured from the property line.

⁸ Section 12.44.080 *Roller Skates Prohibited*. Exceptions such as wheelchairs, City maintenance, and emergency vehicles are included in Section 12.44.060 *Exceptions*

CHAPTER TWO SAFE CROSSINGS

Well-marked, high visibility pedestrian crossings accomplish dual goals. They prepare drivers for the likelihood of encountering a pedestrian, and they create an atmosphere of walkability and accessibility for pedestrians. Recently, the Federal Highway Administration (FHWA) published an exhaustive report on the relative safety of marked and unmarked crossings. In California, it is legal for pedestrians to cross any street, except at unmarked locations between immediately adjacent signalized crossings or where crossing is expressly prohibited. The provision of marked crossings is a vital element of the pedestrian environment, and cities must balance pedestrian mobility with safety. The City of Sacramento currently has an informal method of evaluating uncontrolled and mid-block locations for crosswalk installation detailed in Chapter 1.

This Chapter describes recommended best practices for formalizing the method of evaluating potential crosswalk locations and trail crossings. It includes information about signalized and unsignalized locations, intersection design, and innovative treatments for at-grade crossings. The best practices generally follow the recommendations of the Pedestrian Summit regarding **“Safe Street Crossings.”**⁹



⁹ “Design, build, and illuminate pedestrian crossings to enable safe passage for all pedestrians at reasonable locations (every 300 feet) on major arterials. Mark...all legal crosswalks on major roadways with 12,000 or fewer vehicles per day. Provide audible signals on major roadways and arterials. Pilot test in-street lighting technology.” P.31, F

WHY SHOULD A CITY HAVE A CROSSWALK INSTALLATION POLICY?

Development of a crosswalk policy guides the City in making decisions about where basic crosswalks (two parallel stripes) should be marked, where crosswalks with special treatments, such as high visibility crosswalks, flashing beacons and other special features, should be employed and where crosswalks should not be marked due to safety concerns resulting from volume, speed or sight distance issues.

The first step in identifying candidate crosswalk locations is to identify community interests in walking and pedestrian desire lines (the places people would like to walk). This information forms a basis for identifying pedestrian crossing improvement areas and prioritizing such improvements, thereby creating a convenient, connective and continuous walking environment. However, the information about where people would like to walk is only half of the equation.

The other half of the equation is where is it safest for people to walk. Of all road users, pedestrians have the highest risk because they are the least protected. National statistics indicate that pedestrians represent 14% of all traffic incident fatalities despite the fact that walking accounts for only 3% of total travel trips. According to a recent analysis of pedestrian crash types, pedestrian collisions occur most often when a pedestrian is attempting to cross the street at an intersection or mid-block location.¹⁰

Crosswalk policies help create clear expectations for both citizens and traffic engineers.

¹⁰ *Pedestrian Crash Types, A 1990's Information Guide*, FHWA; This paper analyzed 5,076 pedestrian crashes that occurred during the early 1990's. Crashes were evenly selected from small, medium, and large communities within six states: California, Florida, Maryland, Minnesota, North Carolina, and Utah.

WHY DO CITIES MARK CROSSWALKS?

Crosswalk Function:

- Creating reasonable expectations where pedestrians may cross a roadway
- Predictability of pedestrian actions and movement
- Channelization of pedestrians to designated crossing locations
- Providing pedestrian linkages

Advantages of marked crosswalks:

- They help pedestrians find their way across complex intersections
- They designate the shortest paths
- They direct pedestrians to locations of best sight distance
- They encourage people to walk

In pedestrian-friendly cities, crossing locations are treated as essential links in the pedestrian network. At locations between signalized intersections, pedestrians cannot cross legally without a marked crosswalk. When there are pedestrian generators in these locations, planners and engineers recognize the need to create safe, convenient crossing opportunities. Without crosswalks, especially at mid-block locations, pedestrians must either detour to a controlled crossing location or jaywalk.

2.1 RESEARCH

The 2002 Federal Highway Administration study of pedestrian collisions at marked and unmarked crosswalks is widely recognized as the best resource for determining appropriate locations for marked crosswalks at uncontrolled locations.¹¹

This study is used because:

- It is extensive. It examined motor vehicle/pedestrian collision rates at a large number of crossing locations not limited by roadway characteristics in four different cities.
- It is thorough. The collision rates were broken down by roadway characteristics (two-lane and multi-lane roads with various speeds and traffic volumes) in order to give the clearest picture of pedestrian safety at each type of location.

Few California cities have crosswalk installation warrants or formal policies, but the following cities used the 2002 study, as well as its early incarnation in 1999, to guide their crosswalk installation policy:¹²

- Palo Alto, CA
- Walnut Creek, CA
- San Luis Obispo, CA
- San Jose, CA

“Regardless of whether marked crosswalks are used, there remains the fundamental obligation to get pedestrians safely across the street.”

- Charlie Zegeer
(See footnote 3)

¹¹ Zegeer, Charles V., Stewart, J. Richard, and Huang, Herman, “Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines,” University of North Carolina Highway Safety Research Center for Federal Highway Administration, February 2002

¹² Outside California, the City of Portland’s crosswalk policy is to install pedestrian crossings every 400’.

2002 FHWA STUDY SUMMARY

OBJECTIVE

To compare pedestrian crash occurrence at marked versus unmarked crosswalks at **uncontrolled** intersections throughout the U.S.

DATA

- 1,000 marked and 1,000 unmarked crossings,
- No school crossings,
- Mid-block locations were included,
- Crash history (5 years), pedestrian volumes, traffic volumes, number of lanes, speed limit,
- 229 pedestrian/vehicle collisions in the sample.

KEY FINDINGS

Marked crosswalks without traffic calming treatments, traffic signals, pedestrian signals, or other substantial crossing improvement under the following conditions are less safe than unmarked crossings:

- Where the speed limit exceeds 40 miles per hour
- On a roadway with four or more lanes without a raised median or crossing islands that has an ADT of 12,000 or greater
- On a roadway with four or more lanes with a raised median or crossing island that has an ADT of 15,000 or greater

No study has conclusively answered why marked crosswalks are sometimes less safe than unmarked crossings. Several authors have theorized that pedestrians do not exercise due caution at marked crosswalks. Additionally, without advance warnings such as signs or overhead flashers, drivers may swerve around stopped cars without seeing the pedestrian in the crosswalk (called “double jeopardy”). The table on the following page summarizes the findings of the 2002 study.

Table 1. Recommendations for installing marked crosswalks and other needed pedestrian improvements at uncontrolled locations.*

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT < 9,000			Vehicle ADT >9000 to 12,000			Vehicle ADT >12,000 - 15,000			Vehicle ADT > 15,000		
	Speed Limit**											
	≤ 30 mi/h	35 mi/h	40 mi/h	≤ 30 mi/h	35 mi/h	40 mi/h	≤ 30 mi/h	35 mi/h	40 mi/h	≤ 30 mi/h	35 mi/h	40 mi/h
2 Lanes	C	C	P	C	C	P	C	C	N	C	P	N
3 Lanes	C	C	P	C	P	P	P	P	N	P	N	N
Multi-Lane (4 or More Lanes) With Raised Median***	C	C	P	C	P	N	P	P	N	N	N	N
Multi-Lane (4 or More Lanes) Without Raised Median	C	P	N	P	P	N	N	N	N	N	N	N

These guidelines include intersection and midblock locations with no traffic signals or stop signs on the approach to the crossing. They do not apply to school crossings. A two-way center turn lane is not considered a median. Crosswalks should not be installed at locations that could prevent an increased safety risk to pedestrians, such as where there is poor sight distance, complex or confusing designs, a substantial volume of heavy trucks, or other dangers, without first providing adequate design features and/or traffic control devices. Adding crosswalks alone will not make crossing safer, nor will they necessarily result in more vehicles stopping for pedestrians. Whether or not marked crosswalks are installed, it is important to consider other pedestrian facility enhancements (e.g., raised median, traffic signal, roadway narrowing, enhanced overhead lighting, traffic-calming measures, curb extensions), as needed to improve the safety of the crossing. These are general recommendations; good engineering judgment should be used in individual cases for deciding where to install crosswalks.

** Where the speed limit exceeds 40 m/h (64.4 km/h) marked crosswalks alone should not be used at unsignalized locations.

C= Candidate sites for marked crosswalks. Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk. For an engineering study, a site review may be sufficient at some locations, while a more in-depth study of pedestrian volume, vehicle speed, sight distance, vehicle mix, etc, may be needed at other sites. It is recommended that a minimum of 20 pedestrian crossings per peak hour (or 15 or more elderly and/or child pedestrians) exist at a location before placing a high priority on the installation of a marked crosswalk alone.

P= Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements. These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.

N= Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased due to providing marked crosswalks alone. Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.



2.2 CONTROLLED APPROACHES

The following is the recommended pedestrian treatment at signalized or stop-controlled locations. A controlled approach is any leg of an intersection with a stop sign or signal, including two-way stops.



High-visibility crosswalk in New York City

- **Mark Crosswalks on all controlled approaches (i.e., legs of the intersection) with pedestrian signal heads** using standard crosswalk markings (two white lines) or high-visibility markings, such as the “triple four” included in Chapter 1. Install advanced stop bars seven feet before the crosswalk at signals. Advanced stop bars are white lines, 24” wide, installed prior to the crosswalk. They are effective in preventing drivers from stopping in the crosswalk. Remove curb ramps where pedestrian crossings are prohibited so that visually impaired individuals know where crossings are not allowed. Where the accident data or observations of conflicts identify a crosswalk of particular concern, consider special treatments (identified below under “Solutions”).
- **Pedestrian signals should be timed for a pedestrian travel speed of 3.5 feet per second¹³.** If there are special land uses such as senior centers or schools within 100 feet of the intersection, slower walking speeds should be considered.

¹³ U.S. Department of Transportation, *Designing Sidewalks and Trails for Access, Part II: Best Practices Design Guide*, 2001 recommends a maximum crossing speed of 3.5 feet per second.

SOLUTIONS

At locations with high pedestrian volumes and pedestrian-vehicle conflicts, the following measures are means to enhance the safety of pedestrian crossings:

- Right Turn on Red restrictions at locations with high numbers of right-turning vehicles and heavy pedestrian volumes,
- Reduced corner radii to slow the speeds of right-turning vehicles,
- “Watch Turning Vehicles” pavement stencil and signage,
- Signal phasing accommodations such as early release of pedestrians (“Leading Pedestrian Interval”) during signal phasing and provision of protected left-turn phases for vehicles,
- Introduction of all-red phasing for vehicles while pedestrians have a walk signal in all directions (called a “pedestrian scramble phase”),
- “Yield to Pedestrians” signs, and
- Animated Eye LED pedestrian signals.



Pavement stencil in Halifax, Nova Scotia



Sign at 12th St. and J St.

