



HERMOSA BEACH

Pedestrian Safety Assessment

Issues, Opportunities, and Recommended Strategies

By

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November 2008



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Funding for this Pedestrian Safety Assessment was provided by a grant from the California Office of Traffic Safety, through the National Highway Traffic Safety Administration. Opinions, findings, and conclusions are those of the authors and not necessarily those of the organizations listed in this report.

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Appendix A. Glossary of Candidate Treatment Options

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EXECUTIVE SUMMARY

The City of Hermosa Beach requested that the Institute of Transportation Studies Technology Transfer Program (www.techtransfer.berkeley.edu), the University of California Berkeley, conduct a pedestrian safety assessment (PSA). A team of two pedestrian safety experts conducted the PSA for Hermosa Beach in September 2008 and prepared this report. The objectives are to improve pedestrian safety and to enhance walkability and accessibility for all pedestrians.

Hermosa Beach has a population of approximately 19,500 residents. Based on the 2007 California Office of Traffic Safety (OTS) safety rankings of California cities, Hermosa Beach ranks out of 101 cities of a similar population size for total collisions involving pedestrians (with being the worst and the best). Historical collision data was requested from Hermosa Beach to identify locations with a high incidence of pedestrian collisions. Since January 2003, pedestrian fatalities have occurred at over ten locations throughout the City. From January 2003 to April 2008, one collision resulted in a pedestrian fatality, located near the Pacific Coast Highway and Street. Chapter Two provides an overview of pedestrian safety in Hermosa Beach and maps of pedestrian-vehicle collision data.

This report presents the findings and recommendations derived from: (i) a benchmarking analysis of the City's existing pedestrian programs, policies, and practices; and (ii) field walking audits at several focus areas.

Policies, Programs, and Practices Benchmarking

The benchmarking grouped the City's programs, practices, and policies into three categories: key strengths (areas where the City is exceeding national best practices), enhancement areas (where the City is meeting best practices), and opportunity areas (where the City is not meeting best practices), as shown below:

TABLE ES-1 SUMMARY OF PROGRAMS, POLICIES, AND PRACTICES BENCHMARKING ANALYSIS FOR HERMOSA BEACH			
Benchmark Topic	Key Strength	Enhancement	Opportunity
Americans with Disabilities Act (ADA) Improvements	X		
Enforcement	X		
General Plan: Densities, Mixed-Use Zones, and Pedestrian Nodes	X		
Neighborhood-sized Schools	X		
Newspaper Rack Ordinance	X		
Street Tree Requirements	X		
Traffic Signal and Stop Sign Warrants	X		
ADA Transition Plan for Streets and Sidewalks		X	
Bicycling Parking Requirements		X	

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TABLE ES-1 (CONT.)

Benchmark Topic	Key Strength	Enhancement	Opportunity
Collision History and Collision Reports		X	
Design Policies and Development Standards		X	
Institutional Obstacles		X	
Open Space Requirements		X	
Pedestrian Safety Education		X	
Pedestrian Safety Program and Walking Audits		X	
Pedestrian traffic control devices (Signs, Markings, and Signals)		X	
Pedestrian/Bicycle Coordinator		X	
Public Involvement and Feedback Process		X	
Safe Routes to School Program and Grant Funding		X	
Speed Limits and Speed Surveys		X	
Street Furniture Requirements		X	
Traffic Calming Programs		X	
Transportation Demand Management Programs		X	
Crosswalk Installation, Removal, and Enhancement Policy			X
Economic Vitality			X
Historic Sites			X
Health Agencies			X
Inventory of sidewalks, informal pathways, and key pedestrian opportunity areas			X
Leading Pedestrian Intervals			X
Pedestrian Crossings			X
Pedestrian Volumes			X
Pedestrian Master Plan			X
Routine Accommodations/ New Development			X

Source: Fehr & Peers, 2008

Details for each topic area are presented in Chapter Three as follows:

- Key Strengths – section 3.1, pages 8 - 11
- Enhancement Areas – section 3.2, pages 11 - 18
- Opportunity Areas – section 3.3, pages 18 - 22

Walking Audit Recommendations

Walking audits were conducted at the following focus areas, as determined in coordination with City staff:

- Pier Avenue: from Valley Drive to Hermosa Avenue
- Hermosa Avenue: from Pier Avenue to Street
- Street: from Hermosa Avenue to Loma Drive
- Loma Drive: from Street to Pier Avenue
- Valley Drive: from Pier Avenue to Street
- Street: from Valley Drive/Ardmore Avenue to Pacific Coast Highway
- Pacific Coast Highway: from Street to Aviation Boulevard
- Place: from Pacific Coast Highway to City Hall

Key findings from the Hermosa Beach walking audits include:

- The Pier Avenue Streetscape Improvements Plans include positive pedestrian influences such as landscaping, on-street parking, bulbouts, and median island refuge areas, among others.
- Hermosa Avenue presents opportunities to tie the cafes and shops on the east side of the roadway to the beachfront on the west side of the roadway. Recommendations have been made to provide pedestrian linkages across the roadway and to slow traffic speeds.
- Modifications could be made along Street and Loma Drive to regain public right-of-way and provide continuous pedestrian connections.
- Good pedestrian facilities exist around Hermosa Valley Elementary School; however, enhancements could be made to the sidewalks along Valley Drive and at the Ardmore Avenue/Street intersection to create a continuous pedestrian path to/from the school in all directions.
- The Pacific Coast Highway presents multiple challenges to pedestrians, including: high vehicle speeds, large traffic volumes, wide roadway cross section, frequent driveways, and poles placed in the sidewalk, among others.

Detailed recommendations are summarized graphically in large-scale figures in Appendix C.

A narrative description of walking audit observations and recommendations is presented in Chapter Four as follows:

- Section 4.2 Focus Area 1: Pier Avenue – page 23
- Section 4.3 Focus Area 2: Hermosa Avenue – page 30

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- Section 4.4 Focus Area 3: 8th Street – page 34
- Section 4.5 Focus Area 4: Loma Drive – page 36
- Section 4.6 Focus Area 5: Hermosa Valley Elementary School – page 38
- Section 4.7 Focus Area 6: 16th Street – page 40
- Section 4.8 Focus Area 7: Pacific Coast Highway – page 40
- Section 4.9 Focus Area 8: Pacific Coast Highway/16th Street – page 42
- Section 4.10 Focus Area 9: Pacific Coast Highway/Pier Avenue – page 42
- Section 4.11 Focus Area 10: Pacific Coast Highway/Aviation Boulevard – page 44
- Section 4.12 Focus Area 11: Pier Avenue/Vons Main Driveway – page 45
- Section 4.13 Focus Area 12: Civic Center – page 45

Many recommendations in this report will be good candidates for grant applications, including OTS grants. Our recommendations may also be used as a reference for the current streetscape improvements, any future *Pedestrian Master Plan* process, or redevelopment lending itself to pedestrian-oriented land use and design.

Our recommendations are based on field observations and best practices in pedestrian design and safety. Conditions may exist in the focus areas that were not observed and are not compatible with recommendations in this report. Before recommendations are implemented, City staff should conduct further analysis to ensure that the recommendations are contextually appropriate and do not negatively impact pedestrian safety or accessibility from issues including, but not limited to, vehicular traffic, physical characteristics, unsafe conditions, or improper implementation.

1. INTRODUCTION

1.1 OBJECTIVE

Hermosa Beach requested that the Institute of Transportation Studies Technology Transfer Program (www.techtransfer.berkeley.edu), the University of California Berkeley, conduct a pedestrian safety assessment (PSA). The objectives of the PSA are to improve pedestrian safety and to enhance walkability and accessibility in the City for all pedestrians.



The Hermosa Beach Pier

Image source: <http://k53.pbse.com/o4/16/564916/1/66163204.AHxpdJes.pbse0009>

1.2 EVALUATION APPROACH

Prior to visiting the City, we conducted a pre-visit phone interview with City staff on August 6, 2008. The results from this interview provided input into the benchmarking analysis. We visited the City on September 24-25, 2008. In the morning of the first day, we held a meeting with City staff to discuss initial results from the benchmarking analysis and logistics for the two-day field visit.

We conducted walking field audits at a number of locations in the City the afternoon of the first day. Walking audit participants included City staff from the City Planning, Police, and Public Works Departments and a consultant working with the City on a streetscape plan for Upper Pier Avenue. Participants are listed in Section 1.4.

The walking audits began with an introduction to pedestrian safety, where we presented a series of photograph examples to illustrate typical areas of concern for walkability as well as best practices for pedestrian safety and accommodation. During the walking audits, participants carried clipboards with aerial photographs of each walking audit focus area as well as notepaper and a “five questions to consider for walkability” checklist. We collected note pages from all participants at the end of the day and included those in the summary of recommendations.

We held an exit meeting with participants from the walking audit on the second day of the field visit. This meeting included a presentation of the benchmarking analysis results and draft recommendations for site-specific improvements based on the results of the walking audits.

1.3 ORGANIZATION OF THIS REPORT

Chapter Two presents background information on pedestrian safety in Hermosa Beach, including the safety rankings for Hermosa Beach, the top locations for pedestrian-involved collisions, and locations where pedestrian fatalities occurred (from 2003 to 2008). Chapter Three presents our findings and recommendations from the benchmarking analysis. Chapter Four presents the findings and recommendations from the walking audits at a number of locations in the City.

There are three appendices in this report: Appendix A presents a glossary of pedestrian improvement options, Appendix B is a resource list, and Appendix C provides the site-specific recommendations superimposed on aerial photographs of the evaluated areas.

1.4 ACKNOWLEDGEMENTS

Hermosa Beach staff members contributed to the wide range of topics addressed in this report. In particular, they organized a successful two-day field visit, which included eight City staff member participants:

- Pam Townsend, City Planning
- Homayoun Behboodi, Public Works
- Lt. Tom Thompson, Police
- Rick Morgan, Public Works
- Ken Reamey, Public Works
- Frank Senteno, Public Works
- Tara Freese, Planning

Brian Hannegan of RRM Design Group also attended the PSA on the second day.

2. BACKGROUND

2.1 PEDESTRIAN SAFETY OVERVIEW FOR HERMOSA BEACH

The City of Hermosa Beach is a coastal town with approximately 19,500 residents. The city is located in Los Angeles County on the Santa Monica Bay. Based on the California Office of Traffic Safety (OTS) ranking statistics, the City ranked 59 out of 101 California cities in the same population group for the number of pedestrian collisions in 2007. From January 2003 to April 2008, 45 pedestrian collisions occurred in the City. Three of these collisions resulted in pedestrian fatalities.

The 2007 OTS safety rankings for Hermosa Beach are shown in Tables 2-1 and 2-2. A city with the worst safety record (i.e., the highest rate) receives a rank of number one. On the other hand, higher numeric ranks indicate better safety records (i.e., lower rates).

TABLE 2-1. HERMOSA BEACH SUMMARY STATISTICS				
Year	County	Population	Population Group	Daily Vehicle Miles Traveled (VMT)
2007	Los Angeles	19,452	E	212,252

Source: California Office of Traffic Safety, www.ots.ca.gov/Media_and_Research/Rankings/default.asp

TABLE 2-2. HERMOSA BEACH TRAFFIC COLLISIONS AND RANKINGS, 2007			
Type of Collision	Victims Killed and Injured	Ranking by Daily Vehicle Miles Traveled (of 101 cities)	Ranking by Average Population (of 101 cities)
Total Fatal and Injury	40	83	72
Alcohol Involved	6	68	47
HBD (Had Been Drinking) Driver < 21	0	92	89
HBD Driver 21 - 34	0	91	93
Pedestrians	4	67	59
Pedestrians < 15	0	93	93
Pedestrians 65+	1	36	35
Bicyclists	5	55	45
Bicyclists < 15	0	91	92
<i>Composite</i>		80	73
Speed Related	4	86	78
Nighttime (9:00pm - 2:59am)	4	69	59
Hit and Run	3	66	52
DUI Arrests	286	-	-

Source: California Office of Traffic Safety, www.ots.ca.gov/Media_and_Research/Rankings/default.asp

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Based on these rankings, the areas of highest concern for traffic safety in Hermosa Beach in 2007 were:

- Older pedestrians (ages 65+)
- Bicyclists

This assessment and report emphasizes safety issues associated with pedestrians, including a focus on older pedestrians through recommended treatments such as road diets, bulbouts, and median refuge islands. Many of the recommendations in this report may also improve safety for bicyclists in Hermosa Beach.

2.2 HIGH PEDESTRIAN COLLISION LOCATIONS

The California Highway Patrol and Hermosa Beach Police Department provided pedestrian-vehicle collision data (SWITRS) for the period from January 2003 to April 2008. The top locations for such collisions are shown in Table 2-3. Primary and cross street locations for the three pedestrian fatalities are presented in Table 2-4. Figure 2-1 on the following page provides a map of pedestrian-vehicle collisions from 2003 to 2007.

TABLE 2-3. TOP PEDESTRIAN-VEHICLE COLLISION LOCATIONS IN HERMOSA BEACH (JANUARY 2003 TO APRIL 2008)	
Intersection	Number of Collisions
Hermosa Avenue and Street	2
Pier Avenue and Loma Drive	2
Pacific Coast Highway and Street	2
Pacific Coast Highway and Artesia Boulevard	2
Pacific Coast Highway and Pier Avenue	2
Valley Drive and Street	2

Source: California Highway Patrol (SWITRS) and Fehr & Peers.
Notes: This list is based on number of collisions and does not adjust for vehicle or pedestrian volumes (exposure).
Mid-block collisions were mapped to the nearest intersection.

TABLE 2-4. PEDESTRIAN FATALITY LOCATION (JANUARY 2003 TO APRIL 2008)	
Primary Street	Nearest Cross Street
Pacific Coast Highway	Street

Source: California Highway Patrol (SWITRS) and Fehr & Peers.