EXCEPTIONS

The following situations are exceptions to the practice of marking crosswalks on all controlled approaches:

- **Crossing locations with heavy right- or left-turn volumes** that occur at the same time as pedestrians cross the path of the turning vehicle where protected signal phasing (such as left-turn arrows) or other solutions outlined above are infeasible.¹⁴
- **Intersections with inadequate sight distance¹⁵ of pedestrians.** Elimination of crosswalks in these instances should only occur after other solutions have been deemed infeasible.
- **Heavy or light rail crossings.** The California Public Utilities Commission (CPUC) is responsible for regulating at-grade crossings. The PUC no longer allows new at-grade crossings (pedestrians and cars crossing rail tracks) unless there are extraordinary circumstances.
- **Construction Area's.** Pedestrian circulation in construction areas should remain open unless determined by the Traffic Engineer to be unsafe.



10th St. and L St.



L St. and 15th St.

¹⁴ Alternative pedestrian crossings should be identified and it may be necessary to install barrier treatments to reinforce that pedestrian should not cross at the location without a marked crosswalk

¹⁵ Unrestricted sight distance of pedestrians by motorists should be at least ten times the speed limit (for example, 250 feet for a street with a speed limit of 25 miles per hour.)



Animated Eye LED signal

CHOOSING THE RIGHT TREATMENT

There are a number of innovative treatments for pedestrians at signalized intersections, mostly related to pedestrian signals.

HIGH NUMBERS OF TURNING VEHICLES

- The **Animated Eye LED Signal** is an effective tool for reminding pedestrians to watch for turning vehicles. It would normally be used at intersections with large numbers of turning vehicles (vehicles turning left or right into the crosswalk).
- **Early Release** or Leading Pedestrian Interval time, described on page 12, allows pedestrians to establish themselves in the crosswalk, reducing conflicts between pedestrians and turning vehicles.
- **Special Pavement stencils** such as “Pedestrians Look Left” or “Watch Turning Vehicles” stencil are used in Salt Lake City, Halifax, N.S., Canada, and the UK to remind pedestrians to be watchful. These stencils, used in conjunction with special signage, significantly reduced the number of pedestrians not looking for threats at intersections.¹⁶ Additionally, high-visibility crosswalks help channelize pedestrians.
- **“No Right Turn on Red” restrictions** may be used to reduce pedestrian-vehicle conflicts at locations with high numbers of pedestrians and right turning vehicles.

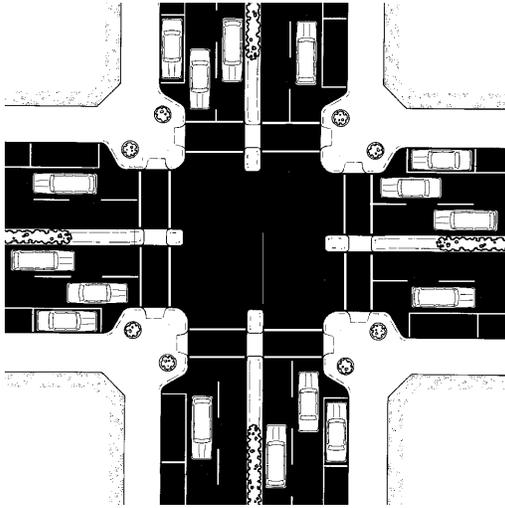


15th Street and X Streets

¹⁶ Van Houten, Ron et al, “Special Signs and Pavement Markings Improve Pedestrian Safety,” *ITE Journal*, 12/96

PEDESTRIAN TREATMENTS AT CONTROLLED CROSSINGS

CONTROL TYPE	STANDARD TREATMENT	ENHANCEMENTS	DO NOT MARK
Signal	Advance 24" Limit Line seven feet before the crosswalk Dual white lines	Triple-four or other high-visibility stencil Pedestrian refuge island Curb extensions Signal treatments: <ul style="list-style-type: none"> • Animated Eye • Countdown • Early Release • Scramble Right-turn on red restrictions	Inadequate sight distance
Stop sign	Dual white lines	Triple-four or other high-visibility stencil Pedestrian refuge island Curb extensions	Inadequate sight distance



Medians and curb extensions create short pedestrian crossings



WIDE INTERSECTIONS

- Countdown signals** are useful at locations with crossing distances greater than 60 feet and pedestrian clearance intervals of greater than 15 seconds or a high pedestrian volume. At wide streets with long clearance intervals, the countdown signal effectively communicates the amount of time left to cross the street. At wide streets with medians, there should be adequate crossing time for the pedestrian to traverse the entire distance and countdown signals should be used as a default. However, at actuated pedestrian signals, an additional, accessible pedestrian push button should be located in the median. The countdown signal and median pushbutton should be used together wherever possible.
- Pedestrian Refuge Islands** should extend through the crosswalk, with a curb cut for wheelchair accessibility. Refuge islands should be clear of obstructions and have adequate drainage. They should be at least 12 feet long, or the width of the crosswalk (whichever is greater) and 60 feet square. Recommended refuge island widths are as follows:

Speed	Minimum Width ¹⁷
25-30 mph	5 feet
30-35 mph	6 feet
35-45	8 feet

- Curb extensions** or bulb-outs are appropriate at locations with usable space next to the curb. Consider curb extensions at intersections of three or more lanes. Curb extensions should not extend further than six feet into the street adjacent to parallel parking, or 12 feet adjacent to diagonal parking. At locations with no on-street parking, curb extensions should not impede bicycle travel.

¹⁷ where bikes are expected to use the crosswalk, medians should be at least 6 feet wide, the length of an average bike

PEDESTRIAN ACTUATED SIGNALS

All signals in downtown Sacramento are pre-timed (with the exception of 4th Street & J Street); therefore, pedestrians get the signal to walk on every crossing, in every signal cycle. Most signals in Sacramento outside downtown are not pre-timed, meaning vehicles activate them. These signals have pedestrian push buttons, which pedestrians must push in order to get a walk signal and adequate time to cross the street.



- At locations where pedestrian activation is registered for greater than 75% of the peak hour signal cycles, signals should accommodate pedestrian crossings in every peak period cycle.
- At locations that are not on a direct path to a generator with low side-street volumes, signals should be partially actuated; meaning that pedestrians crossing the side streets get a WALK signal on every cycle, but pedestrians crossing the main street must use the pedestrian push button.
- At locations that do not satisfy the location warrants above, where peak hour vehicle congestion occurs and there are high vehicle volumes on all approaches, signals should be fully actuated.

Consider using remote pedestrian detection devices, such as video, infrared or other detection technologies, at signals where slower pedestrians are present. The remote detection can be used to extend the pedestrian clearance interval allowing pedestrians still in the crosswalk additional time to finish their crossing.

When pedestrian push buttons are used, they should be well marked, visible, and accessible to all pedestrians from a flat surface consistent with recommendations from the U.S. Department of Transportation's *Designing Sidewalks and Trails for Access*.

2.3 UNCONTROLLED INTERSECTION CROSSINGS

The following is the recommended, or best practice, for pedestrian treatments at uncontrolled approaches to intersections.¹⁸

Triple-four or high-visibility crossings with associated signage and pavement legends should be used where:

- Sufficient demand exists to justify the installation of a crosswalk (see next page),
- The location is 300 feet or more from a controlled crossing location,
- The location has sufficient sight distance, or sight distance will be improved prior to crosswalk marking, and
- Safety considerations do not preclude a crosswalk (see Safety Considerations below).



J St. and 17th St.

¹⁸ The most common crosswalk of this type will be the major street crosswalk at intersection where the minor side street has a stop sign and the major street is uncontrolled.

Equivalent Adult Units

Type	Factor
Child	2
Senior	1.5
Disabled	2

DEMAND

Uncontrolled intersection crossings should be identified as a candidate for marking if there is a demonstrated need for a crosswalk. Demonstrated need is:

- The crossing is on a direct route to or from a pedestrian generator, such as a school, library, senior center, shopping center, park, or employment center.

or:

- 20 pedestrians cross per hour during the peak hour or 60 pedestrians total cross for the highest consecutive four-hour period using the Equivalent Adult Units System; and
- Pedestrians have fewer than five gaps in traffic per five-minute period.¹⁹

SAFETY

The chart from the FHWA *Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Crossing Locations* (see pg. 30) should be used to determine if crosswalks can be striped. In some cases, special treatments (see “Solutions” below for a partial list of special treatments) may be needed to ensure safe crossing. Where safety concerns would continue even with special treatments, pedestrian signal warrants, established in Caltrans’ *Traffic Manual*,²⁰ should be tested to determine whether the crossing warrants a pedestrian signal. In the event that a signal is determined to be inappropriate, other pedestrian safety amenities such as medians and bulbouts should be considered, but the crosswalk should not be marked. Unless pedestrians are prohibited from these crossings, curb ramps should still be provided.

¹⁹ Average number of gaps per five-minute period = total usable gap time in seconds divided by pedestrian crossing rate at four feet per second, multiplied by 12.

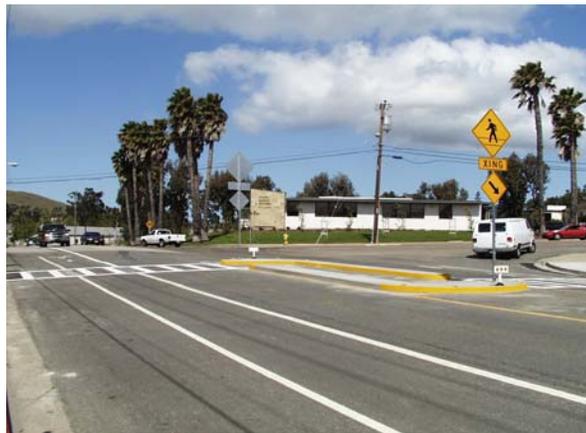
²⁰ As per Section 9.01.2, 100 pedestrians in four hours or 190 in one hour, unless the predominant crossing speed is less than 3.5 feet per second, in which case the warrants can be reduced by half. Additionally, there must be fewer than 60 gaps in traffic per hour as per Section 9.01.1

SOLUTIONS

Special treatments should be considered at areas with heightened safety concerns. They are listed in order of intensity.

Level One

- Install **Pedestrian Refuge Islands** on multi-lane streets with ADT of less than 15,000 and 85th percentile speeds of less than 35 miles per hour, following the design guidelines described in “Choosing the Right Treatment.”
- The **Split Pedestrian Crossover (SPXO)** is a pedestrian refuge that channels pedestrians, using curb railings, to cross one half of the street; enter the island at one end; walk towards the flow of traffic; and exit at the other end to cross the second half of the street. SPXOs can improve pedestrian safety on streets with ADTs below 45,000; with advance yield markings (triangles 16” wide by 24” long separated by 9” located 30-50 feet in advance of the crossing), “Yield to Pedestrians” signage, and good visibility, especially at night.
- **Curb Extensions or bulbouts** (see “Choosing the Right Treatment”, p.36)



SPXO in San Luis Obispo, CA



Overhead signs with flashing beacons

Pedestrian Signal



South Land Park Drive & Zoo

Level Two

- **Overhead signs and flashing beacons** showing the universal pedestrian symbol, including both standard yellow, fluorescent yellow, and LED displays, hang from a mast arm that extends over the street. Flashing red or yellow beacons enhance overhead signs.
- **Raised crosswalk** Using special pavers, concrete, or asphalt, create a raised crosswalk (similar to a speed table). The City's Traffic Calming Guidelines provide design guidelines and a description of the advantages and disadvantages of raised crosswalks.
- **In-pavement flashers** are people activated and may be accompanied by a flashing sign at the crosswalk and advanced flashing sign increase the number of vehicles yielding to pedestrians.