This pedestrian safety assessment addressed prototypical locations on many of the high collision corridors in the City, including Hermosa Avenue, Pier Avenue, Valley Drive, and Pacific Coast Highway. Of the top high pedestrian collision locations, Hermosa Avenue and Street, Pier Avenue and Loma Drive, Pacific Coast Highway and Pier Avenue, and Valley Drive and Street were included in the walking audits. The focus areas also included the pedestrian fatality location at Pacific Coast Highway and Street.

Figure 2-1. Pedestrian-Vehicle Collisions, January 2003 to April 2008

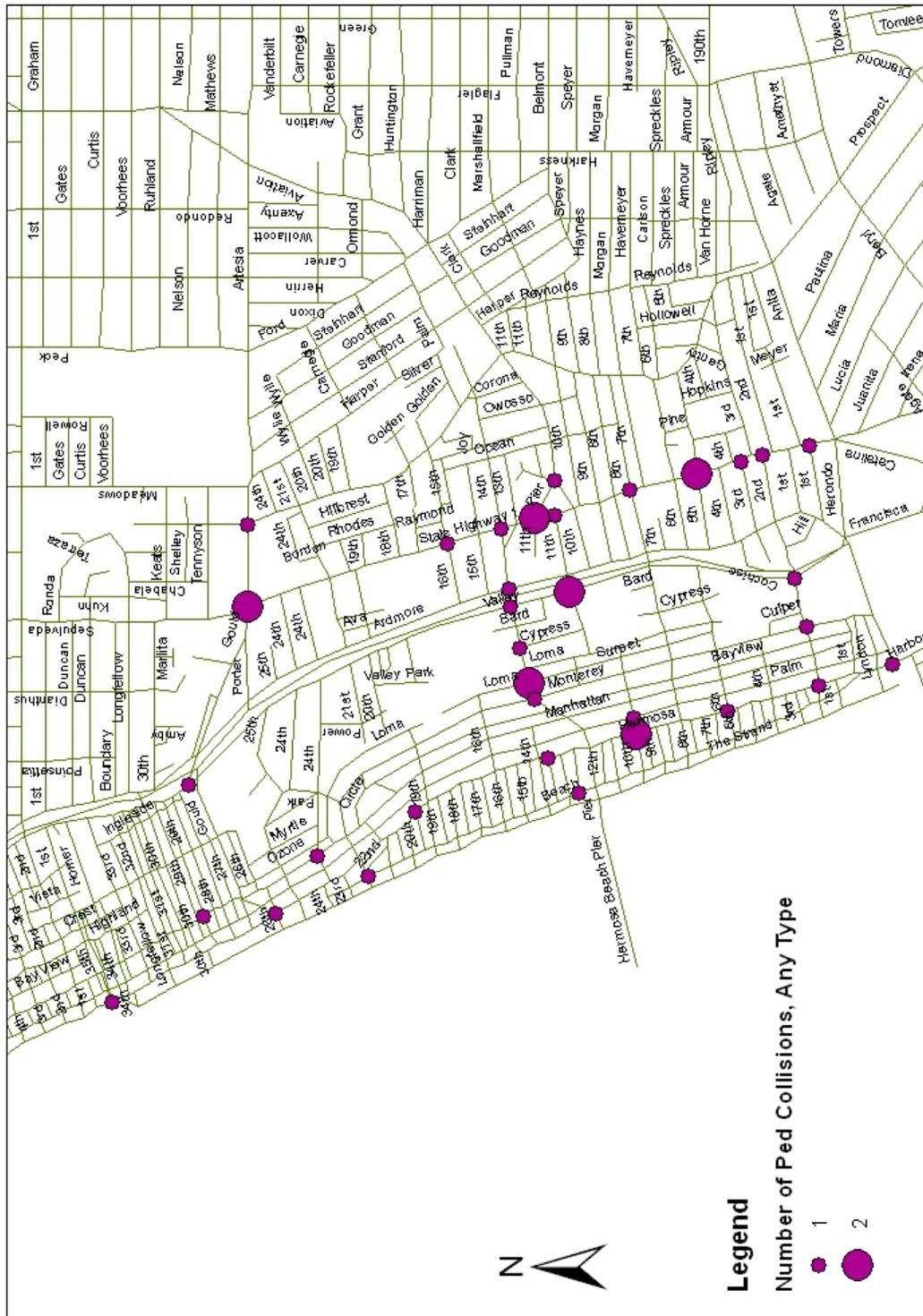


Figure 2-1: Hermosa Beach Pedestrian Collisions 2003-2008

Figure 2-2. Injury Collisions, January 2003 to April 2008

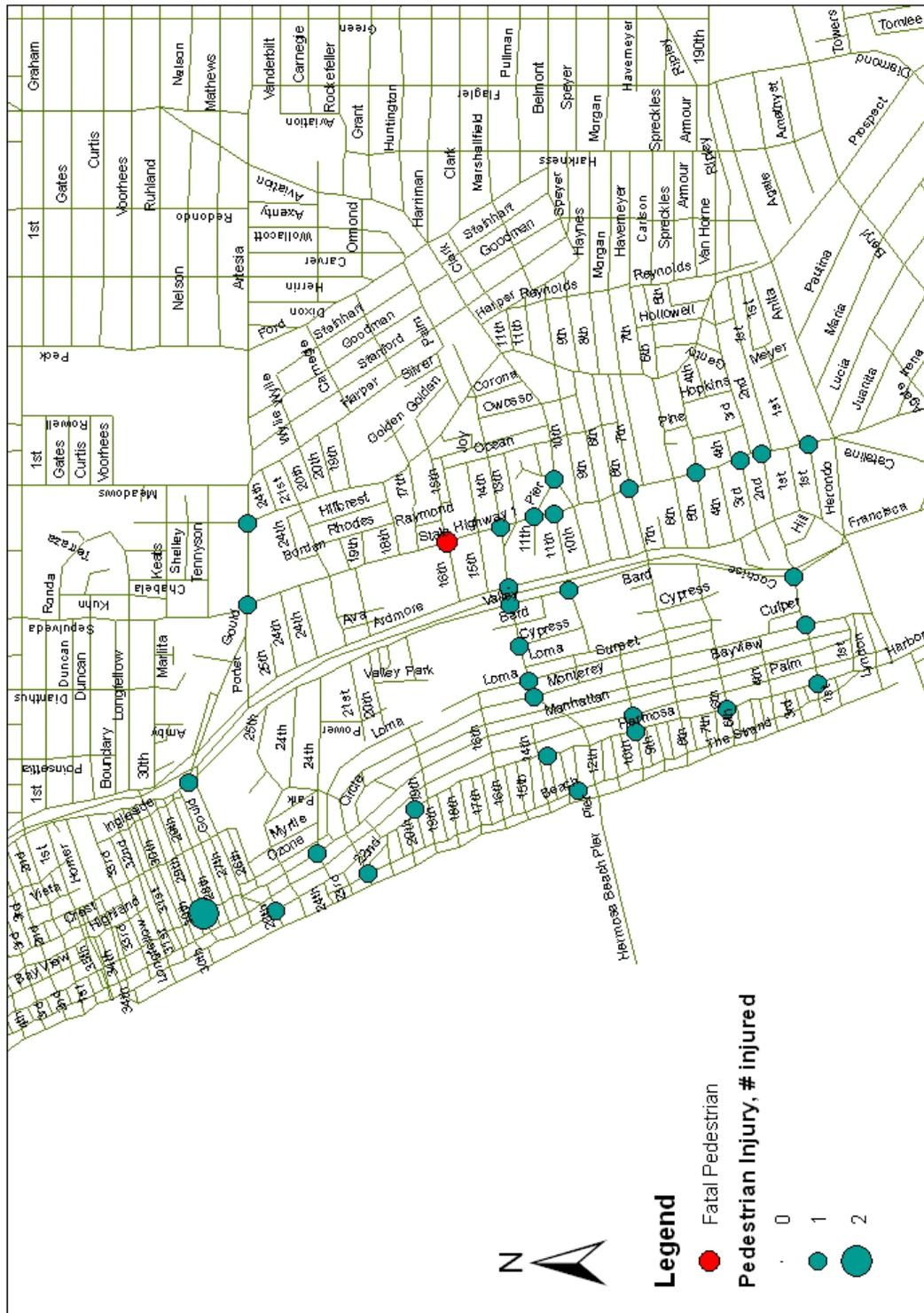


Figure 2-2: Hermosa Beach Pedestrian Collisions 2003-2008

3. BENCHMARKING ANALYSIS – RESULTS AND RECOMMENDATIONS

Prior to the two-day visit to the City, the PSA team conducted an in-depth phone interview with City staff regarding the City’s pedestrian safety policies, programs, and practices. The City’s responses were analyzed with a benchmarking matrix, as shown in Table 3-1, and were compared with national best practices. The table shows areas where Hermosa Beach exhibits key strengths, enhancements (could be better), and opportunities (deserves attention). The results in Table 3-1 are further elaborated in the following sections. The evaluators acknowledge that the number of recommendations is more than practical for the City to implement given available resources. The City should select recommendations for implementation based on local priorities.

The PSA team presented the results of this benchmarking analysis to the participant group on day two of our visit.

TABLE 3-1 SUMMARY OF PROGRAMS, POLICIES, AND PRACTICES BENCHMARKING ANALYSIS FOR HERMOSA BEACH			
Benchmark Topic	Key Strength	Enhancement	Opportunity
Americans with Disabilities Act (ADA) Improvements	X		
Enforcement	X		
General Plan: Densities, Mixed-Use Zones, and Pedestrian Nodes	X		
Neighborhood-sized Schools	X		
Newspaper Rack Ordinance	X		
Street Tree Requirements	X		
Traffic Signal and Stop Sign Warrants	X		
ADA Transition Plan for Streets and Sidewalks		X	
Bicycling Parking Requirements		X	
Collision History and Collision Reports		X	
Design Policies and Development Standards		X	
Institutional Obstacles		X	
Open Space Requirements		X	
Pedestrian Safety Education		X	
Pedestrian Safety Program and Walking Audits		X	
Pedestrian traffic control devices (Signs, Markings, and Signals)		X	

TABLE 3-1 (CONT.)

Benchmark Topic	Key Strength	Enhancement	Opportunity
Pedestrian/Bicycle Coordinator		X	
Public Involvement and Feedback Process		X	
Safe Routes to School Program and Grant Funding		X	
Speed Limits and Speed Surveys		X	
Street Furniture Requirements		X	
Traffic Calming Programs		X	
Transportation Demand Management Programs		X	
Crosswalk Installation, Removal, and Enhancement Policy			X
Economic Vitality			X
Historic Sites			X
Health Agencies			X
Inventory of sidewalks, informal pathways, and key pedestrian opportunity areas			X
Leading Pedestrian Intervals			X
Pedestrian Crossings			X
Pedestrian Volumes			X
Pedestrian Master Plan			X
Routine Accommodations/ New Development			X

Source: Fehr & Peers, 2008

3.1 KEY STRENGTHS

(a) ADA Improvements

Compliance with the Americans with Disability Act (ADA) guidelines is important not only to enhance community accessibility, but also to improve walking conditions for all pedestrians.

Hermosa Beach employs the following ADA practices:

- Street corners were updated eight years ago but some are now substandard.
- The City requires truncated domes on curb ramps with new development and all existing developments with additions of over 400 square feet of living area are required to bring the City's right-of-way up to current standards.

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- The City has a 3/4 rule: when the sidewalk lifts more than 3/4 inches repairs are required. The City's tree ordinance makes it the responsibility of the property owner to make repairs for root-damaged sidewalks unless the tree was planted by the City (the City has an approved tree list).
- On-street handicap spaces are provided where requested by residents.

Recommendations for Further Enhancement

- *Provide design guidelines for directional curb ramps, truncated domes, sidewalk cross slopes, and edge bands.*
- *Provide additional audible signals through a prioritization process.*

(b) Enforcement

Enforcement of pedestrian right-of-way laws and speed limits is an important complement to engineering treatments and education programs. The City has two motor officers. They focus on vehicle issues but dedicate about five percent of their time to pedestrian-related violations. They also focus their efforts on schools; officers are at schools every morning year-round, providing a valet service and directing traffic.

The Police Department shares resources for Public Works issues, and has shared staff with other cities in the past on DUI and pedestrian stings, as well as 'Click It or Ticket' campaigns.

Recommendation for Further Enhancement

Implement sustained enforcement efforts and involve the media. Use enforcement as an opportunity for education by distributing pedestrian safety pamphlets in lieu of, or in addition to, citations.

(c) General Plan: Densities, Mixed Uses, and Pedestrian Nodes

Planning principles contained in a city's General Plan can provide an important policy context for developing pedestrian-oriented, walkable areas. Transit-oriented development, higher densities, and mixed uses are important planning tools for pedestrian-oriented areas.

The Hermosa Beach General Plan includes the following pedestrian-oriented elements:

- Zoning and existing development provide for a range of low to high density, with higher densities near downtown and the beaches. The housing stock includes a mix of apartment and single family homes.

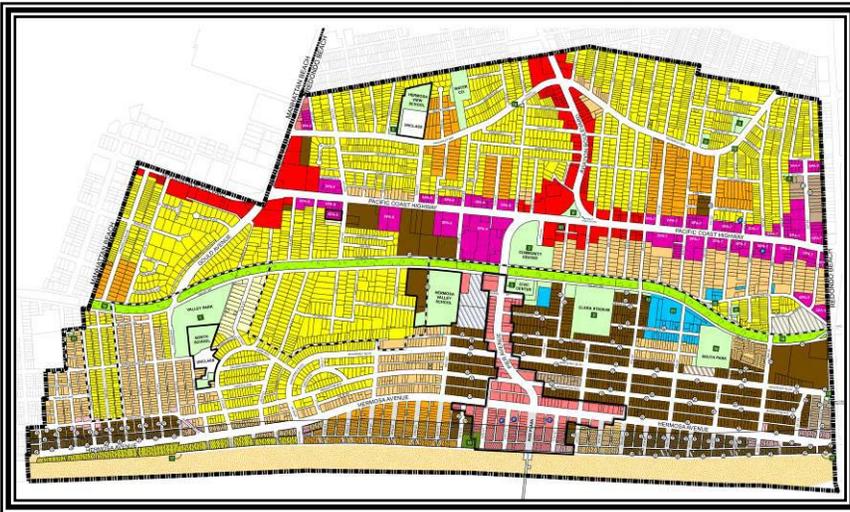


Image source: www.hermosabch.org

- Some mixed-use zones are present, with more being planned.
- In lieu parking fees are available instead of parking provision in the downtown core.