Level Three

- **Pedestrian-actuated signals** (shown to the left) should be used where other methods are infeasible or ineffective.

At locations where none of the above solutions will mitigate safety concerns, or where pedestrian volumes warrant a pedestrian signal, but the signal would degrade vehicle LOS, consider the installation of a grade-separated crossing, if feasible.

2.4 MID-BLOCK CROSSINGS

Mid-block crossings should be marked where:

- Sufficient demand exists to justify the installation of a crosswalk (see next page),
- The mid-block location is:
300 feet or more from another crossing location on an arterial street,
200 feet or more from another crossing location on a collector street, or
100 feet or more from another crossing location on a local street,
- The mid-block location has sufficient sight distance, and
- Safety considerations do not preclude a crosswalk (see Safety Considerations below).



Raised Crosswalk

Where mid-block crosswalks are installed, the standard design should be the triple-four or high-visibility pavement treatment with associated signage and pavement legends.



Uncontrolled crossing on Broadway

DEMAND

Candidate locations for marked pedestrian crossings at mid-block locations must meet the following criteria:

- A pedestrian generator is less than 300 feet away at a location mid-way between signal or stop-controlled intersections, or there are pedestrian trip generators on both sides of the street.

or:

- 40 pedestrians cross during a one-hour period or 25 cross per hour for four consecutive hours using the Equivalent Adult Units system.²¹
- Fewer than five gaps in traffic during the peak five minute period.

SAFETY

The chart from the FHWA *Safety Effects of Marked vs. Unmarked Crosswalks at Uncontrolled Crossing Locations* should be used to determine if a mid-block crosswalk can be installed or whether special treatments (see “Solutions” below for a partial list of special treatments) are needed to ensure safe crossing.

Where safety concerns would continue even with special treatments, pedestrian signal warrants, established in Caltrans’ *Traffic Manual*, should be tested to determine whether the crossing warrants a traffic signal. In the event that a signal is determined to be inappropriate, the crosswalk should not be marked.

²¹ Use of a system of Equivalent Adult Units is recommended in order to recognize intersections that require special attention due to the presence of seniors or children, even if they don’t meet the volume requirement. These two groups are disproportionately represented in collision and fatality statistics.

SOLUTIONS

Mid-block enhancements are the same as those for uncontrolled intersections, with the following modification:

At locations where none of the enhancements will mitigate safety concerns, or where pedestrian volumes warrant a pedestrian signal, but the signal would degrade vehicle Level of Service (LOS), study the feasibility of a grade-separated crossing.



Sacramento Bicycle and Pedestrian Bridge over Florin Road

2.5 TRAIL CROSSINGS

At locations where a multi-use trail crosses a street, the mid-block or uncontrolled intersection safety warrants should be used to determine whether or not to mark a crosswalk, depending on the location of the crossing.

Trail crossings should be well lit and well signed. At all uncontrolled at-grade trail crossings, traffic calming and signage within 150-200 feet of the crossing should be considered. The crossing should also have signage within 30 to 50 feet of the crossing.

If the crossing does not meet the safety warrants and the nearest signalized crossing location is:

- 300 feet or more away on an arterial street,
- 200 feet or more away on a collector street, or
- 100 feet or more away on a local street.

Signage and landscaping should be used to direct both cyclists and pedestrians to the adjacent signalized crossing.

The distances above balance safety with convenience. A marked crosswalk on a local street with a low daily traffic volume, few lanes, and a low-posted speed represents a relatively low risk to the pedestrian. In this circumstance, directing a pedestrian to a signal further than 100 feet away is an inconvenience disproportionate to the safety concerns associated with a marked crosswalk. On an arterial street with heavy traffic and higher speeds, the safety risk, and therefore, the acceptable level of inconvenience, is greater.

If the nearest signalized crossing is greater than 150 feet away, the location fails the safety tests and other at-grade treatments are infeasible, a grade-separated bicycle/pedestrian crossing should be considered.

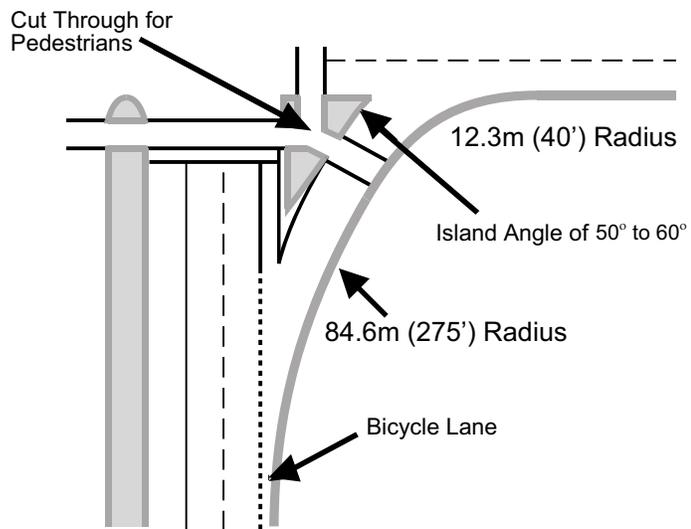
2.6 COMPACT INTERSECTIONS

Compact intersections with short crossings and high pedestrian visibility are the most accessible, safe and effective for pedestrians. There are several elements to consider when evaluating an intersection for pedestrian friendliness:

Never design more than you need is the maxim underlying pedestrian-friendly intersections.

- **Turning Radius** Whenever possible, especially at locations adjacent to pedestrian generators, intersections should be designed with tight corner radii and without “free rights” for vehicles. When “free rights” are necessary, the turning radius should follow the figure below. Curb extensions can help retrofit existing intersections – tightening corner radii, reducing pedestrian crossing distances and raising pedestrian visibility.

Right-Turn Slip Lane Preferred Design



- **Geometry:** Pedestrian-friendly signalized intersections have no more than two through lanes in each direction, and lane widths of 10 feet for travel and turn lanes.
- **Miscellaneous:** Signalized intersections should be well lit, with pedestrian signals at each crosswalk and short cycle lengths (optimally, no longer than 60 seconds).
- **Signal Visibility:** Signal heads should be located for optimum visibility. If a signal has a permitted left turn phase, one signal should be on the corner pole signal located above the pedestrian signal whenever possible, to focus the driver's attention on the crosswalk and pedestrian signal indication. It will also help alert pedestrians to the presence of left-turning vehicles.



Traffic and pedestrian signals are located adjacent to each other on corner poles to direct driver attention to the pedestrian

“Walkable streets form the backbone of friendly, interactive, safe, secure neighborhoods.” – Dan Burden of Walkable Communities, Street Design Guidelines for Healthy Neighborhoods

CHAPTER THREE DEVELOPMENT AREAS BEST PRACTICES

Sacramento's North Natomas area is one of several fast-developing areas of the City. Most developments are subject to a permit application, wherein City staff may consider and approve the proposed projects. This process offers a forum between developers and the City to educate builders about the benefits of good pedestrian facilities and to ensure that all new developments maintain a high pedestrian safety standard. One method to accomplish this goal is to subject all streets in new and re-developments to the same considerations detailed in the **“Safe Crossings”** chapter. This report recommends safe, high-visibility pedestrian crossings such that all pedestrian generators (shopping centers, libraries, employment centers, etc.) have a marked crossing within 300 feet.



North Natomas Sub Division

3.1 CROSSING TREATMENTS



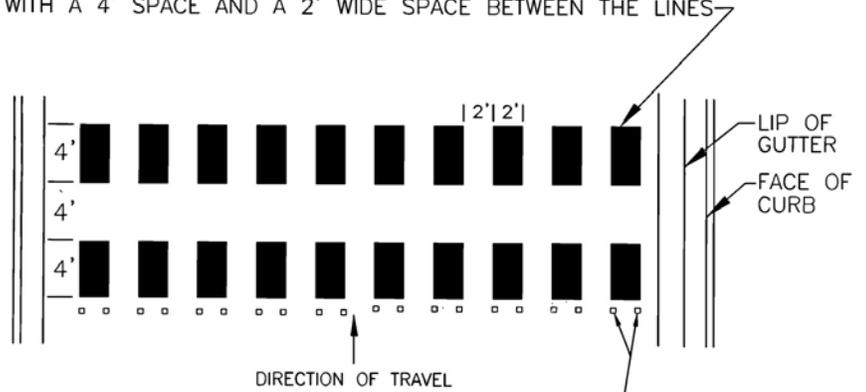
Photo by Ed Cox

Textured Crosswalk in Mid-Town

The City employs two types of high-visibility crosswalks: the triple-four and the textured pavement crosswalk. Specifications for these crosswalks are included in Chapter 1. These crosswalks are excellent tools at slower low-volume uncontrolled crossing locations. At a minimum, a high-visibility treatment is recommended at all uncontrolled crossing locations (uncontrolled crossing locations are mid-block sites and intersections without a signal or all-way stop) where a crosswalk is scheduled for installation. The developer should choose a crossing treatment based on the guidelines in Chapter 2, which are a function of volume, speed and number of lanes. Additionally, the “Compact Intersection” recommendations in Chapter 2 offer guidelines for safe pedestrian intersections.

FIGURE 1.1 TRIPLE FOUR CROSSWALK

INSTALL LADDER STRIPING WITH 2' WIDE AND 4' LONG WHITE LINES WITH A 4' SPACE AND A 2' WIDE SPACE BETWEEN THE LINES



INSTALL TWO REFLECTIVE MARKERS IN FRONT OF EACH LADDER STRIPE ON THE APPROACH SIDE OF THE CROSSWALK



The crosswalk style is called “triple-four” due to the measurements and spacing of the stripes.

Short block lengths, compact intersections, narrow lane widths, and continuous, separated sidewalks create a pedestrian-friendly environment.

3.2 NEIGHBORHOOD STREET DESIGN

Pedestrian-friendly neighborhood street design improves the safety of the walking environment and fosters an increase in trips made on foot.

- Install **continuous sidewalks, separated by a planter or park strip with a vertical curb** along all new streets next to commercial or residential land uses. Recent research from the FHWA indicates that basic elements such as continuous, separated sidewalk may reduce “walking along roadway” pedestrian/vehicle crashes.²²
- Follow **block-length recommendations** included in the City’s *Traffic Calming Guidelines*:

“Some street networks leave excessively long blocks without interrupting intersections. Drivers that travel a long distance (500 feet or greater) without being required to slow or stop by traffic control devices can tend to travel at excessive speeds. To minimize this effect, the street network can be designed such that street blocks are interrupted by streets of sufficient traffic volumes to warrant a traffic control device (e.g. a traffic circle or stop sign) on the street of concern.”

²² McMahon, Patrick et al, “An Analysis of Factors Contributing to ‘Walking Along Roadway’ Crashes: Research Study and Guidelines for Sidewalks and Walkways,” Report No. FHWA-RD-01-101

3.3 TRAFFIC IMPACT STUDIES

Traffic Impact Studies and plan checks have not traditionally incorporated measures of pedestrian safety or convenience. This report recommends the following measures for evaluating new and re-development projects.

PEDESTRIAN SAFETY IMPACTS

The following are basic guidelines that could be included in Transportation Impact Studies:

- **Impact on the existing pedestrian system**
Will the project change the width, routing or conditions of an existing pedestrian facility?
- **Pedestrian travel patterns and access**
Will the project alter existing pedestrian travel patterns and/or otherwise affect a pedestrian's ability to travel as directly as possible from origin to destination with no circuitous travel, due to any change to the sidewalk or pathway network?
- **Pedestrian circulation and access**
Will the project reduce or restrict a pedestrian's access to any roadway or site, by decreasing safety, increasing the stress or increasing the delay experienced by the pedestrian? This includes but is not limited to increasing the width of the road or reducing the width of the shoulder, bridge, overpass or underpass.²³

²³ Pedestrian's stress levels can be quantitatively measured using Pedestrian Level of Service methodology. The PLOS is a spreadsheet with inputs for roadway width, traffic levels, posted speed, sidewalk width, and the presence and measurements of pedestrian buffers including street trees.



- **Safety of Operations**
Does the project meet or exceed accepted design standards and guidelines, as promulgated by responsible agencies such as the State of California or AASHTO? How will the project enhance/improve safety and connectivity for pedestrians?
- **Internal Pedestrian Circulation**
Applicants should submit an internal pedestrian circulation plan in order to facilitate the safest, smoothest transition from sidewalk or parking lot to building entrance. The circulation plan should include clearly marked walkways for pedestrians to walk, delineated by textured or colored pavement or pavement stencils. In large parking lots, a continuous sidewalk should be provided in parking lot medians from the parking lot to a marked crossing to the building entrance.

PEDESTRIAN ENTRANCES

All new public buildings, meaning buildings that the public may use, such as shopping centers, should have at least one main entrance immediately adjacent to the sidewalk.

DEVELOPER EDUCATION PROGRAM

In order to raise developer awareness about the benefits of pedestrian safety measures, both to pedestrians and to homeowners, this report recommends the development of a brief brochure detailing the guidelines contained both in this report and in the forthcoming Pedestrian Master Plan. Staff could distribute the brochures during the application process to educate builders about the City's recommendations pertaining to pedestrian safety measures.

APPENDIX A
CITY OF SACRAMENTO STREET STANDARDS
(Currently Under Revision)

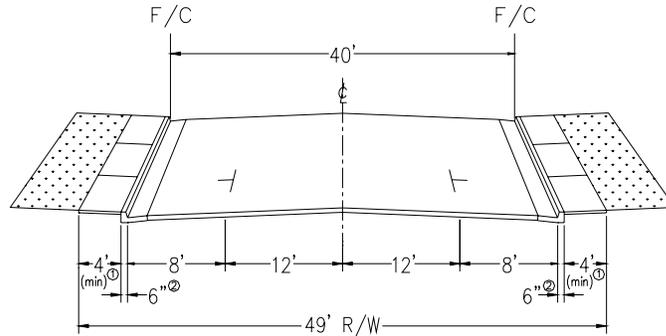
EXISTING STREET STANDARDS

TYPICAL CROSS-SECTIONS

City of Sacramento - Public Works Department

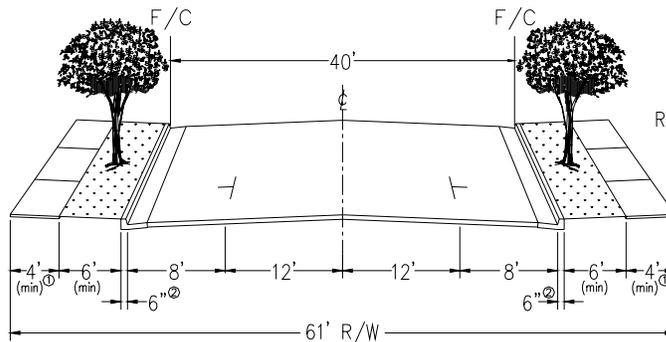
LOCAL NON-RESIDENTIAL STREETS

Ⓒ



49' Right-Of-Way
(0-7,000 ADT)

Ⓓ



Rolled curb permitted
(If Traffic Volume
is 0-7,000 ADT)

61' Right-Of-Way
(0-14,000 ADT)

- ① - ADA requires a passing space at an interval not to exceed 200ft. If this requirement is not met, a minimum sidewalk width of 5' is required.
- ② - See Vertical Curb Section under additional notes.

MINOR DEVIATIONS FROM THE STANDARDS REQUIRE THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS OR THE DESIGNEE.

ALTERNATIVES ALLOWED IN THE P.U.D.

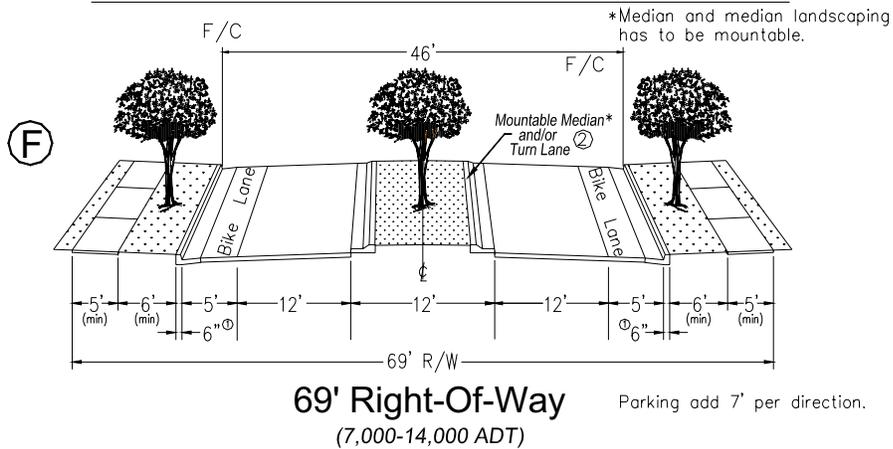
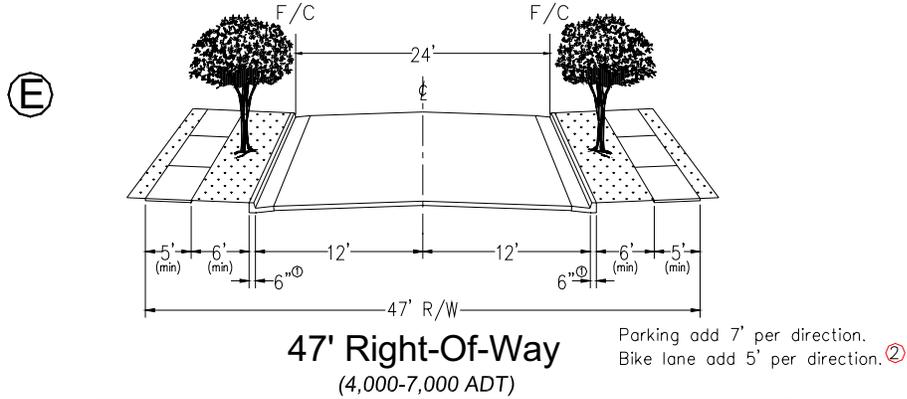


EXISTING STREET STANDARDS

TYPICAL CROSS-SECTIONS

City of Sacramento - Public Works Department

COLLECTOR STREET SYSTEM



- ① - Dimensions shown are approximate. See Vertical Curb Section under additional notes.
- ② - The Director of Public Works or the designee will determine whether a turn lane or a landscaped median is installed.

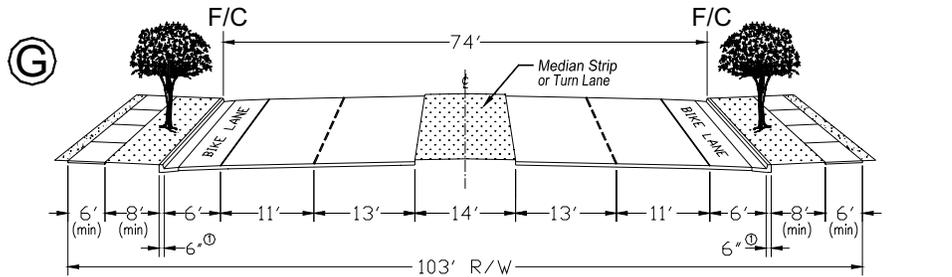
MINOR DEVIATIONS FROM THE STANDARDS REQUIRE THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS OR THE DESIGNEE.
ALTERNATIVES ALLOWED IN THE P.U.D.



EXISTING STREET STANDARDS TYPICAL CROSS-SECTIONS

City of Sacramento - Public Works Department

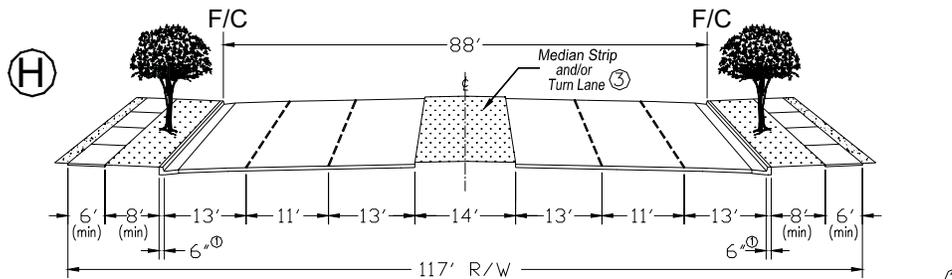
ARTERIAL STREETS SYSTEM



103' Right-Of-Way

Parking add 7' per direction.

(14,000-32,000 ADT)



117' Right-Of-Way

Bike lane add 6' per direction. ②

(32,000-48,000 ADT)

① - Dimensions shown are approximate. See Vertical Curb Section under additional notes.

② - Bike lanes will be added per the Bikeway Master Plan.

③ - The Director of Public Works or designee will determine whether a turn lane or a landscaped median is installed.

MINOR DEVIATIONS FROM THE STANDARDS REQUIRE THE APPROVAL OF THE DIRECTOR OF PUBLIC WORKS OR THE DESIGNEE.

ALTERNATIVES ALLOWED IN THE P.U.D.