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Pedestrian nodes in the City include the Strand, Pier Avenue near the waterfront (where the street is closed to vehicle traffic), Pier Avenue between Hermosa Avenue and the Pacific Coast Highway, and Hermosa Avenue within a few blocks of Pier Avenue.

The City does not have a practice of transit-oriented development. However, MTA (Los Angeles County Metropolitan Transportation Authority) and Beach Cities Transit serve several areas of the City.

Recommendations for Further Enhancement

- *Consider form-based zoning for the downtown core. Form-based zoning is “how things should look, not just land use types and controls” and promotes attractive urban form while allowing a high degree of flexibility for project designers.*
- *Encourage mixed-use development, including additional residential development in the downtown core.*
- *Designate transit nodes and corridors and provide overlay zones with reduced parking requirements (or the option for in lieu fees if not currently in place) in these areas and density bonus options.*

(d) Neighborhood-Sized Schools

Neighborhood-sized schools, as opposed to mega-schools on the periphery, are a key ingredient for encouraging walking and bicycling to school. In addition, pedestrian and ADA improvements should be prioritized near schools.

In Hermosa Beach, neighborhood-sized schools are provided for elementary and middle school. A “Walking Wednesday” program has been established to encourage walking and bicycling to these schools. The high school is combined with other cities.



Image Source: www.beach-broker.com/Images%5CPhotos%5CHermosaViewSchool.jpg

Recommendation for Further Enhancement

Work with the Hermosa Beach City School District to establish a policy on neighborhood-sized and oriented schools as part of a Safe Routes to School policy.

(e) Newspaper Rack Ordinance

Newsracks may obstruct walkways and reduce accessibility and pedestrian conspicuity when ordinances are not in place. A Newsrack Ordinance improves the pedestrian realm by reducing clutter and organizing sidewalk zones. The Newsrack Ordinance details size, location, and maintenance requirements.

Hermosa Beach has a Newsrack Ordinance, which requires vendors to apply for a permit and location. The ordinance limits the style and the number of racks.

(f) Street Tree Requirements

Street trees enhance the pedestrian environment by providing shade and a buffer from vehicles. Street trees may also enhance property values, especially in residential neighborhoods. However, street trees, when improperly selected, planted, or maintained, may cause damage to adjacent public utilities.

The City has a comprehensive Street Tree Ordinance, which includes an inventory of City-maintained trees. The City also has a program that allows private donations to fund memorial benches and trees.

Recommendation for Further Enhancement

Where sidewalk widths do not support the addition of street trees, consider placing trees within on-street parking.

(g) Traffic Signal and Stop Sign Warrants

Providing all-way stop control or traffic signals at an intersection improves pedestrian safety by reducing speeds and pedestrian-vehicle conflicts.

In Hermosa Beach, pedestrian safety needs can justify all-way stop controlled intersections when vehicle volumes do not meet standard warrant requirements. The City Council must approve the installation and two-thirds of residents (including all adjoining property owners) must also approve the installation. Traffic signal installations follow warrants in the California Manual on Uniform Traffic Control Devices (MUTCD).

3.2 ENHANCEMENT AREAS

(a) Transition Plan for Streets and Sidewalks

The Hermosa Beach Public Works Director serves as the City's ADA Coordinator and is responsible for administering the City's ADA Transition Plan. This Plan sets forth the process for bringing public facilities into compliance with ADA regulations. The current Transition Plan applies to public buildings and does not focus on sidewalks, ramps, or other pedestrian facilities.

Recommendation for Further Enhancement

We recommend fully updating the ADA Transition Plan with added focus on sidewalk cross slopes at driveways, parking lot access, and directional curb ramps. As shown in the figure to the right, the ADA best practice for curb ramps is to provide two per corner, one to access each crosswalk. Many curbs in Hermosa Beach could be enhanced to provide two directional ramps rather than one diagonal curb ramp. Additional enhancements should include installing two pedestrian push buttons per corner, ensuring sufficient sidewalk widths (especially at "pinch points"), and correcting cross slopes. Select ADA improvement locations are noted in the walking audit recommendations.

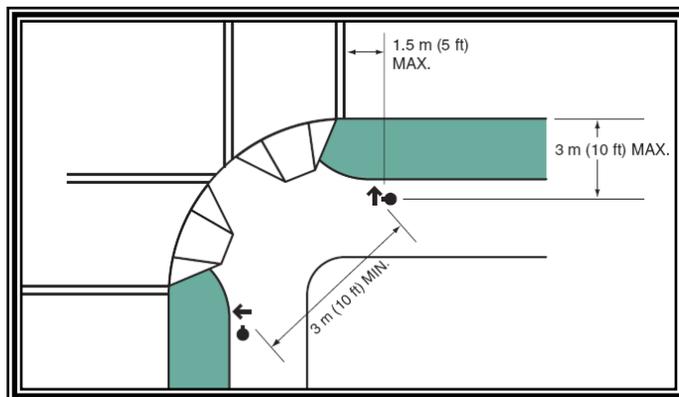


Image source: FHWA, Planning and Designing for Pedestrian Safety Course, 2008

(b) Bicycle Parking Requirements

Bicyclists become pedestrians after parking their bicycles or when walking their bicycles along pedestrian facilities. Safe and convenient bicycle parking is essential for encouraging bicycle travel (especially in lieu of vehicle travel).

The City does not have bicycle parking requirements in the Municipal Code, and bicycle theft is a significant concern.

Recommendations for Further Enhancement

- Develop a bicycle parking ordinance for new development.

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- Set a bicycle parking time limit to enable removal of stolen bicycles and make additional parking space available for bicyclists.
- Consider developing a “branded” rack for Hermosa Beach.
- Provide additional bicycle lockers, especially near pedestrian nodes.

(c) Collision History and Collision Reports

Geocoding (mapping) and comprehensive monitoring using Crossroads software, for example, allows for more proactive pedestrian safety projects and best practices such as crash typing for countermeasure selection. In Hermosa Beach, any injury collision is considered significant and data is collected. Crossroads is used to manage citations but is not employed for collision analysis. Collision data is not routinely mapped and trend analysis is not conducted on an annual basis.

Recommendation for Further Enhancement

Employ comprehensive collision monitoring to include a field inventory of collision locations and pedestrian volume counts. With sufficient pedestrian volume data, the City could prioritize collision locations based on collision rates (i.e., collisions/daily pedestrian volume), a practice that results in a more complete safety needs assessment. Treatments could then be identified for each location and programmatic funding allocated in the City’s Capital Improvements Program (CIP).

(d) Design Policies and Development Standards

Design policies and development standards can improve the pedestrian walking experience, encourage walking, enhance economic vitality, and offer funding opportunities for pedestrian improvements. Existing development standards in Hermosa Beach address sidewalks and ADA ramp design. However, the City does not have established design policies for other pedestrian treatments (such as refuge islands or bulbouts) or a Citywide Streetscape Master Plan.

Recommendations for Further Enhancement

- Develop a Streetscape and/or Landscape Architecture Master Plan for the City (expanding on current efforts for Upper Pier Avenue).
- Create design policies for new developments, including the provision of pedestrian treatments such as medians and bulbouts.
- Consider form-based zoning.

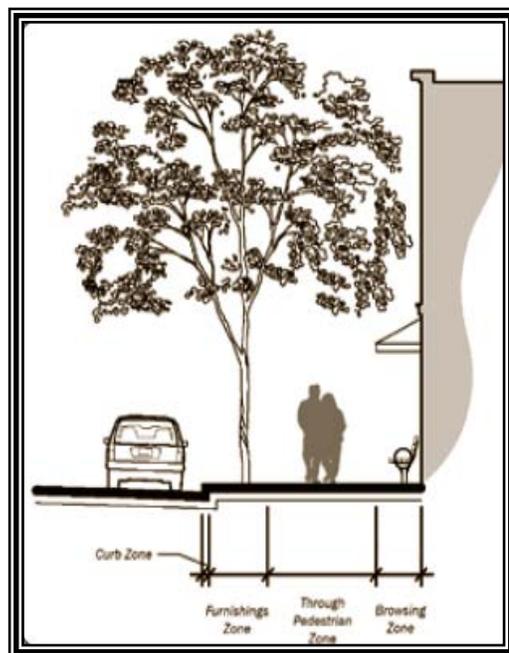


Image source: www.access-board.gov

(e) Institutional Coordination

Numerous agencies have jurisdiction over components of the Hermosa Beach transportation network, including MTA, Beach Cities Transit, and Caltrans. Institutional coordination associated with multiple agencies is necessary because of non-local control of right-of-way and differing policies regarding pedestrian accommodation. For example, Caltrans policies have historically restricted proposals for bulbouts, wider sidewalks, and other pedestrian-oriented improvements.

Other necessary institutional coordination efforts identified by the City include:

- Southern California Edison (utilities)
- Los Angeles International Airport (LAX)
- MTA
- Funding
- Encroachments (“Not in my backyard” mentality)

Recommendation for Further Enhancement

Recent Context Sensitive Solutions (CSS) and Routine Accommodations policies within Caltrans now require the agency to consider multimodal needs and engage in collaborative community planning. These new policies may reduce institutional challenges and the City should work with Caltrans and other agencies to identify new opportunities for joint planning of transportation facilities in Hermosa Beach. A quarterly “partners meeting” could provide a forum for new discussions and collaborations.

(f) Open Space Requirements

Hermosa Beach residents rate open space as among the City’s key assets and needs. The City has open space requirements for residential subdivisions. An in lieu fee is permitted where open space is not provided on-site. The City also designates several open space zones to maintain primary public open space.

Recommendation for Further Enhancement

Consider establishing open space requirements for residential and commercial uses in the downtown core with an in lieu fee option.

(g) Pedestrian Safety Education

Education is a critical element for a complete and balanced approach to improving pedestrian safety. Education campaigns should focus on pedestrians of all ages, especially emphasizing education of schoolchildren where safe walking habits may be instilled as lifelong lessons.

Pedestrian safety education programs in Hermosa Beach have included the following:

- “Walking Wednesday” program to encourage walking and bicycling to school.
- A “valet” program with motor officers at the schools. Motor officers have also spoken to school groups, and they participate in Walking Wednesday.
- Walking safety brochures provided by AAA.

Recommendations for Further Enhancement

- *Develop a pedestrian safety curriculum for schools and community centers.*
- *Conduct educational media campaigns.*

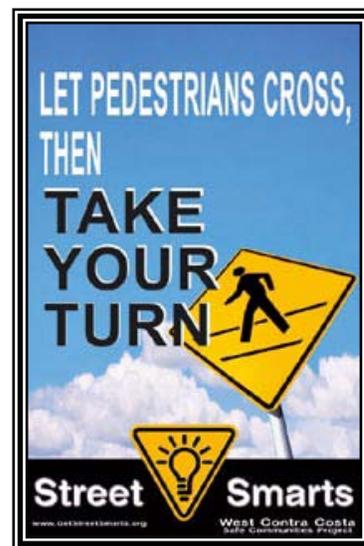


Image source:
www.getstreetsmarts.org

Additional campaigns in the City could include advertisements on buses and bus shelters, an in-school curriculum, community school courses, public service announcements, and/or Hermosa Beach brochures, among many other strategies. The Street Smarts program in San José, California, provides a model pedestrian safety education program (refer to www.getstreetsmarts.org for details).

(h) Pedestrian Safety Program and Walking Audits

Establishing a formal Pedestrian Safety Program with dedicated funding would be an overall strategy for implementing the programs recommended in this report and continuing the walking audit analysis conducted as part of this PSA. The City has not conducted walking audits in the past.

Recommendation for Further Enhancement

Establish a Citywide pedestrian safety program, which includes regular walking audits. This effort could complement other "green" programs within the City.

(i) Pedestrian Traffic Control Devices

The City converted all traffic signal heads to LED display, which increases their visibility for pedestrians and drivers and reduces maintenance costs. The City plans to install countdown pedestrian signals throughout the City soon.

The City does not have an inventory of traffic signals and does not conduct regular assessments of traffic control devices. However, Hermosa Beach does have a reporting system, where complaints/requests are received. The City then investigates the situation and makes improvements as needed.

A GIS-based inventory of pedestrian traffic control devices would enable project identification and prioritization, as well as project coordination with new development, roadway resurfacing, etc.

Recommendations for Further Enhancement

- *Develop a GIS inventory of pedestrian traffic control devices (potentially using GPS and video technology in police vehicles) and include maintenance records within the GIS database.*
- *Develop a policy for installing pedestrian countdown signals, including a prioritization method.*

(j) Pedestrian/Bicycle Coordinator

In a sampling of California cities, a full-time pedestrian/bicycle coordinator is typically provided at a ratio of one per 100,000 population. A part- or full-time coordinator could be tasked with convening a formal advisory committee and implementing many of the recommendations included in this report.

Hermosa Beach does not have an official bicycle/pedestrian coordinator on staff; however, Rick Morgan does spend some of his time on bicycle and pedestrian issues.

Recommendation for Further Enhancement

While additional staff may not be required, a current staff member (in the Public Works, Police, or other department) could be assigned the formal role of the City's coordinator and this role could be expanded to include interdepartmental coordination, grant writing, project management for a Pedestrian Master Plan, and staff liaison to a new pedestrian/bicycle subcommittee.

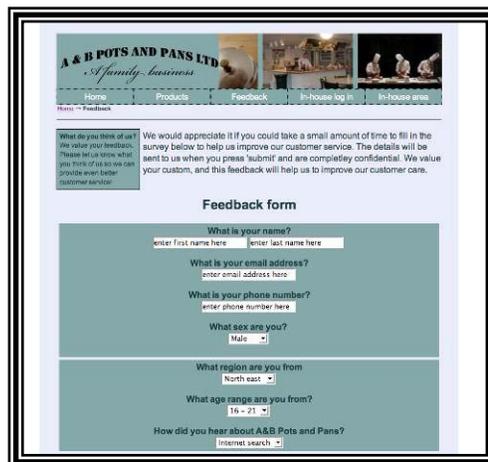
(k) Public Involvement and Feedback Process

Responding to public concerns through advisory groups and public feedback mechanisms represents a more proactive and inclusive approach to pedestrian safety compared to a conventional approach of reacting to pedestrian collisions.

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Public involvement and feedback practices in the City include the following:

- The primary pedestrian safety public involvement program in Hermosa Beach is the Safe Routes to Schools Committee that meets for grant proposals and other pedestrian-related initiatives. Participants include the school supervisor, principal, parents, and police.
- The Public Works Department receives complaints and/or requests for safety improvements on City streets via phone, email, and personal visits. The Police Department also receives requests and forwards them to Public Works.
- The Hermosa Beach Neighborhood Association has a website that includes a forum to discuss pedestrian safety issues (www.hbneighborhood.org).



The image shows a screenshot of a web-based feedback form for 'A & B POTS AND PANS LTD'. The form is titled 'Feedback form' and contains several input fields: 'What is your name?' (with sub-fields for first and last name), 'What is your email address?', 'What is your phone number?', 'What sex are you?' (with radio buttons for Male and Female), 'What region are you from?' (with a dropdown menu showing 'North east'), and 'What age range are you from?' (with a dropdown menu showing '16 - 21'). There is also a 'submit' button and a small text box asking how the user heard about the business.

Image source: michaelinegrad.com

Recommendations for Further Enhancement

- *Develop a web-based public feedback process. A web-based public feedback process would assist in the prioritization of pedestrian safety projects. Similar to a “report a pot hole” webform, this web-based feedback process would enable citizen input on key locations for pedestrian safety improvements, including new crosswalks, speed enforcement or traffic calming, or educational campaign venues.*
- *Convene a formal Pedestrian Advisory Committee.*

(I) Safe Routes to School Program and Grant Funding

Safe Routes to School programs encourage children to safely walk and bike to school. The Marin County Bicycle Coalition pioneered the concept, which has spread nationally (refer to best practices at www.saferoutestoschools.org). Safe Routes to School programs are important both for increasing physical activity (and reducing childhood obesity) and for reducing morning traffic associated with school drop-off (as much as 30% of AM peak hour traffic). Funding for Safe Routes to School programs and/or projects is available at the state and federal levels.



Hermosa Beach does not have a formal Safe Routes to School program, but has applied for funding three years in a row for and Streets. The City has formed committees with the school district to address crossing guards, walking, school buses, use of the green belt, and a map with adopted walking routes.

Recommendation for Further Enhancement

Establish a formal Safe Routes to School Program and continue applying for grant funding (including for select projects recommended in Chapter Four).

(m) Speed Limits and Speed Surveys

As shown in the following image, pedestrian fatality rates increase exponentially with vehicle speed. Thus, reducing vehicle speeds in pedestrian zones is one of the most important strategies for enhancing pedestrian safety.

Hermosa Beach has the following practices related to speed limits and speed surveys:

- Speed data is collected and reviewed every five years (speed and traffic volumes).
- The City does not have a policy for setting speed limits with respect to pedestrian volumes. Speed limits are posted upon request on residential streets.
- The default maximum speed limit is 25 MPH.

Recommendations for Further Enhancement

- *Consider lowering speed limits where high pedestrian volumes exist (including 15 MPH school speed limits).*
- *Provide traffic calming where speed surveys suggest speeding is a significant concern in pedestrian areas.*

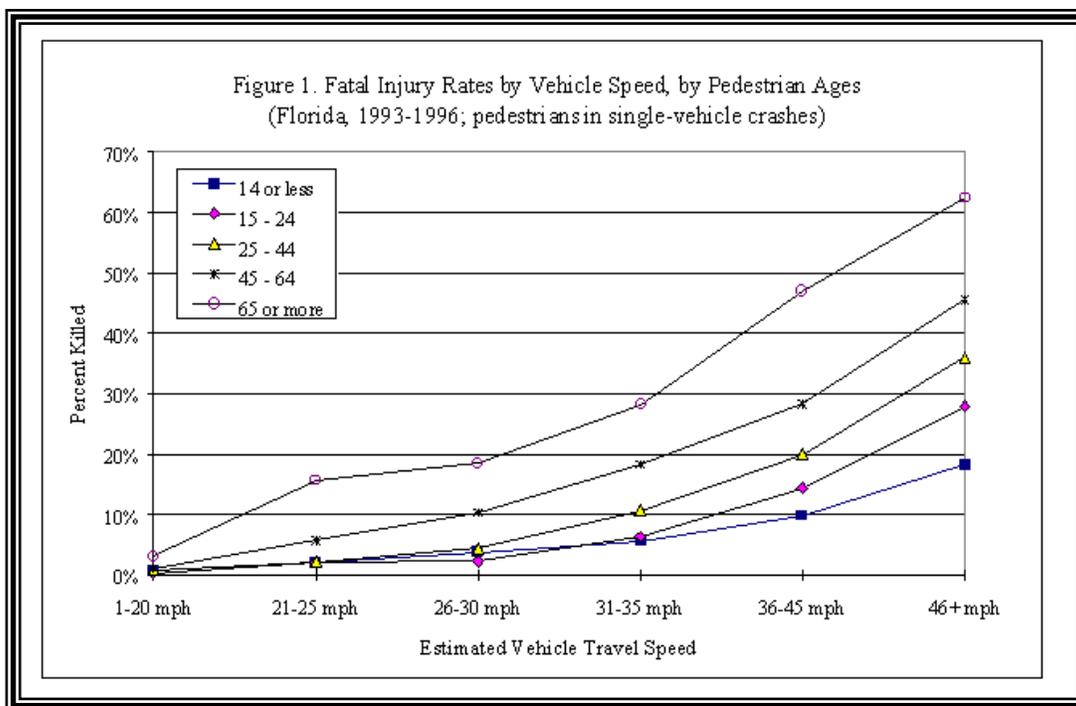


Image source: www.nhtsa.dot.gov/people/injury/research/pub/Image3.gif

(n) Street Furniture Requirements

Street furniture requirements encourage walking by accommodating pedestrians who may require benches to rest along the route or wait for transit. Uniform street furniture requirements also enhance the design of the pedestrian realm and may improve economic vitality.

Hermosa Beach does not have street furniture requirements, but street furniture is a permitted use in certain areas, particularly on Pier Avenue from Hermosa Avenue to the Strand.

Recommendation for Further Enhancement

Develop a Street Furniture Ordinance. This could be implemented in coordination with the Upper Pier Avenue Streetscape Project.

(o) Traffic Calming Programs

Traffic Calming Programs and Policies set forth a consensus threshold on neighborhood requests and approvals, as well as standard treatments and criteria.

Hermosa Beach does not have a formal traffic calming program, but the City has been considering traffic calming options for Pacific Coast Highway near Pier Avenue. The City also experimented with a road diet (four to three lane conversion) on Pier Avenue. The lane reduction did not negatively affect traffic except during special events. However, it had little political support and was not given approval for permanent implementation.

Other traffic calming efforts in the City include:

- Funding provided through OTS grants for: message boards, speed trailers, and speed feedback signs.
- A speed hump policy.
- An un-written policy regarding stop signs as traffic calming devices.
- Responses to public requests for enhanced enforcement.

Recommendation for Further Enhancement

A Neighborhood Traffic Management Program would spell out a process for developing area-wide traffic calming improvements. Allocation of resources to an on-going program would allow for a proactive approach. This could be implemented through a formal traffic calming program.

Best practices resources include: www.trafficcalming.org and the City of Sacramento's Traffic Calming Guidelines, available online at: www.cityofsacramento.org/transportation/dot_media/engineer_media/pdf/trafficcalming.pdf.

(p) Transportation Demand Management Programs

Transportation Demand Management (TDM) programs encourage multi-modal travel by incentivizing non-auto options. As new development occurs, TDM programs can be expanded, formalized, and strengthened.

Existing TDM efforts in the City include:

- TDM program for City employees, providing \$25/month for carpoolers, bicyclists, and pedestrians.
- Subsidized bus passes for eligible seniors and students.



Image source: www.ashevillenc.gov

The City does not have an official TDM coordinator.

Recommendations for Further Enhancement

- *Develop a formal TDM plan to be applied uniformly to new development.*
- *Create a TDM website with separate pages for employees, residents, and visitors.*
- *Provide remote parking options during special events with shuttles, wayfinding signs, and maps.*

3.3 OPPORTUNITY AREAS

(a) Crosswalk Installation, Removal, and Enhancement Policy

A formal policy for crosswalk installation, removal, and enhancements provides transparency in decision-making and adopts best practices in pedestrian safety and accommodation.

The City has no formal policy regarding crosswalk installation. In general, the City avoids installing marked crosswalks at uncontrolled locations and installs mid-block crosswalks only at school locations. The City tried to remove marked crosswalks on Pacific Coast Highway where nearby signals already existed, but business owners resisted this and the City Council voted to keep the marked crosswalks.

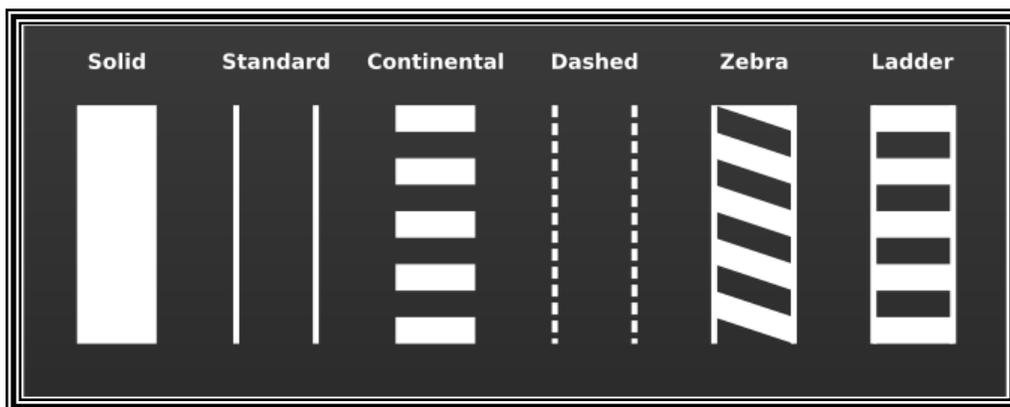


Image source: FHWA, Planning and Designing for Pedestrian Safety Course, 2008

Recommendation for Further Enhancement

Develop a crosswalk policy to address installation, removal, and enhancements, and to reflect best practices. Consider adopting the “triple four” crosswalk treatment as used in Sacramento and other jurisdictions in California.

Crosswalk policy resources include:

- *Sacramento Crosswalk Policy: www.cityofsacramento.org/dsd/development-engineering/documents/Ped_Safety.pdf*
- *Stockton Crosswalk Policy: www.stocktongov.com/publicworks/publications/PedGuidelines.pdf*
- *Federal Highway Administration Study on Marked versus Unmarked Crosswalks: safety.fhwa.dot.gov/ped_bike/docs/cros.pdf*
- *National Cooperative Highway Research Program Report on Crosswalks at Uncontrolled Locations: onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf*

- *Caltrans/UC Berkeley Study on Pedestrian/Driver Behavior at Marked versus Unmarked Crosswalks: repositories.cdlib.org/its/tsc/UCB-TSC-RR-2007-4/*

(b) Economic Vitality

Improving pedestrian safety and walkability can enhance economic vitality. Similarly, enhancing economic vitality through innovative funding options such as Business Improvement Districts (BIDs), parking management, and façade improvement programs can lead to a more active pedestrian area and encourage walking.

The City does not have BIDs, façade improvement programs, or parking management policies. However, a BID was created years ago to fund the construction of Pier Plaza. The City also has an in lieu parking fee program for developments in the downtown area (fees will be combined to fund a new parking structure) and encourages alleys behind residential developments for parking.

Recommendations for Further Enhancement

- *Create a Façade Improvement Program/Fund for Pier Avenue and Pacific Coast Highway businesses.*
- *Establish a parking policy for pedestrian nodes (such as areas surrounding Pier Avenue and the Strand) to include:*
 - *Parking time limits and potentially pricing*
 - *Off-site parking and shuttles for special events and summer weekends (in Chapter Four we recommend a new parking facility at the tennis courts site behind City Hall)*
 - *Parking wayfinding signs, maps, and other information (such as a website)*
 - *Valet parking options for restaurants, etc.*

(c) Historic Sites

Historic walking routes, such as the famous Freedom Trail in Boston, encourage walking and enhance economic vitality. Hermosa Beach has many historic sites and a history museum (refer to the City website: www.hermosabch.org/about/history/). The City also has a significant collection of public art.

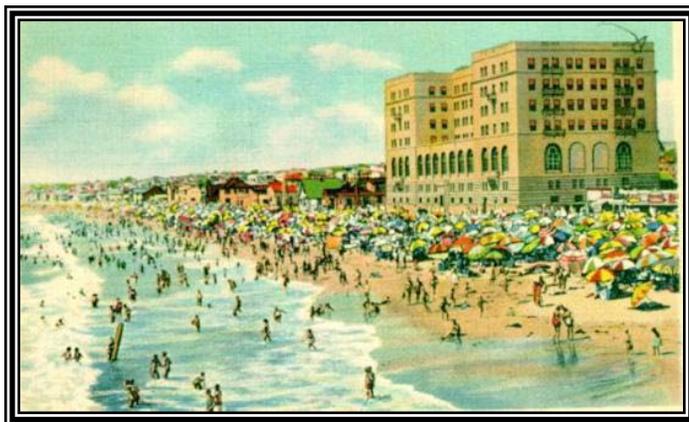


Image source: www.hermosabch.org

Recommendation for Further Enhancement

Develop a Hermosa Beach Historic Walking Tour to showcase historic sites and link key features of the City. Maps of the tour route and historic documentation materials could be made available online and wayfinding signs, maps, and plaques could also be provided throughout the City. Additionally, a staffed informational kiosk could be provided on Pier Plaza (potentially with a remote police station).