APPENDIX G: SUMMARY OF PEDESTRIAN IMPROVEMENT PROGRAM METHODOLOGY

INTRODUCTION

There are a number of deficiencies to pedestrian facilities in the existing built area of Sacramento. There are two key components of addressing these deficiencies.

1. Prioritization – Identifying a rational and fair mechanism for determining which areas receive improvements first
2. Improvement Types – Determining what level of improvements are appropriate for a given area. While the Plan seeks to achieve basic improvements, including sidewalks and lighting, throughout the City, there are some areas, such as commercial main streets, where greater levels of improvements may be appropriate

The process for prioritizing projects and determining the appropriate level of improvement are described below followed by four examples of how neighborhoods could be enhanced by pedestrian improvements.

PRIORITIZATION OVERVIEW

This section describes the methodology for prioritizing capital improvements in the Sacramento Pedestrian Master Plan. The methodology's premise is that the highest priority improvements should be located in those areas where walking potentials are high and pedestrian facilities are lacking. The methodology uses two indices to measure these elements:

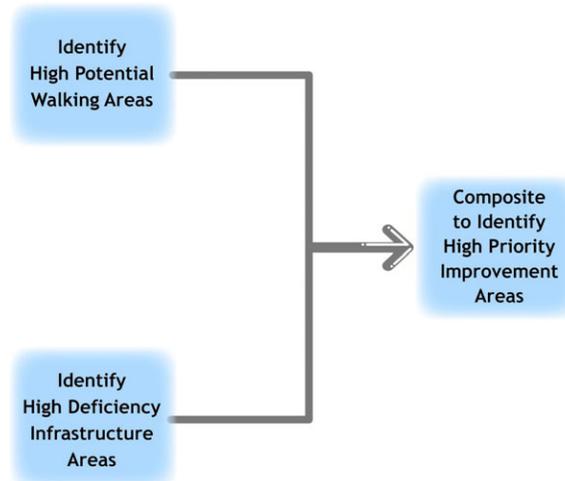
1. A pedestrian potential index measuring those factors that favor walking
2. An infrastructure deficiency index measuring the absence or deficiency of pedestrian facilities

The methodology prioritizes improvements in areas that have both high walking potential and a high infrastructure deficiency.



WALKING POTENTIAL AND DEFICIENCIES

Each street segment received a walking potential rating and an infrastructure deficiency rating. The rating values were applied to each street segment based on a conversion of the unique indicator measurement units into a common set of rating criteria. Additionally, the methodology weighted the importance of each indicator relative to other indicators. Walking potential indicators were weighted separately from infrastructure deficiency indicators to support the methodology's two separate final indices.



The methodology was executed using the City's GIS database and Criterion's INDEX software. The City's geography was "rasterized" into a grid of cells containing every street segment in the City along with its surrounding land-uses. Across this geography, the INDEX software applied a set of indicators to measure walking potentials and infrastructure deficiencies.

DETAILED PRIORITIZATION PROCEDURES

Based on available funding resources and commitment levels, the scope and scale of pedestrian improvements could vary greatly. Because not all of Sacramento's pedestrian needs can be immediately addressed, projects need to be ranked based on their potential contribution towards making Sacramento more walkable, safe, and accessible. A major component of the Pedestrian Master Plan is to develop an effective mechanism for prioritizing potential projects throughout Sacramento. This methodology was described in concept above – the detailed procedures are described below.

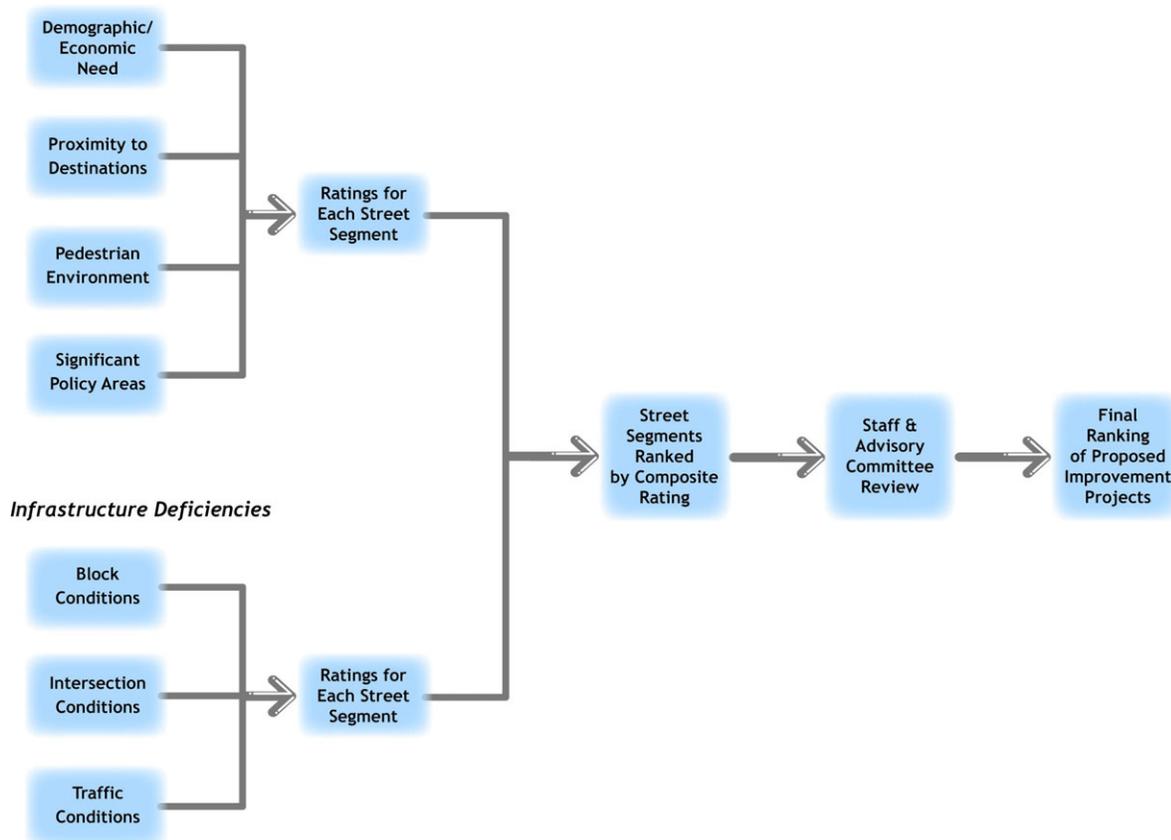
After all street segments received their weighted scores for walking potential and infrastructure deficiency, the highest scoring segments on both indices were found by taking the geometric mean of the two score sets. This produced a preliminary ranking of street segments with the greatest need for improvements, including the types of

improvements required. The preliminary ranking of capital improvement projects were submitted for staff and advisory committee review for adjustments in consideration of pedestrian safety and time-sensitive co-located opportunities.

At each step of the methodology, results were reportable for the entire City as well as a variety of sub-area breakdowns, including council districts, neighborhoods, school attendance areas, traffic analysis zones, etc.

Detailed Pedestrian Evaluation Methodology

Walking Potentials



Areas of strong walking potential were identified with the following indicators grouped into four categories of need, proximities, walking environment, and important policy boundaries:

- Need – indicators describing persons that have greater need for walking, including seniors, youth, low income, and those without cars:
 - Age (% under 18 and 65 or over)
 - Income (% at or below poverty level)
 - Vehicle ownership (% with 1 or fewer)



- Proximities – indicators of nearness to key walking destinations:
 - Schools and community centers (1 mile walksheds)
 - Parks (1 mile)
 - Transit stops (1 mile)
 - Neighborhood shopping (1 mile)
 - Social service destinations (1 mile)
- Pedestrian environment – indicators that have been empirically shown to correlate with the choice to walk:
 - Population density (persons/acre)
 - Employment density (employees/acre)
 - Land-use mix (0-1 index of horizontal and vertical dissimilarity among uses)
 - Street segment length (feet)
- Policy areas – presence of special areas having greater importance for pedestrians due to City policies:
 - Redevelopment areas
 - Design review districts
 - Neighborhood commercial corridors

Infrastructure deficiencies and traffic conditions were measured according to the following six indicators:

- Sidewalks (% coverage)
- Streetlights (lights/1,000 ft.)
- Arterial traffic signals (presence/absence)
- Street width/crossing distance (feet)
- Street connectivity (0 – 1 index of continuous network)
- Accidents (annual number pedestrian/vehicle collisions)

**Table 1: Walking Potential
RATING AND WEIGHTING VALUES**

Walking Potentials			
Indicator	Weight	Indicator Score	Rating Value
Commercial Corridor	4	In Corridor	600
		Not in Corridor	0
Desing Review Area	3	In Area	600
		Not in Area	0
Redevelopment Area	2	In Area	600
		Not in Area	0
Street segment length (ft.)	9	0 - 300	600
		300 - 400	500
		400 - 500	400
		500 - 750	300
		750 - 1000	200
		1000 - 1500	100
		1500 +	0
Use Mix (0-1)	9	0 - 0.1	0
		0.1 - 0.2	100
		0.2 - 0.3	200
		0.3 - 0.4	300
		0.4 - 0.5	400
		0.5 - 0.6	500
Emps per acre	9	0 - 10	0
		10 - 15	100
		15 - 20	200
		20 - 25	300
		25 - 30	400
		30 - 40	500
		40 +	600
Population per acre	10	0 - 5	0
		5 - 10	100
		10 - 15	200
		15 - 20	300
		20 - 25	400
		25 - 30	500
Social Service Proximity (ft.)	5	0 - 660	600
		660 - 1320	500
		1320 - 1980	400
		1980 - 2640	300
		2640 - 3960	200
		3960 - 5280	100
Neighborhood Shopping/Services Proximity (ft.)	8	0 - 660	600
		660 - 1320	500
		1320 - 1980	400
		1980 - 2640	300
		2640 - 3960	200
		3960 - 5280	100
5280 +	0		



Walking Potentials <i>Continued</i>			
Indicator	Weight	Indicator Score	Rating Value
Transit Proximity (ft.)	10	0 - 660	600
		660 - 1320	500
		1320 - 1980	400
		1980 - 2640	300
		2640 - 3960	200
		3960 - 5280	100
		5280 +	0
Park Proximity (ft.)	8	0 - 660	600
		660 - 1320	500
		1320 - 1980	400
		1980 - 2640	300
		2640 - 3960	200
		3960 - 5280	100
		5280 +	0
School/Comm. Center Proximity (ft.)	8	0 - 660	600
		660 - 1320	500
		1320 - 1980	400
		1980 - 2640	300
		2640 - 3960	200
		3960 - 5280	100
		5280 +	0
Vehicle Ownership (%)	5	0 - 10	0
		10 - 20	100
		20 - 30	200
		30 - 40	300
		40 - 50	400
		50 - 60	500
		60 +	600
Below Poverty Level (%)	5	0 - 5	0
		5 - 10	100
		10 - 15	200
		15 - 20	300
		20 - 25	400
		25 - 30	500
		30 +	600
Under 18, 65 or over (%)	5	0 - 5	0
		5 - 10	100
		10 - 15	200
		15 - 20	300
		20 - 25	400
		25 - 30	500
		30 +	600
	100		