(d) Health Agencies

Health care and public health professionals can provide valuable input into safety risks and needs of pedestrians, connections to non-traditional funding sources, and assistance with identifying collision-

underreporting issues (which are common with pedestrian-vehicle collisions). Health agencies are not currently involved in the planning or design of pedestrian facilities in Hermosa Beach.

Recommendation for Further Enhancement

Meet with health agencies to discuss collaboration on preventative measures to be applied in the City.

(e) Inventory of Sidewalks, Informal Pathways, and Key Pedestrian Opportunity Areas

A GIS-based sidewalk inventory enables project identification and prioritization, as well as project coordination with new development, roadway resurfacing, etc.

The City has an inventory of existing sidewalks but it is not available as a GIS layer.

Recommendation for Further Enhancement

Create a GIS inventory of sidewalks as well as informal pathways and key pedestrian opportunity areas.

(f) Leading Pedestrian Intervals

Leading Pedestrian Intervals (LPI) provide pedestrians with a “head start” signal timing before vehicles on the parallel street are allowed to proceed through an intersection. A 2000 study by the Insurance Institute for Highway Safety found the LPI reduces conflicts between turning vehicles and pedestrians by enhancing the visibility of the pedestrian in the crosswalk.¹ LPIs are not currently utilized in Hermosa Beach.

Recommendation for Further Enhancement

- *The City should consider installing LPIs throughout Hermosa Beach, providing a right turn on red restriction in areas outside key pedestrian nodes.*

(g) Pedestrian Crossings

Crossing barriers such as railroads, freeways, and major arterials, may discourage or even prohibit pedestrian access. Additionally, crossing barriers are often associated with vehicle-pedestrian collisions (including severe injuries and fatalities). Identifying and removing barriers, as well as preventing new barriers, is essential for improving walkability and pedestrian safety.



Hermosa Beach does not have a formal policy for identifying and addressing barriers.

Recommendation for Further Enhancement

Identify key pedestrian barriers and establish a policy for reducing the barriers through prioritizing projects and requirements with future development.

¹ Van Houten, R.; Retting, R.A.; Farmer, C.M.; and Van Houten, J. 2000. Field evaluation of a leading pedestrian interval signal phase at three urban intersections. *Transportation Research Record* 1734:86-92.

(h) Pedestrian Volumes

Pedestrian volume data is important for prioritizing projects, developing collision rates, and determining appropriate pedestrian infrastructure. The City does not routinely collect pedestrian volume data, and does not require or request that data be collected as part of intersection counts.

Recommendation for Further Enhancement

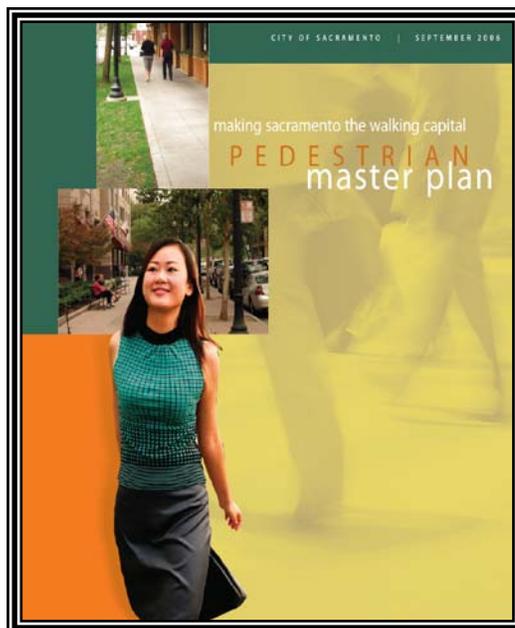
As part of a Routine Accommodations Policy, pedestrian and bicycle volumes could be collected with any traffic volume collection effort.

(i) Pedestrian Master Plan

This report includes a large menu of policy, program, and practices recommendations, as well as site-specific (and/or prototypical) engineering treatment recommendations. To move forward with the recommendations, a prioritized implementation list and budget will be required. A Pedestrian (or Pedestrian/Bicycle) Master Plan would document the City's vision for improving walkability and pedestrian safety, establish policies, programs, and practices, and outline the prioritization and budgeting process for project implementation.

Recommendation for Further Enhancement

Develop a Pedestrian Master Plan and designate a pedestrian/bicycle coordinator and advisory committee to implement the Plan. This effort could expand on current pedestrian safety and streetscape plans for Upper Pier Avenue.



A model Pedestrian Master Plan is the City of Sacramento Master Plan, available online at www.cityofsacramento.org/transportation/dot_media/street_media/sac-ped-plan_9-06.pdf.

(j) Routine Accommodations/New Development

Routine Accommodations or Complete Streets policies accommodate all modes of travel and travelers of all ages and abilities. Hermosa Beach does not have a Routine Accommodations policy but does assess fees for new development, which can be a key building block for such a policy.

Recommendations for Further Enhancement

To support Complete Streets, the City should consider establishing a Complete Streets Policy and accommodating all modes in standard cross-sections for collectors and arterials.

The following cities have established practices for "Complete Streets and Routine Accommodations," and may serve as models for Hermosa Beach:

- *Fort Collins, Colorado's Multi-Modal Level of Service Manual: www.fcgov.com/link-disclaimer.php?TABID=5&URL=http://www.co.larimer.co.us/engineering/GMARdStds/ApdxH%2010-01-02.pdf*
- *Charlotte, North Carolina's Urban Street Design Guidelines: www.charmeck.org/Departments/Transportation/Urban+Street+Design+Guidelines.htm*

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- *Sacramento Transportation and Air Quality Collaborative Best Practices for Complete Streets:*
www.completestreets.org/documents/FinalReportII_BPCCompleteStreets.pdf
- *San Francisco, California, Department of Public Health's Pedestrian Quality Index:*
www.sfphes.org/HIA_Tools/PEQI.pdf
- *San Francisco County Transportation Authority's Multi-modal Impact Criteria:*
www.sfcta.org/images/stories/Planning/CongestionManagementPlan/2007%20-%20appendix%2005%20-%20tia.pdf

4. WALKING AUDITS RESULTS AND RECOMMENDATIONS

Walking audits are typically conducted as a preliminary step in efforts to improve the pedestrian environment within the selected area. Many individuals can participate in a walking audit as a group: community residents, stakeholders, and affiliated individuals. During a walking audit, positive practices are observed and issues and opportunity areas are noted. Observations are based on how motorists are behaving around pedestrians, and how pedestrians are behaving, especially at intersections (for example, if pedestrians are crossing at unmarked locations to avoid certain intersections, why might they feel the need to do so?). For each opportunity area, the group discusses possible recommendations to address pedestrian safety concerns. Walking audits are highly interactive, with many observations and “teachable moments” explored during the walk. They are a means to observing and learning how to “see through the eyes of the pedestrian.”

This chapter presents the observations and recommendations made during the walking audit conducted in Hermosa Beach. Walking audit participants included City of Hermosa Beach staff members. A multidisciplinary participant group, comprised of City staff from various departments, City Police, and City design consultants, was involved in reviewing and refining the recommendations. Recommendations are based on best practices and discussions with the multidisciplinary participant group regarding local needs and feasibility. A glossary of the candidate treatment options is presented in Appendix A.



Recommendations are based on field observations and best practices in pedestrian design and safety. Conditions may exist in the focus areas that were not observed and are not compatible with recommendations in this report. Before recommendations are implemented, it is the responsibility of City staff to conduct further analysis to ensure that the recommendations are contextually appropriate and do not negatively impact pedestrian safety or accessibility from issues including, but not limited to: vehicular traffic, physical characteristics, unsafe conditions, or improper implementation.

4.1 SELECTION OF FOCUS AREA

The evaluation team worked with City staff to select the focus area for the walking audit based on the following criteria:

- Importance of the study: no other project has specifically addressed pedestrian safety needs in the area
- Demonstrated pedestrian safety concerns
- Presence of children and senior pedestrians
- Proximity to key generators, such as beach, retail corridors, and schools
- Availability of prototypical sites for broader Citywide application of recommendations

The walking audit study area was gleaned from the above criteria and was defined by a loop route consisting of several segments. For purposes of the recommendations, each segment was identified as a separate focus area. The following individual segments define the Hermosa Beach walking audit route (Figure 4-1):

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- Pier Avenue: from Valley Drive to Hermosa Avenue
- Hermosa Avenue: from Pier Avenue to Street
- Street: from Hermosa Avenue to Loma Drive
- Loma Drive: from Street to Pier Avenue
- Valley Drive: from Pier Avenue to Street
- Street: from Valley Drive/Ardmore Avenue to Pacific Coast Highway
- Pacific Coast Highway: from Street to Aviation Boulevard
- Place: from Pacific Coast Highway to City Hall

The following sections present the key issues identified during the walking audit and are separated into specific focus areas by location. Recommendations are presented to respond to the issues at each site. Focus area summary graphics are also presented with a compilation of all recommendations for the respective focus area. The graphics are available in large format in Appendix C.

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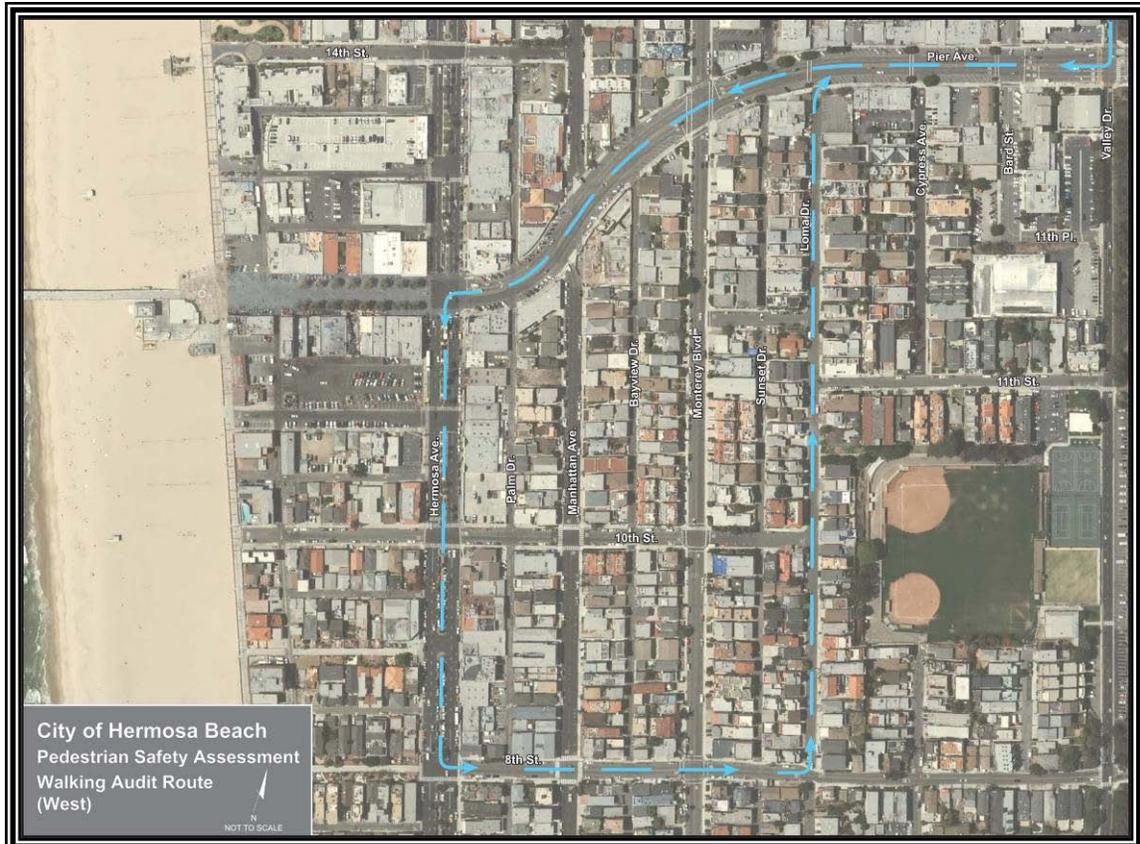


Figure 4-1. Focus Area Locations

4.2 FOCUS AREA 1: PIER AVENUE

Figure 4-2 presents the walking route for this portion of the walking audit. The walk began adjacent to the Fire Station on Pier Avenue, near City Hall, and ended near the Strand at Hermosa Avenue.

The City of Hermosa Beach is currently undergoing a revitalization project for Pier Avenue. Preliminary streetscape improvement plans have been developed for the focus study area and were available to evaluators during the walking audit (Figure 4-3). Therefore, the purpose of the first focus study area was to determine if pedestrian-related improvements could be made to the City's current plans for Pier Avenue. Many of the existing areas for improvement on Pier Avenue were addressed in the streetscape improvement plans.

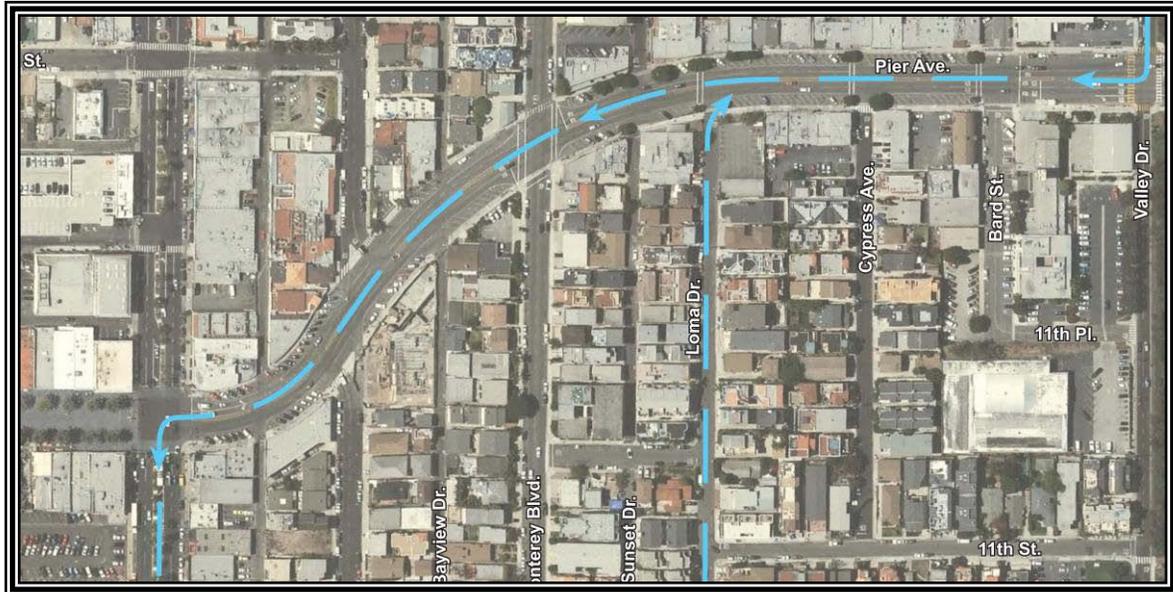


Figure 4-2. Pier Avenue Walking Audit Route Map

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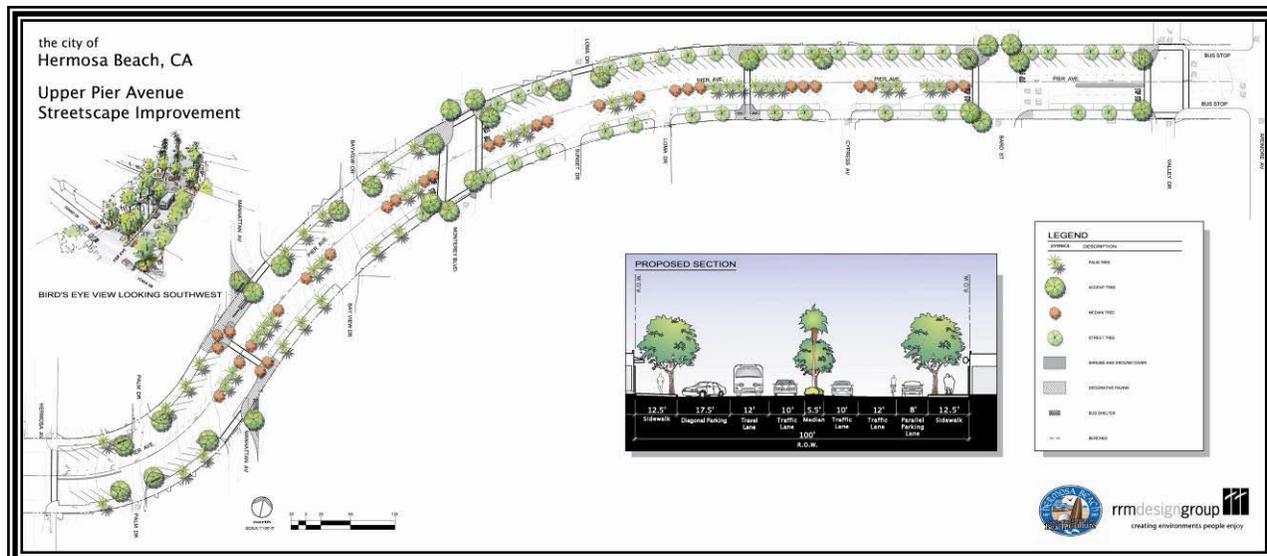


Figure 4-3. Preliminary Streetscape Improvement Plan for Hermosa Avenue (courtesy of RRM Design Group)

The following pedestrian safety and accessibility issues and positive practices were noticed as part of the Pier Avenue streetscape improvement plan review:

- Wide sidewalks
- Tree canopy to provide shade and context
- Angled on-street parking to provide a buffer for pedestrians from moving vehicles
- Bulbouts planned at some crossings
- Center median planned with landscaping
- Crosswalks are placed too infrequently for a pedestrian-friendly downtown

Recommendations

The following are general recommendations for the Pier Avenue streetscape improvement plan:

- Ensure that landscaping in bulbouts does not hinder sight distance for pedestrians
- Place stop signs in center median
- Install high-visibility crosswalk striping pattern (“triple four” crosswalk) at uncontrolled crossing locations with advanced yield lines (at approximately 20 feet in advance of the crosswalk)

4.2.1 Pier Avenue at Valley Drive/Ardmore Avenue

This location is characterized by two closely spaced all-way stop controlled intersections. The closely spaced intersections cause confusion and delay to motorists. The delay is compounded by pedestrian activity crossing Pier Avenue, especially across the multi-use path in the greenbelt, which forms the median between Valley and Ardmore.

A short-term recommendation to enhance the pedestrian facilities at this location is to install advanced stop bars to the Pier Avenue approaches to the intersection.

A large-scale improvement to the circulation at these intersections would be to replace both intersections with one roundabout. A detailed study should be conducted to determine the proper size and configuration of a roundabout at this location. The roundabout should be designed to ensure convenient pedestrian access through the median multi-use path. An unimpeded north-south connection along the multi-use path could be achieved with a bike/ped undercrossing (a pedestrian overcrossing would likely require a significant amount of land for the ADA-compliant ramps).

Pedestrian access through a roundabout is improved when the approaches to the roundabout are one lane in each direction. The City should strongly consider implementing one lane approaches to any potential roundabout at this location.



4.2.2 Pier Avenue at Bard Street

The following pedestrian safety and accessibility issues were found on the streetscape improvement plans at this location:

- Bulbouts with trees
- A marked crosswalk on only one side of the intersection

Recommendations:

- Ensure that landscaping in bulbouts does not hinder sight distance for pedestrians
- Include crosswalk on east side of intersection
- Add a “thumbnail” adjacent to the crosswalk to provide a median refuge for pedestrians
- Include advanced stop bars prior to the crosswalks

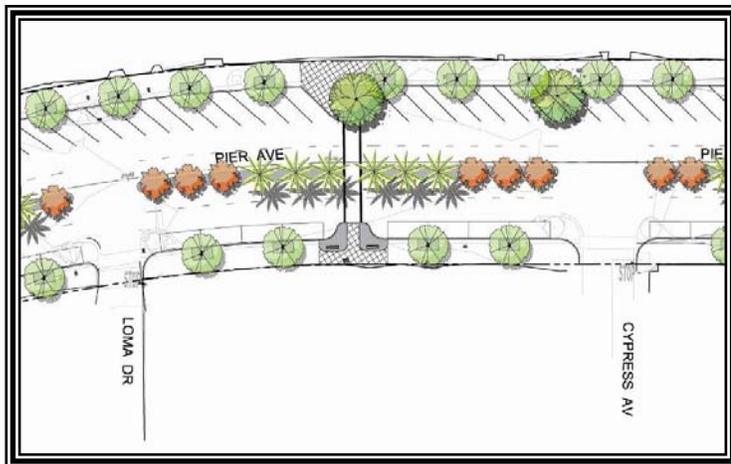


4.2.3 Pier Avenue between Cypress Avenue and Loma Drive

A mid-block pedestrian crossing was planned for Pier Avenue between Cypress Avenue and Loma Drive, as shown on the streetscape improvement plans. The adjacent uncontrolled intersections were not planned to have marked pedestrian crossings.

Our recommendations to the streetscape improvement plans are to:

- Remove the mid-block crosswalk and replace with crosswalks located at the Loma Drive and Cypress Avenue intersections
- Install bulbouts and crosswalks on the west legs of the Cypress Avenue and Loma Drive intersections
- Add yield lines in advance of the crosswalks



4.2.4 Pier Avenue at Monterey Boulevard

The streetscape improvement plans show bulbouts and crosswalks on all four approaches at the Pier/Monterey intersection.

To enhance the pedestrian facilities, beyond the items shown in the plans, it is recommended to:

- Add “thumbnails” adjacent to the crosswalks to provide a median refuge for pedestrians
- Include stop signs in medians
- Include advanced stop bars prior to the crosswalks

4.2.5 Pier Avenue at Manhattan Avenue

The Pier Avenue streetscape improvements plan to narrow the side-street approaches to the Pier/Manhattan intersection, thereby tightening the turning radius for vehicles and shortening the roadway crossing time for pedestrians.

To continue the pedestrian-friendly efforts of the streetscape plan it is recommended to:

- Relocate the bus stop area further east and to extend the curb/sidewalk to the edge of the roadway (requiring the bus to stop in the travel lane)
- Install a high visibility triple four crosswalk
- Limit landscaping in the median to low-lying shrubs
- Install a stutter flash sign to alert motorists of pedestrians in the roadway (likewise, an overhead flashing beacon could be installed in place of the recently developed stutter flash signs)

4.2.6 Pier Avenue at Hermosa Avenue

The Pier Avenue streetscape improvements do not include this intersection. Therefore, observations and recommendations made at this location were based on the existing facilities.

The following pedestrian safety and accessibility issues were found at this location:

- Large turning radii for vehicles
- Lack of striping to define the crosswalks

The Pier/Hermosa intersection, which forms the entrance to the City's pedestrian beach area, has the following positive pedestrian features:

- Wide crosswalks
- Textured pavement in the crosswalks



Recommendations:

- Stripe edges of crosswalks and add advanced stop bars
- Increase the size of the bulbouts (on Hermosa Avenue) to tighten the vehicular turning radius
- Provide a leading pedestrian interval for pedestrian signal timings

4.3 FOCUS AREA 2: HERMOSA AVENUE

Figure 4-4 presents the walking route for this portion of the walking audit, which traveled south along Hermosa Avenue from Pier Avenue to Street. Hermosa Avenue is the closest continuous vehicular roadway to the beach and the beachfront shops and amenities. The west (beach) side of the roadway is primary residential with on-street parking. The east side of the roadway is primary retail and office with on-street parking and several outdoor cafes. The roadway has parallel on-street parking along the center island median.

The following are general recommendations for the entire section of Hermosa Avenue evaluated in the walking audit (Pier Avenue to Street):

- Provide bicycle parking racks
- Add grates over tree wells
- Ensure adequate sidewalk clear zones
- Maintain ADA-compliant cross slopes and curb ramps





Figure 4-4.
Hermosa Avenue
Walking Audit
Route Map

4.3.1 Hermosa Avenue at 11th Street

The Hermosa/11th intersection is a signalized “T-intersection” with crosswalks on two of the three legs. The following pedestrian and safety accessibility issues were observed at this location:

- Wide intersection
- Varying types of crosswalk striping on different legs of the intersection
- Lack of crosswalk on south side of intersection
- On-street parking within signalized intersection

Recommendations:

- Change crosswalks to a uniform “standard” striping pattern
- Add crosswalk on southern approach to intersection
- Add bulbout along east side of intersection (i.e., widen the sidewalk at this location)
- Add bulbouts to the corners of 11th Street
- Include advanced stop bars
- Add “thumbnails” adjacent to the crosswalks to provide a median refuge for pedestrians
- Ensure curb ramps are ADA-compliant



4.3.2 Hermosa Avenue at 10th Street

The intersection of Hermosa Avenue/10th Street is an all-way stop controlled intersection with striped crosswalks on the Hermosa Avenue approaches. The following pedestrian and safety accessibility issues were observed at this location:

- Wide intersection with multiple lanes on Hermosa Avenue
- Lack of crosswalk striping on 10th Street
- Cracked, uneven crosswalk surfaces

Recommendations:

- Change crosswalks to a uniform “standard” striping pattern
- Stripe crosswalks on 10th Street approaches to intersection
- Add bulbouts at all corners



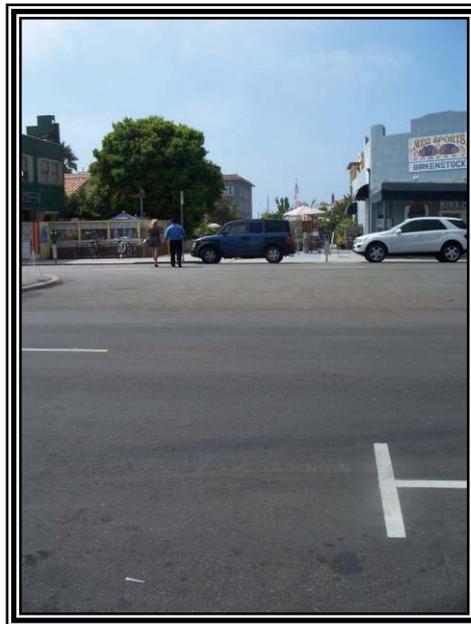
- Relocate bus stop closer to intersection and widen sidewalk to require bus to stop in travel lane
- Replace location of existing bus stop with on-street parking
- Include advanced stop bars
- Add “thumbnails” adjacent to the crosswalks to provide a median refuge for pedestrians
- Ensure smooth crosswalk surfaces and ADA-compliant curb ramps

4.3.3 Hermosa Avenue at 9th Street

A pedestrian only travelway, 9th Street, intersects with Hermosa Avenue and creates a strong pedestrian desire line to the beach. However, there is no mid-block crossing between the east side of Hermosa Avenue and 9th Street. On-street parking and a median break (for u-turning vehicles) exists at this location.