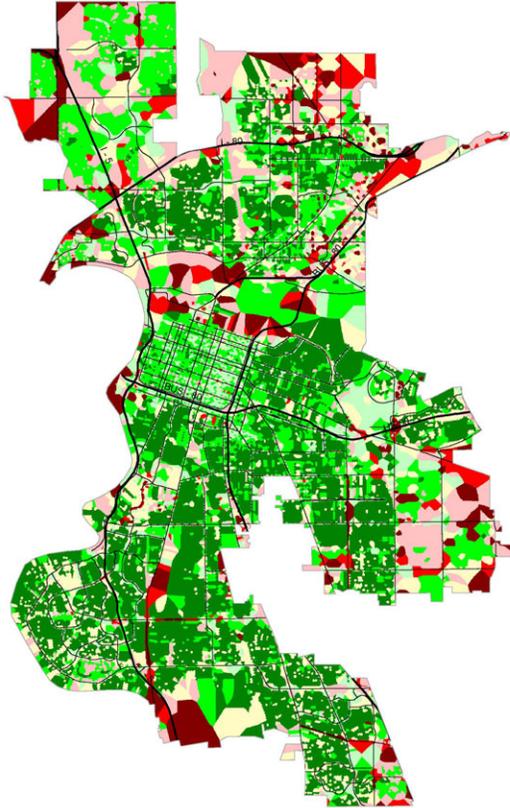


Table 2: Infrastructure Deficiencies

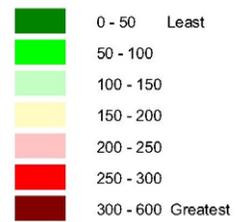
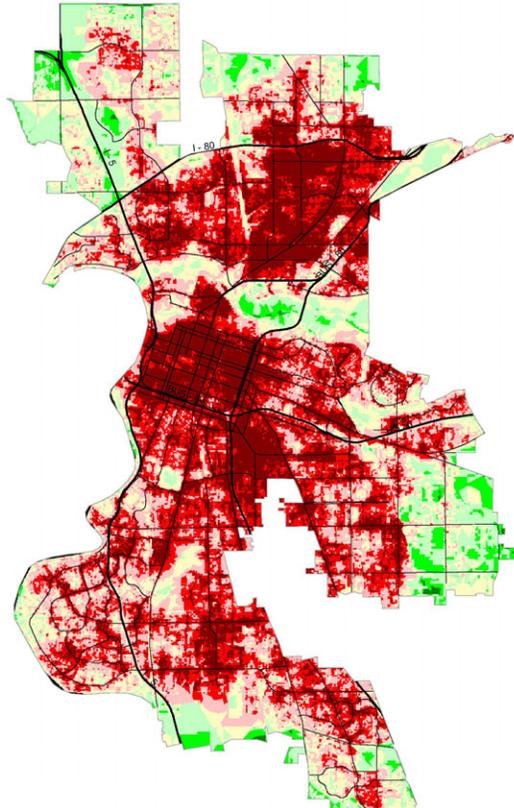
Infrastructure Deficiencies			
Indicator	Weight	Indicator Score	Rating Value
Accidents (avg. ann. ped/veh collisions)	13	0 - 0.1	0
		0.1 - 0.2	100
		0.2 - 0.4	200
		0.4 - 0.6	300
		0.6 - 0.8	400
		0.8 - 1.0	500
		1.0 +	600
Sidewalks (%)	23	0 - 10	600
		10 - 20	500
		20 - 35	400
		35 - 50	300
		50 - 65	200
		65 - 80	100
		80 - 100	0
Street Width (ft.)	17	0 - 25	0
		25 - 35	100
		35 - 45	200
		45 - 55	300
		55 - 65	400
		65 - 75	500
		75 +	600
Traffic Signals (Y/N)	13	Absent	600
		Present	0
Connectivity (0-1)	23	Connected	0
		No outlet	600
Street Lighting (Lights/1,000 ft.)	11	0 - 0.5	600
		0.5 - 1.0	500
		1.0 - 2.0	400
		2.0 - 4.0	300
		4.0 - 6.0	200
		6.0 - 8.0	100
		8.0 +	0
	100		



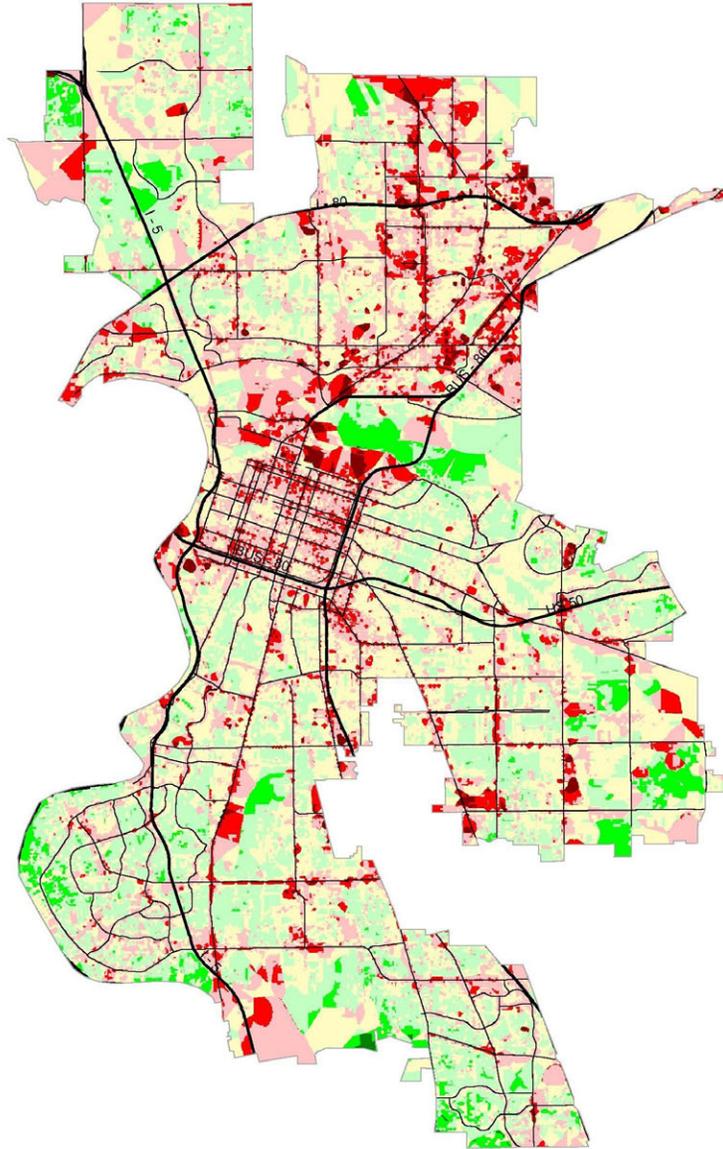
**Deficiencies
Composite Score**



**Potentials
Composite**



Improvement Needs Composite



Recommended Improvements

Pedestrian improvements to be implemented in various areas of Sacramento fall into three categories: basic, upgraded, and premium. The intent of the Plan is that all areas will receive at least basic improvements, consisting of sidewalks, lighting and elimination of barriers to walking. In some areas, such as the high pedestrian traffic Midtown area, upgraded pedestrian facilities are more appropriate to the area and justified based on the number of people walking. In still other even higher pedestrian traffic areas such as downtown Sacramento, premium pedestrian facilities are warranted.



APPENDIX H: FUNDING METHODOLOGY

INTRODUCTION

This Appendix discusses funding for pedestrian projects. It is broken down into the following sections

- Pedestrian Funding Summary
- Generalized Cost Estimates for CIP Projects
- Pedestrian Funding Detailed Analysis

PEDESTRIAN FUNDING SUMMARY

Funding is required to improve the pedestrian system in the City of Sacramento. Funding sources mainly are public sector – federal, state, regional and local. Pedestrian improvement projects compete with the other modes to obtain transportation funds. As is true for the other modes, funding is limited, especially during times of economic downturn. Due to the current economic downturn, some funding sources are in jeopardy. The government agency that sponsors the source could either temporarily reduce the amount available in a funding source or could eliminate the funding entirely until the economy improves.

Several primary federal, state, regional and local funding sources are available for pedestrian projects and programs. Below is a list of these programs.

Federal Funding²

- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Land and Water Conservation Fund (LWCF)
- Recreational Trails Program (RTP)
- Regional Surface Transportation Program (STP)
- Transportation Enhancement Activities (TE)

² Gail Payne, *Guide to Bicycle Program Funding in California*, 2nd Edition, February 2002



State Funding

- California Conservation Corps (CCC)
- Community Based Transportation Planning (CBTP) Grants
- Environmental Justice (EJ) Planning Grants
- Environmental Enhancement and Mitigation Program (EEMP)
- Gas Tax Funds
- Habitat Conservation Fund (HCF)
- Office of Traffic Safety (OTS) Program
- Regional Improvement Program (RIP)
- Safe Routes to School Program (SR2S)

Regional Funding

- Sacramento Council of Governments' (SACOG) Bicycle and Pedestrian Program
- SACOG's Community Design Program

Local Funding

- Developer Fees
- Local Sales Tax – Measure A
- Major Street Construction Fund
- Redevelopment Funds
- Transportation Development Act (TDA)

Besides the above-listed programs, another funding source that could be used is a lighting and landscaping tax, which could cover some of the maintenance costs of multi-use trails. Caltrans also has a non-motorized transportation directive, which mandates that bicycle and pedestrian access must be considered on all Caltrans construction projects. As a result of this directive, Caltrans is expected to routinely incorporate bicycling and walking needs into design and construction projects.



GENERALIZED COST ESTIMATES

The following are costs for one side of the street, economy of scale put typical lengths at 1 mile segments:

Drainage Modifications

\$30/ lineal foot

Demolition Costs

Removal of rolled curbing \$12.00/ lineal foot

Removal of sidewalk \$35.00/ lineal foot

Acquisition costs

Basic – none

Upgraded – 4 feet of ROW \$60 per lineal foot

Premium – 12 feet of ROW \$180 per lineal foot

Curb and Gutter Costs

Curb # 4 (curb and gutter) \$22.00 per lineal foot

Sidewalk Costs

10 % of the Streets may need re-grading to achieve proper drainage \$475 per lineal foot

Basic - 5 foot width \$35 per lineal foot

Upgraded – 10 foot width \$70 per lineal foot

Premium – 16 to 20 foot width with high quality finish \$275 per lineal foot

Curb Ramps

\$500 each

(Assumption that these will be installed on all corners of new sidewalks)

Street lighting

Basic – Cobra styled lighting \$20 per lineal foot of street

Upgraded – Ornamental “acorn” style \$40 per lineal foot of street

Premium – Ornamental “acorn” style at higher lighting level \$50 per lineal foot of street

Landscaping

Basic – no landscaping

Upgraded – irrigated planters with ground cover, shrubs and some trees \$60 per lineal ft

Premium – irrigated planters with ground cover and trees at 15 foot spacing \$80 per 1-ft.

Corner crosswalk enhancements

Basic – painted crosswalk \$100/ leg

Upgraded – Corner bulb-out and/or medians high visibility crosswalk \$60,000/leg

Premium – Higher quality treatment of Upgraded, i.e., colors and textures. \$75,000/leg

Traffic control per intersection

Collector street to arterial traffic signal \$250,000 each

Upgrades: Countdown heads, audible, timing adjustments \$10,000

Mark-ups

Contingencies: 25%

Design and Inspection: 32%

Minor items: 3%



SACRAMENTO PED CIP COST MATRIX

Improvement Costs Based on Length of Street Segment						
Improvement	Deficiency Type	Deficiency Score	Cost/Foot			Notes
			Basic	Upgraded	Premium	
Drainage Modifications	Sidewalks	0	0	15	30	Drainage modifications: \$30/ft for all facility types. Cost based on percentage of sidewalks for each street segment. It is assumed streets with no sidewalk deficiency will still need some drainage modifications for upgraded and premium improvements.
		100	5	17	30	
		200	10	20	30	
		300	15	22	30	
		400	20	25	30	
		500	25	27	30	
Demolition	Sidewalks	0	6	12	35	Removal of sidewalk: \$35/ft. It is assumed streets will require demolition in proportion to the percentage of sidewalks existing on each segment.
		100	5	10	30	
		200	4	8	24	
		300	3	6	18	
		400	2	4	12	
		500	1	2	6	
Acquisition	N/A	0	0	15	45	Basic: no cost; Upgraded: \$60/ft; Premium: \$180/ft. Assumed to be required for 25% of street segments. Acquisition costs based on facility type (basic, upgraded, premium) and not a particular deficiency.
		100	0	15	45	
		200	0	15	45	
		300	0	15	45	
		400	0	15	45	
		500	0	15	45	
Curb Gutter	Sidewalks	0	0	10	22	Curb and gutter: \$22/ft. Basic and upgraded facilities will require new curb/gutter in proportion to percentage of existing sidewalk. Premium facilities will require new curb/gutter.
		100	4	12	22	
		200	7	14	22	
		300	11	16	22	
		400	14	18	22	
		500	18	20	22	
Sidewalk Installation	Sidewalks	0	0	59	323	Basic sidewalk: \$35/ft; Upgraded: \$70/ft; Premium: \$275/ft. Basic and upgraded facility costs based on percentage of existing sidewalk. Premium facilities will require full installation cost. Regrading costs (\$475/ft) assumed for 10 percent of segments.
		100	14	69	323	
		200	28	79	323	
		300	41	89	323	
		400	55	98	323	
		500	69	108	323	
Street Lighting	Lighting	0	0	20	50	Basic lighting: \$20/ft; Upgraded: \$40/ft; Premium: \$50/ft. Basic and upgraded facility costs based on percentage of existing sidewalk. Premium facilities will require full installation cost.
		100	3	23	50	
		200	6	27	50	
		300	10	30	50	
		400	13	33	50	
		500	16	37	50	
Landscaping	N/A	0	0	60	80	Basic: no cost; Upgraded: \$60/ft; Premium: \$80/ft. Landscaping costs based on facility type and not a particular deficiency.
		100	0	60	80	
		200	0	60	80	
		300	0	60	80	
		400	0	60	80	
		500	0	60	80	
Constant Improvement Costs Per Street Segment						
			Cost/Segment			
Curb Ramps	N/A	N/A	2000	2000	2000	Assuming two curb ramps installed at each end of segment at a cost of \$500 per ramp.
Corner Crosswalk Enhancements	N/A	N/A	400	60000	150000	Basic facilities receive painted crosswalks (4 per segment, \$100 each), upgraded facilities receive bulbouts and/or medians and high-vis crosswalks (4 per segment; \$60,000 each leg), and premium facilities receive higher quality treatment of upgraded measures (such as colors and textures, \$75,000 each leg). Numbers assume 25% of upgraded facilities and 50% of premium facilities receive improvements.
Additional Improvement Costs						
Traffic Signal Installation	Signals					Not installed through PedCIP
Public Art	?					Installed through PedCIP?
Information Kiosks / Wayfinding	?					Need cost estimate
Bus Shelters	?					Need cost estimate
Street Furniture	?					Need cost estimate



FUNDING ANALYSIS MEMORANDUM



FUNDING ANALYSIS MEMORANDUM

The purpose of this memo is to provide information on funding programs for pedestrian improvement projects in the City of Sacramento.

Funding is required to improve the pedestrian system in the City of Sacramento. Funding sources mainly are public sector – federal, state, regional and local. Pedestrian improvement projects compete with the other modes to obtain transportation monies. As is true for the other modes, funding is limited, especially during economic downturns. Pedestrian projects will be funded either as stand-alone projects or as part of a larger roadway project.

The primary funding opportunities are as follows:

- **Federal:** The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was enacted August 10, 2005. It builds on the intermodal approaches of the two previous federal transportation bills of ISTEA and TEA-21, and lasts until 2009.
State: The Safe Routes to School funding source improves the safety of pedestrian and bicycle routes to/from schools. The current SR2S program will sunset January 1, 2008.
- **Regional:** Sacramento Area Council of Governments is a national leader in providing set asides for pedestrian and bicycling projects with its Regional Bicycle and Pedestrian Program and its Community Design Program.
- **County:** Voters in Sacramento County approved Measure A, which is a one-half cent sales tax to fund transportation projects. In November of 2004, Measure A was renewed by Sacramento County voters. As part of the new Measure A, Funding Pedestrian Improvements is eligible.
- **City:** Based on the *Barden v. City of Sacramento* case settlement, the City is required to spend 20 percent of its eligible discretionary gasoline tax and Measure A funds for up to 30 years on making sidewalks, crosswalks and curb ramps accessible. The focus of this funding is for barrier removal and currently is in the range of \$6 million annually.

FEDERAL FUNDING

CONGESTION MITIGATION AND AIR QUALITY IMPROVEMENT PROGRAM (CMAQ)

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. CMAQ can be used for pedestrian and bicycle construction and non-construction projects.

Website: www.dot.ca.gov/hq/transprog/reports/Official_CMAQ_Web_Page.htm



Eligible Applicants Cities, counties, transit operators, Caltrans, MPOs, non-profits and private entities.

Project Examples

Central City Two-way Conversion and Community Plan	\$159,354
SR 160 Bicycle/Pedestrian Bridge	\$258,507
Tower Bridge Pedestrian/Bikeway Improvements	\$619,710
Ueda Parkway Bikeway and Recreational Trail	\$115,050

LAND AND WATER CONSERVATION FUND (LWCF)

LWCF grants may be used for statewide recreational planning and for acquiring and developing recreational parks and facilities, especially in urban areas. The funds are limited to outdoor recreation projects such as the acquisition of wetland habitat and the development of recreation facilities.

Website http://www.parks.ca.gov/default.asp?page_id=21360

Eligible Applicants Federal and state agencies, cities, counties, recreation and park districts and special districts.

Project Examples

Natomas Oaks	\$78,591
Sacramento Zoo Development	\$78,375
Strawberry Manor Park Development	\$29,843
Florin Reservoir Development	\$25,200
Bannon Slough Development	\$40,320
Mayfair Gardens/MLK Jr Development	\$31,090

RECREATIONAL TRAILS PROGRAM (RTP)

RTP annually provides monies to develop recreational trails and trail-related projects that are for motorized and non-motorized recreational trail users. The California State Parks Office of Grants and Local Services administers the non-motorized projects. RTP monies also can be used for youth authority trail crews, and five percent may be used on education such as safety, training and patrols. These funds originate from ten percent of each state's STP monies.

Website http://www.parks.ca.gov/default.asp?page_id=21362



Eligible Applicants Cities, counties, districts, state agencies and non-profit organizations.

Project Examples

North Laguna Creek Wildlife Walk: \$120,000

Ninos Parkway Trail \$150,000

REGIONAL SURFACE TRANSPORTATION PROGRAM (STP)

Federal block grant program for a variety of transportation projects including pedestrian and bicycle construction and non-construction projects.

Website www.dot.ca.gov/hq/transprog/reports/Official_RSTP_Web_Page.htm

Eligible Applicants Cities, counties, transit operators, Caltrans, MPOs, non-profits and private entities.

Project Examples I-80 Bike/Pedestrian Bridge: \$600,000 for design

TRANSPORTATION ENHANCEMENT (TE)

The TE program, which is a ten percent set-aside of STP, funds transportation projects that help enhance the travel experience. Out of the 12 eligible TE categories, the following are most applicable: bicycle and pedestrian facilities, bicycle and pedestrian educational activities, preservation of abandoned railway corridors for bicycle and pedestrian use, acquisition of scenic easements, landscaping and other scenic beautification and control and removal of outdoor advertising.

Website
http://www.dot.ca.gov/hq/transprog/reports/Official_TEA_Web_Page.htm

Eligible Applicants Local, state and federal agencies. Private organizations must partner with a public qualified entity.

Project Examples

Old Town Sacramento \$1,500,000

Humbug-Willow Creek \$351,000

STATE FUNDING

CALIFORNIA CONSERVATION CORPS (CCC)

The CCC program provides emergency assistance and public service conservation work. The CCC focuses on projects that enhance the environment and help build CCC member skills such as trail construction, tree planting and public works projects.

Web Site <http://www.ccc.ca.gov/PARTNER/partners.htm>



Eligible Applicants City, county, state, federal and non-profit organizations

Project Examples No examples exist.

COMMUNITY BASED TRANSPORTATION PLANNING (CBTP) GRANTS

CBTP monies are used mainly to fund planning activities for livable community projects. These projects encourage affordable housing, sustainable developments, land use and transportation integration, transit-oriented developments, jobs/housing balance and expanded transportation choices.

Website <http://www.dot.ca.gov/hq/tpp/offices/ocp/cbtpg.htm>

Eligible Applicants Local, county and regional government agencies.

Project Examples Downtown to Waterfront Reconnection Project Phase I: \$300,000

ENVIRONMENTAL JUSTICE (EJ) PLANNING GRANTS

EJ planning grant monies are used to help engage low-income and minority communities in transportation projects early in the planning process to ensure equity and positive social, economic and environmental impacts occur.

Website <http://www.dot.ca.gov/hq/tpp/offices/opar/titleVIand%20EJ.htm>

Eligible Applicants Local, county and regional government agencies.