To facilitate pedestrian crossings at this location, it is recommended to:

- Install a raised crosswalk across Hermosa Avenue, thus linking the 9th Street pedestrian only travelway to the east side of the roadway (and requiring vehicles to slow on Hermosa Avenue)
- Include bulbouts at the raised crosswalk to shorten the cross-roadway distance for pedestrians
- Stripe the raised crosswalk with a high visibility “triple four” striping pattern
- Add advanced yield lines prior to the uncontrolled crossing
- Extend the landscaped median and eliminate the u-turn movement



4.3.4 Hermosa Avenue from 8th Street to 6th Street

As the walking audit evaluated the unsignalized intersections along Hermosa Avenue, a pattern emerged with respect to recommended enhancements. To validate the pattern, the walking audit continued south two blocks to observe conditions at the 7th Street and 6th Street intersections. In general, the recommendations are the same as previous intersections:

- For the Hermosa Avenue/8th Street intersection, the recommendations for the Hermosa Avenue/10th Street intersection should be implemented
- For the Hermosa Avenue/7th Street intersection, the recommendations for the Hermosa Avenue/9th Street intersection should be implemented
- For the Hermosa Avenue/6th Street intersection, the recommendations for the Hermosa Avenue/10th Street intersection should be implemented

4.4 FOCUS AREA 3: 8TH STREET

Figure 4-5 presents the walking route for this portion of the walking audit, which traveled south along 8th Street from Hermosa Avenue to Loma Drive. According to City staff, this portion of 8th Street experiences substantial pedestrian activity with significant barriers to public travel.

The following are general recommendations for the entire section of 8th Street evaluated in the walking audit:

- Ensure that a continuous 6-foot sidewalk (at a minimum) exists along the evaluated section of roadway
- Upgrade the cross slopes and curb ramps to be ADA-compliant
- Provide uniform crosswalk striping for the controlled and uncontrolled intersections
- Ensure that vegetation is well maintained and does not hinder the pedestrian travelways



Figure 4-5. 8th Street Walking Audit Route Map

4.4.1 8th Street at Palm Drive

The sidewalks along 8th Street are infamous in the City for their changing form, from public right-of-way to “private” front yards, all in a matter of several blocks. A prime example is the residential use on the northwest corner of 8th Street and Palm Drive, which has a well-established “private” front patio covering the public sidewalk.

To provide continuous pedestrian facilities along 8th Street, the City of Hermosa Beach should:

- Enforce the City’s right-of-way and prohibit encroachment onto public land, or
- Remove on-street parking adjacent to the patio and create a wide sidewalk which would connect to the existing sidewalk on both sides of the property



Extra caution should be taken when addressing the issue of private encroachment into public right-of-way. For example, the later recommendation may be seen as tacit approval and granting of public right-of-way to private landowners.

Examples of private encroachment into public right-of-way exist along 8th Street and are all equally obtrusive to pedestrian travel. These recommendations apply to all such instances along 8th Street.

4.4.2 8th Street at Manhattan Avenue

The all-way stop controlled intersection of 8th Street and Manhattan Avenue is characterized by large, continental style crosswalk striping patterns. At this intersection it is recommended to modify the striping to a standard parallel striping pattern (reserving the high visibility striping for uncontrolled crossings) and ensure curb ramps are ADA-compliant.



4.4.3 8th Street at Loma Drive

The following pedestrian safety and accessibility issues were observed at this location:

- Lack of striped crosswalks
- Drainage channel in natural pedestrian path on north side of intersection
- Lack of curb ramp at southwest corner
- Vegetation at southwest corner which limits pedestrian activity and potentially hinders motorists' view of pedestrians

Recommendations:

- Trim vegetation and add ADA-compliant curb ramps at southwest corner
- Stripe standard crosswalk pattern on all approaches (outside of drainage area, if possible)
- Add advanced stop bars

4.5 FOCUS AREA 4: LOMA DRIVE

Figure 4-6 presents the walking route for this portion of the walking audit, which traveled north along Loma Drive from 8th Street to Pier Avenue.

Two main concerns exist on Loma Drive: private encroachment into public right-of-way and ADA accessible facilities. It is recommended the City work to regain control of the public right-of-way and install sidewalks and ADA accommodations along the entire roadway. It is understandable that this recommendation is a large burden on staff resources, specifically given the relatively low volume of pedestrian activity on the residential roadway. In the interim, the City should consider Loma Drive as a bicycle boulevard, especially given its low volume, low speed nature.





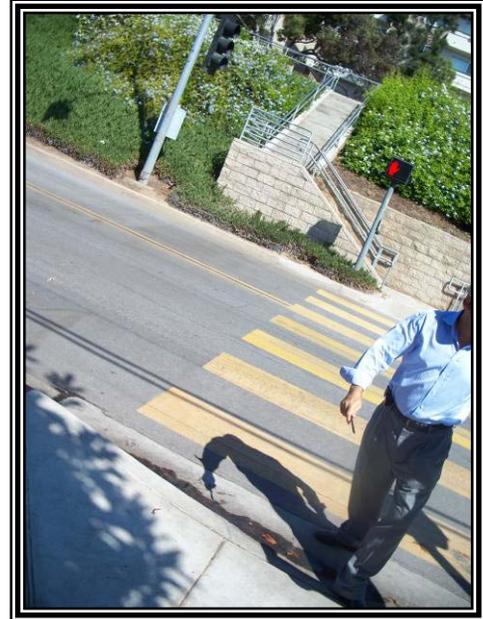
Figure 4-6.
Loma Drive
Walking Audit
Route Map

4.6 FOCUS AREA 5: HERMOSA VALLEY ELEMENTARY SCHOOL

Figure 4-7 presents the walking route for this portion of the walking audit, which traveled north along Valley Drive from Pier Avenue to Hermosa Valley Elementary School. The main area of concern in this focus area was at Hermosa Valley Elementary School.

The following pedestrian safety and accessibility issues and positive practices were found at this location:

- Signalized pedestrian crossing
- “Walk to School Wednesday” program
- Direct access (including ADA access) to the City’s multi-use greenbelt trail facility
- Narrow sidewalk along Valley Drive with limited to no landscape buffer
- Lack of defined pedestrian connection across multi-use greenbelt trail (no firm surface within multi-use trail for ADA accessibility)
- Lack of barrier along Ardmore Avenue to channelize pedestrians to controlled crossing



Recommendations:

- Widen sidewalk along Valley and provide landscape buffer
- Provide ADA-accessible connection across multi-use greenbelt trail (potential to use firm surface without asphalt or concrete)
- Install landscape buffer or low wall along Ardmore Avenue (both would help to channelize pedestrians to the marked crossing; however, a low wall would improve the drainage issue currently experienced at this location)
- Provide a raised crosswalk across Ardmore Avenue between the multi-use path and 16th Street



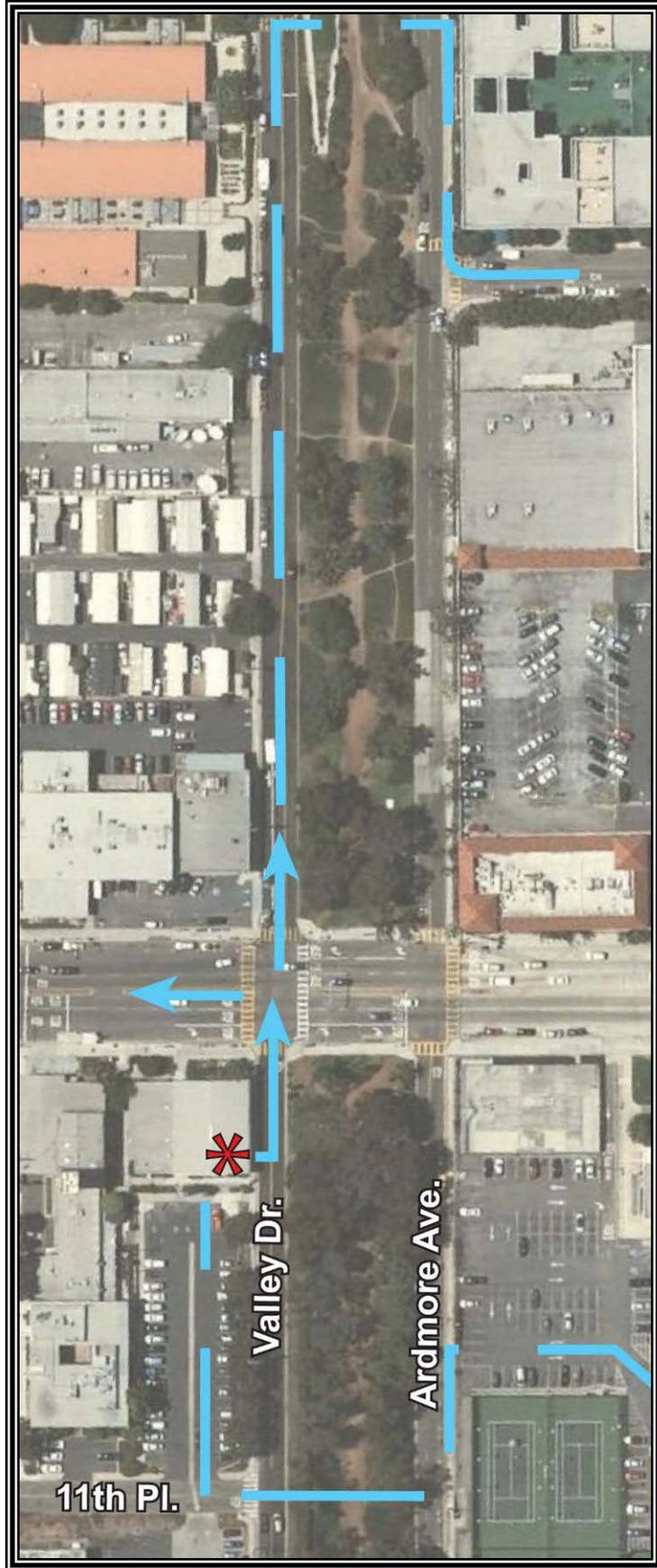


Figure 4-7.
Valley/Ardmore
Walking Audit
Route Map

4.7 FOCUS AREA 6: 16TH STREET

Figure 4-8 presents the walking route for this portion of the walking audit, which traveled east along 16th Street from Ardmore Avenue to the Pacific Coast Highway. Non ADA-compliant driveway cross slopes were the most significant pedestrian accessibility issues found along 16th Street. The City should work with to correct driveway cross slopes and ensure the sidewalks are ADA-compliant.

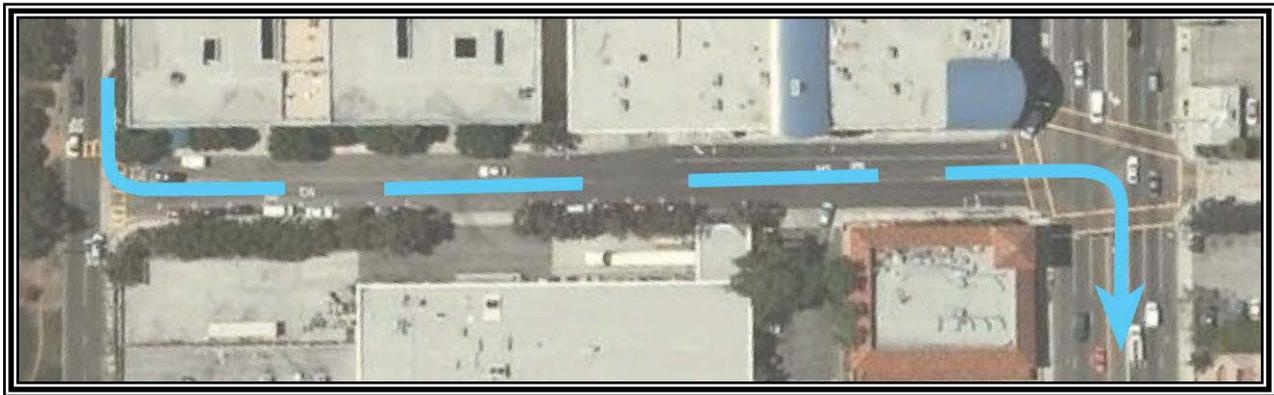


Figure 4-8. 16th Street Walking Audit Route Map

4.8 FOCUS AREA 7: PACIFIC COAST HIGHWAY

The famed Pacific Coast Highway is California State Route 1, a partly Caltrans controlled facility, which travels north-south through the City of Hermosa Beach. Figure 4-9 presents the walking route for this portion of the walking audit, which traveled south along the Pacific Coast Highway from 16th Street to Aviation Boulevard. With respect to the pedestrian, the Pacific Coast Highway in this area is characterized by:

- Narrow sidewalks
- Multiple in-sidewalk obstacles, such as utility poles and sign posts
- Multiple driveway access points
- Driveway cross slope issues



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- No on-street parking buffer (during peak travel periods)
- Fast moving traffic with significant volume

General recommendations along the Pacific Coast Highway include:

- Relocate utilities underground
- Provide landscaping buffer
- Develop access management policy to limit the number of driveways
- Address ADA-compliancy concerns at intersections and driveways
- Provide a minimum of 3.5 feet/second crossing speed for pedestrian signal timings (ideally, a 3.0 feet/second timing would be used in locations where needed, such as near the community center on Pier Avenue)

Bus stops on the Pacific Coast Highway along the walking audit route were evaluated based on the appropriateness of their locations. It is recommended to work with MTA to relocate the bus stops closer to the signalized intersections of Pier Avenue and Aviation Boulevard. Locating the bus stops close to signalized crossings may reduce the chances of pedestrians crossing the six lane Pacific Coast Highway at a mid-block location.