Project Examples

South Sacramento Community Plan Update \$265,000

Minority and Low-Income Bicycle and Pedestrian Use of Public Space and Safety Considerations within System Planning Level Transportation Decision Making \$198,000

Safe Routes to School Sacramento \$210,500

Achieving Environmental Justice in Central City Districts \$181,302

ENVIRONMENTAL ENHANCEMENT AND MITIGATION PROGRAM (EEMP)

The EEMP funds projects that offset environmental impacts of modified or new public transportation facilities such as streets, Park & Ride facilities and transit stations. These funds were not funded in the Governor's budget for 2005/06. It is possible that future funding could help restore EEMP for fiscal year 2006/07.

Website <http://resources.ca.gov/eem/>

Eligible Applicants Non-profit agencies, and local, state and federal governments

Project Examples No examples exist



GAS TAX FUNDS

Gas taxes fund roadway maintenance and improvement projects. Sidewalk installations and other pedestrian improvements are eligible. Other eligible expenditures include research, planning and operations. Currently the City of Sacramento mainly uses this fund source for operations and maintenance of roadways, bridges and sidewalks were appropriate.

Website <http://www.sco.ca.gov/col/taxinfo/gtr/index.shtml>

Eligible Applicants The State Controller distributes the tax revenues to the local jurisdictions.

Project Examples

Tower Bridge Bicycle/Pedestrian Improvements \$10,000

Hollow Sidewalk Monitoring \$507,400

HABITAT CONSERVATION FUND (HCF)

The HCF program provides a competitive grant program for trail projects, land acquisition and wildlife corridor restoration. These projects qualify for the trails/programs/urban access category.

Website http://www.parks.ca.gov/default.asp?page_id=21361

Eligible Applicants Cities, counties and eligible districts

Project Examples

Ueda Parkway Trail \$73,000

Robla Community Park – Phase II \$63,535

William Land Park Recreational Trail Completion \$122,000

OFFICE OF TRAFFIC SAFETY (OTS) PROGRAM

The primary objective of the program is to fund grants that reduce fatalities, injuries and economic loss related to motor vehicle collisions. Pedestrian and Bicycle Safety is one of OTS' eight priority programs. A pedestrian safety program should include one or more of the following components: education, enforcement and engineering.

Website www.ots.ca.gov

Eligible Applicants State, city and county agencies and non-profit and community-based organizations.

Project Examples Traffic Safety Program, Sacramento Police Department: \$128,250

REGIONAL IMPROVEMENT PROGRAM (RIP)

State funding for a variety of transportation projects such as carpool lanes, transit stations, bicycle and pedestrian facilities. These funds represent 75 percent of the State Transportation



Improvement Program (STIP), and are controlled by the Regional Transportation Planning Agencies (RTPAs).

Eligible Applicants Cities, counties, transit operators, Caltrans

Project Examples Will C. Woods School Street Improvements \$962,000

SAFE ROUTES TO SCHOOL PROGRAM (SR2S)

SR2S funds projects that improve the safety of pedestrian and bicycle routes to/from schools. The current SR2S program will sunset January 1, 2008.

Website <http://www.dot.ca.gov/hq/LocalPrograms/saferoute2.htm>

Eligible Applicants Cities or counties

Project Examples

Taylor Street School: sidewalk installations, crosswalks with an educational component:
\$450,000

Del Paso Heights Elementary School: install pedestrian-activated signal system:
\$152,500

Smythe & Noralto Ele Schools: signal, raised crosswalks and widened sidewalks: \$450,000

REGIONAL FUNDING

SACOG'S REGIONAL BICYCLE AND PEDESTRIAN PROGRAM

SACOG has allocated \$350 million for regional priority bicycle and pedestrian projects between 2002 and 2025.

Website www.sacog.org

Eligible Applicants Cities, counties and public agencies in the SACOG region.

Project Examples Capital projects are a higher priority than non-capital projects and programs.

SACOG'S COMMUNITY DESIGN PROGRAM

A community design fund, which encourages walking, bicycling, streetscape improvements and "smart growth" projects, amounts to \$500 million between 2002 and 2025. The SACOG Board approved \$12 million for fiscal years 2003/04 and 2004/05.

Website www.sacog.org

Eligible Applicants Cities, counties and public agencies in the SACOG region.



Project Examples Pedestrian project examples include paths, tunnels and bridges, pedestrian plazas, street crossings, traffic calming and streetscaping such as median landscaping, street trees, lighting and furniture.

LOCAL FUNDING

DEVELOPER FEES

Local government agencies charge developers a developer fee to offset the public costs required to accommodate new development with public infrastructure. Developer fees generally are used for local rather than regional improvements. These fees cover only new development so do not usually help with retrofit projects.

Project Examples No examples exist.

LOCAL SALES TAX - MEASURE A

Voters in Sacramento County approved Measure A, which is a one-half cent sales tax to fund transportation projects. It expires in 2008. A reauthorization of Measure A will be on the ballot in 2006. Measure A is used for disabled access improvements and for pedestrian projects such as curb ramps and sidewalks within the public right-of-way on the road. Trails are not included because the funding source is restricted to the road right-of-way.

Project Examples

Curb Ramp Construction Program	\$5,600,000 annually
Pedestrian Safety Program	\$75,000 annually
ADA Audible Signals Program	\$30,000 annually
Hollow Sidewalk Monitoring Program	\$65,000 annually

MAJOR STREET CONSTRUCTION FUND

These monies originate from taxes on building valuations for new constructions or for retrofits that add area to existing buildings. These funds are used for major transportation improvement projects. Specific expenditures that are eligible include street lighting, traffic control and roadway alterations. Maintenance and operations projects are not allowed.

Project Examples

Citywide Street Lighting Program	\$50,000 annually
Neighborhood Street Lighting Replacement	\$250,000 annually
Non-Residential Street Lighting Replacement	\$93,000 annually
Safety Lighting Replacement Program	\$100,000 annually
Streetscape Planning and Design	\$350,000 annually



Broadway Streetscape Enhancements	\$70,000
16 th Street Streetscape Master Plan	\$180,000
Fruitridge Streetscape Enhancement	\$100,000

REDEVELOPMENT FUNDS

The Sacramento Housing and Redevelopment Agency (SHRA) uses tax increment monies, which originate from increases in assessed values of property in designated areas. Tax increment monies fund streetscape improvement projects, which pay for missing and separated sidewalks, street beautification and other pedestrian enhancements. The five redevelopment areas in the City are: Alkali Flat, Del Paso Heights, North Sacramento, Oak Park and Sacramento Army Depot. Joint City-County redevelopment areas include: Auburn Blvd., Franklin Blvd. and Stockton Blvd. Note that these funds may be shifted to the state due to the State of California's budget crisis.

Web Site <http://www.shra.org/index.html>

Project Examples

Various South Sacramento streets design, street lighting, traffic signals, and improvements.

Fruitridge Road pedestrian signs, street improvements (including street lights) and sidewalk infill.

Tower Bridge Bike/Pedestrian Improvements \$85,000

Broadway Corridor Streetlights \$600,000

TRANSPORTATION DEVELOPMENT ACT (TDA)

TDA Article 3 states that one quarter cent of gasoline tax is returned to the county of origin for the purpose of funding transportation improvements in that county such as bicycle and pedestrian facilities, safety programs and planning projects in that county. The City has mainly used these funds to maintain and develop multi-use trails.

Project Examples

Ueda Parkway Trail	\$262,000
Freeport Shores Bike/Pedestrian Trail	\$115,000
Haggin Oaks Golf Course Trail	\$22,205
Trail Maintenance (Miscellaneous)	\$664,700
Sacramento River Trail	\$83,329



Pedestrian projects will be funded either as stand-alone projects that specifically target pedestrian improvements or as part of a larger capital improvement project. In research of the City's Capital Improvement Program (CIP) documents for Fiscal Years 2005 and 2006, the City programmed an annual average of approximately \$36 million toward transportation capital improvement projects and maintenance activities. This funding generally consists of local, state, federal funds as outlined above.

STAND-ALONE PROJECT FUNDING

Approximately 17-26% of the City's transportation CIP (Construction and Maintenance) budget is programmed to alternate modes only (Bicycle and Pedestrian) projects, with the majority being pedestrian-related.³ In a typical year, the majority of the work consists of the City's annual obligation required by the *Barden v. City of Sacramento* Settlement Agreement. It also consists of programs (such as the *Pedestrian Safety Program* and the *Captain Jerry Safety Program*) and specific pedestrian projects (such as the *Tower Bridge Bike/Pedestrian Improvement project*).

In determining the amount available for stand-alone projects, it is assumed that funding currently programmed toward the City's settlement agreement or existing pedestrian programs will not change. It should be noted that it is expected that, where possible, pedestrian projects consistent with the City's settlement agreement may also be consistent with the *Pedestrian Master Plan* thereby increasing the net funding for implementing *Pedestrian Master Plan* PIP projects. It is also recognized that grant funds will address eligible projects and that receiving these funds involves a region or state wide competitive process and that funding received through these sources may vary from year to year.

Table I-1 shows the estimates of the possible funding revenue for the most significant funding sources. The table reveals that the amount of funds available for pedestrian projects is estimated to range between \$700,000 and \$1.8 million annually given the current levels of expected revenues.

³ Based on a review of the 2005 and 2006 CIP



Table I-1: Funding Estimates for Stand-Alone Pedestrian Projects

Funding Source	Estimated Annual Amount	
	Local Funds	Grant Funds
Measure A ¹	\$300-\$400K	
Redevelopment Programs ²	\$0-\$65K	
Regional Bicycle and Pedestrian Program ³		\$100-\$200K
SACOG Community Design Program ³		\$300-\$600K
Safe Routes to School Program		\$0-\$500K
Total	\$300-\$465K	\$400K-\$1.3M

Source: MIG & City of Sacramento, 2006

Notes:

- 1 This is in addition to existing alternate modes programs shown in the FY 05 and 06 CIP.
- 2 The estimate assumes that five percent of this funding source will be spent on pedestrian improvement projects.
- 3 It is assumed that the City of Sacramento will receive a fair share amount from these regional programs based on population and that fifty percent will go toward pedestrian improvements.
- 4 Maximum total project cost eligible for the Safe Routes to School Program.

FUNDING FOR PEDESTRIAN PROJECTS AS ROUTINE ACCOMMODATION

In addition to stand alone alternate modes projects, the City of Sacramento, as a matter of practice, incorporates alternate modes elements into most capital improvement projects that are not stand alone pedestrian projects. Examples of projects include roadway reconstruction, widening, and extensions, bridge rehabilitation and replacement, streetscape improvements, neighborhood traffic calming projects, and intersection improvements. Alternate mode elements that are considered include street lighting, sidewalk construction and repair, curb ramps, crosswalks, signalized crossings, and on-street bike lanes.

When considering pedestrian improvements in stand alone projects and other capital improvement projects, it is estimated that currently the City programs approximately 23-33% of its overall Transportation CIP to alternate modes improvements. It is expected that when implementing pedestrian improvements with other capital improvement projects, these improvements would be consistent with the Pedestrian Master Plan where possible thereby increasing the net funding for implementing Pedestrian Master Plan projects.



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