Figure 4-9.
Pacific Coast Highway
Walking Audit
Route Map

4.9 FOCUS AREA 8: PACIFIC COAST HIGHWAY/16TH STREET

The following pedestrian safety and accessibility issues were found at the intersection of the Pacific Coast Highway/16th Street:

- Wide roadway crossing
- Non-perpendicular crossings
- Lack of sidewalk on one side of 16th Street east of the intersection
- Poor pavement conditions in crosswalk
- Fast moving traffic with significant volume

Recommendations:

- Close southbound right-turn lane and replace with parking and corner bulbout
- Open sidewalk along north side of 16th Street (east of the Pacific Coast Highway)
- Prohibit right turn on red in the eastbound and westbound directions
- Provide 3.0 feet/second crossing speed for pedestrian signal timings
- Install pedestrian countdown signals
- Upgrade to full ADA accessibility: curb ramps, push buttons, signals
- Fix cracked pavement in crosswalks
- Provide permanent speed feedback signs on northbound and southbound approaches to intersection



4.10 FOCUS AREA 9: PACIFIC COAST HIGHWAY/PIER AVENUE

The following pedestrian safety and accessibility issues were found at the intersection of the Pacific Coast Highway/Pier Avenue:

- Wide roadway crossing
- Lack of crosswalk on the north side of the intersection
- Large turning radius from the Pacific Coast Highway to Pier Avenue



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- Fast moving traffic with significant turning volumes

Recommendations:

- Add bulbout to tighten the turning radius for vehicles traveling southbound on the Pacific Coast Highway to westbound on Pier Avenue
- Add advanced stop bars prior to the crosswalks

4.11 FOCUS AREA 10: PACIFIC COAST HIGHWAY/AVIATION BOULEVARD

The following pedestrian safety and accessibility issues were found at the intersection of the Pacific Coast Highway/Aviation Boulevard:

- Wide roadway crossing
- Diagonal crosswalk
- Lack of crosswalk striping on the eastside of the intersection
- Non ADA-compliant crossing facilities

Recommendations:

- Close driveway on west side of roadway and realign the northern crosswalk to be perpendicular with roadway
- Provide ADA access through right turn refuge islands
- Add advanced yield lines prior to crosswalks on “free” right turns (not after the crosswalk)
- Add advanced stop bars prior to the crosswalks



4.12 FOCUS AREA 11: PIER AVENUE/VONS MAIN DRIVEWAY

The Vons shopping center main driveway on Pier Avenue is adjacent to the City's Civic Center. There is a strong pedestrian desire line to travel from the Civic Center to the shopping center (shops, restaurants, etc.). Currently, no formalized pedestrian crossing exists at this location, yet pedestrians (including children) have been observed crossing at this mid-block, uncontrolled location.

To enhance the pedestrian facilities at this location, it is recommended to:

- Install raised, landscaped medians
- Stripe a high visibility crosswalk
- Add advanced yield lines prior to the crosswalk
- Provide a High Intensity Activated Crosswalk (HAWK signalized crossing)
- Install a bulbout on the Civic Center side of the roadway to shorten the pedestrian crossing distance

4.13 FOCUS AREA 12: CIVIC CENTER

The final section of the walking audit traveled along 11th Place from the Pacific Coast Highway back to the City Hall. The potential redevelopment of the Civic Center area became a focal point. The Civic Center would, of course, remain in place. However, the grade differences between the street and the adjacent parking lots provide opportunity for a parking structure and additional pedestrian-related amenities.

The following pedestrian safety and accessibility issues were found at this site:

- Lack of a well defined path between Pacific Coast Highway and the multi-use greenbelt trail along 11th Place
- Non ADA accessible walkways
- Lack of striped crosswalks on Ardmore Avenue and Valley Drive (despite pedestrian desire lines)
- Lack of formal path across multi-use greenbelt trail (despite pedestrian desire lines and presence of informal path)

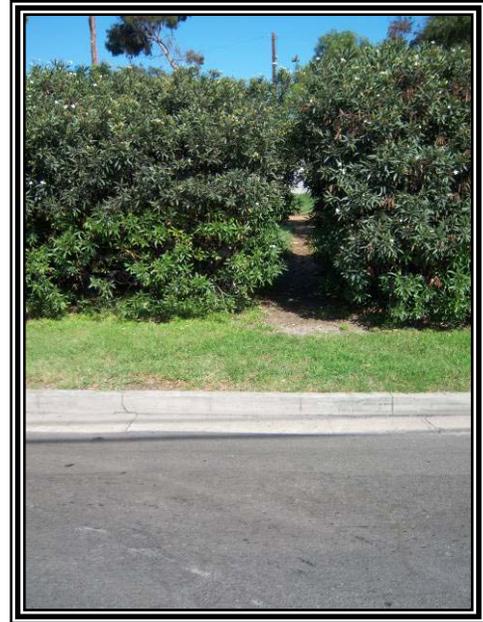
Recommendations:

- Create ADA-compliant paths across multi-use greenbelt trail at 11th Place and 11th Street
- Stripe high visibility crosswalks across Ardmore Avenue and Valley Drive at 11th Place and 11th Street



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- Develop a Hermosa Beach shuttle turn-around/mini transit center adjacent to the Civic Center
- Build a parking structure in the rear of the Civic Center (with tennis courts on top level and pedestrian paseos providing connections between the Pacific Coast Highway and the multi-use greenbelt trail)
- Create a City of Hermosa Beach historical walking tour which would begin at the Hermosa Beach Museum in the Civic Center



**APPENDIX A
GLOSSARY OF CANDIDATE TREATMENT OPTIONS**

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
Traffic Control Countermeasures			
Traffic Signal or All-Way Stop	Conventional traffic control devices with warrants for use based on the Manual on Uniform Control Devices (MUTCD)	Reduces pedestrian-vehicle conflicts and slows traffic speeds	Must meet warrants based on traffic and pedestrian volumes; however, exceptions are possible based on demonstrated pedestrian safety concerns (collision history)
HAWK Beacon Signal	HAWK (High Intensity Activated Crosswalks) are pedestrian-actuated signals that are a combination of a beacon flasher and a traffic control signal. When actuated, HAWK displays a yellow (warning) indication followed by a solid red light. During pedestrian clearance, the driver sees a flashing red "wig-wag" pattern until the clearance interval has ended and the signal goes dark.	Reduces pedestrian-vehicle conflicts and slows traffic speeds	Useful in areas where it is difficult for pedestrians to find gaps in automobile traffic to cross safely, but where normal signal warrants are not satisfied. Appropriate for multi-lane roadways.
Overhead Flashing Beacons	Flashing amber lights are installed on overhead signs, in advance of the crosswalk or at the entrance to the crosswalk.	The blinking lights during pedestrian crossing times increase the number of drivers yielding for pedestrians and reduce pedestrian-vehicle conflicts. This measure can also improve conditions on multi-lane roadways.	Best used in places where motorists cannot see a traditional sign due to topography or other barriers.
Stutter Flash	The Overhead Flashing Beacon is enhanced by replacing the traditional slow flashing incandescent lamps with rapid flashing LED lamps. The beacons may be push-button activated or activated with pedestrian detection.	Initial studies suggest the stutter flash is very effective as measured by increased driver yielding behavior. Solar panels reduce energy costs associated with the device.	Appropriate for multi-lane roadways.
In-Roadway Warning Lights	Both sides of a crosswalk are lined with pavement markers, often containing an amber LED strobe light. The lights may be push-button activated or activated with pedestrian detection.	This measure provides a dynamic visual cue, and is increasingly effective in bad weather	Best in locations with low bicycle ridership, as the raised markers present a hazard to bicyclists. May not be appropriate in areas with heavy winter weather due to high

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
			<p>maintenance costs. May not be appropriate for locations with bright sunlight. The lights may cause confusion when pedestrians fail to activate them and/or when they falsely activate.</p>
High-Visibility Signs and Markings	<p>High-visibility markings include a family of crosswalk striping styles including the "ladder" and the "triple four." One style, the zebra-style crosswalk pavement markings, were once popular in Europe, but have been phased out because the signal-controlled puffin is more effective (see notes). High-visibility fluorescent yellow green signs are made of the approved fluorescent yellow-green color and posted at crossings to increase the visibility of a pedestrian crossing ahead.</p>	<p>FHWA recently ended its approval process for the experimental use of fluorescent yellow crosswalk markings and found that they had no discernable benefit over white markings.</p>	<p>Beneficial in areas with high pedestrian activity, as near schools, and in areas where travel speeds are high and/or motorist visibility is low.</p>
In-Street Pedestrian Crossing Signs	<p>This measure involves posting regulatory pedestrian signage on lane edge lines and road centerlines. The In-Street Pedestrian Crossing sign may be used to remind road users of laws regarding right of way at an unsignalized pedestrian crossing. The legend STATE LAW may be shown at the top of the sign if applicable. The legends STOP FOR or YIELD TO may be used in conjunction with the appropriate symbol.</p>	<p>This measure is highly visible to motorists and has a positive impact on pedestrian safety at crosswalks.</p>	<p>Mid-block crosswalks, unsignalized intersections, low-speed areas, and two-lane roadways are ideal for this pedestrian treatment. The STOP FOR legend shall only be used in states where the state law specifically requires that a driver must stop for a pedestrian in a crosswalk.</p>
Pedestrian Crossing Flags	<p>Square flags of various colors, which are mounted on a stick and stored in sign-mounted holders on both side of the street at crossing locations; they are carried by pedestrians while crossing a roadway.</p>	<p>This measure makes pedestrians more visible to motorists.</p>	<p>Appropriate for mid-block and uncontrolled crosswalks with low visibility or poor sight distance.</p>
Advanced Yield Lines	<p>Standard white stop or yield limit lines are placed in advance of marked, uncontrolled crosswalks.</p>	<p>This measure increases the pedestrian's visibility to motorists, reduces the number of vehicles encroaching on the crosswalk, and improves general pedestrian conditions on multi-lane</p>	<p>Useful in areas where pedestrian visibility is low and in areas with aggressive drivers, as advance limit lines will help prevent drivers from encroaching on the crosswalk. Addresses the multiple-threat collision on multi-lane</p>

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
		roadways. It is also an affordable option.	roads.
Geometric Treatments			
Pedestrian Overpass/ Underpass	This measure consists of a pedestrian-only overpass or underpass over a roadway. It provides complete separation of pedestrians from motor vehicle traffic, normally where no other pedestrian facility is available, and connects off-road trails and paths across major barriers.	Pedestrian overpasses and underpasses allow for the uninterrupted flow of pedestrian movement separate from the vehicle traffic.	Grade separation via this measure is most feasible and appropriate in extreme cases where pedestrians must cross roadways such as freeways and high-speed, high-volume arterials. This measure should be considered a last resort, as it is expensive and visually intrusive.
Road Diet (aka Lane Reduction)	The number of lanes of travel is reduced by widening sidewalks, adding bicycle and parking lanes, and converting parallel parking to angled or perpendicular parking.	This is a good traffic calming and pedestrian safety tool, particularly in areas that would benefit from curb extensions but have infrastructure in the way. This measure also improves pedestrian conditions on multi-lane roadways.	Roadways with surplus roadway capacity (typically multi-lane roadways with less than 15,000 to 17,000 ADT) and high bicycle volumes, and roadways that would benefit from traffic calming measures.
Median Refuge Island	Raised islands are placed in the center of a roadway, separating opposing lanes of traffic with cutouts for accessibility along the pedestrian path.	This measure allows pedestrians to focus on each direction of traffic separately, and the refuge provides pedestrians with a better view of oncoming traffic as well as allowing drivers to see pedestrians more easily. It can also split up a multi-lane road and act as a supplement to additional pedestrian tools.	Recommended for multi-lane roads wide enough to accommodate an ADA-accessible median
Staggered Median Refuge Island	This measure is similar to traditional median refuge islands; the only difference is that the crosswalks in the roadway are	Benefits of this tool include an increase in the concentration of pedestrians at a	Best used on multi-lane roads with obstructed pedestrian visibility or with off-set intersections

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
	staggered such that a pedestrian crosses half the street and then must walk towards traffic to reach the second half of the crosswalk. This measure must be designed for accessibility by including rails and truncated domes to direct sight-impaired pedestrians along the path of travel.	crossing and the provision of better traffic views for pedestrians. Additionally, motorists are better able to see pedestrians as they walk through the staggered refuge.	
Curb Extension	Also known as a pedestrian bulb-out, this traffic-calming measure is meant to slow traffic and increase driver awareness. It consists of an extension of the curb into the street, making the pedestrian space (sidewalk) wider.	Curb extensions narrow the distance that a pedestrian has to cross and increases the sidewalk space on the corners. They also improve emergency vehicle access and make it difficult for drivers to turn illegally.	Due to the high cost of installation, this tool would only be suitable on streets with high pedestrian activity, on-street parking, and infrequent (or no) curb-edge transit service. It is often used in combination with crosswalks or other markings.
Reduced Curb Radii	The radius of a curb can be reduced to require motorists to make a tighter turn.	Shorter radii narrow the distance that pedestrians have to cross; they also reduce traffic speeds and increase driver awareness (like curb extensions), but are less difficult and expensive to implement.	This measure would be beneficial on streets with high pedestrian activity, on-street parking, and no curb-edge transit service. It is more suitable for wider roadways and roadways with low volumes of heavy truck traffic.
Curb Ramps	Curb ramps are sloped ramps that are constructed at the edge of a curb (normally at intersections) as a transition between the sidewalk and a crosswalk.	Curb ramps provide easy access between the sidewalk and roadway for people using wheelchairs, strollers, walkers, crutches, handcars, bicycles, and also for pedestrians with mobility impairments who have trouble stepping up and down high curbs.	Curb ramps must be installed at all intersections and mid-block locations where pedestrian crossings exist, as mandated by federal legislation (1973 Rehabilitation Act and 1990 Americans with Disabilities Act). Where feasible, separate curb ramps for each crosswalk at an intersection should be provided rather than having a single ramp at a corner for both crosswalks.

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
Raised Crosswalk	A crosswalk whose surface is elevated above the travel lanes.	Attracts drivers' attention; encourages lower travel speeds by providing visual and tactile feedback when approaching the crosswalk.	Appropriate for multi-lane roadways, roadways with lower speed limits that are not emergency routes, and roadways with high levels of pedestrian activity, such as near schools, shopping malls, etc.
Improved Right-Turn Slip-Lane Design	Right-turn slip lanes (aka channelized right-turn lanes) are separated from the rest of the travel lanes by a pork chop-shaped striped area. This measure separates right-turning traffic and streamlines right-turning movements. Improved right-turn slip lanes would provide pedestrian crossing islands within the intersection and be designed to optimize the right-turning motorist's view of the pedestrian and of vehicles to his or her left.	This measure reduces the pedestrian's crossing distance and turning vehicle speeds.	Appropriate for intersections with high volumes of right-turning vehicles.
Chicanes	A chicane is a sequence of tight serpentine curves (usually an S-shape curve) in a roadway, used on city streets to slow cars.	This is a traffic-calming measure that can improve the pedestrian environment and pedestrian safety.	Chicanes can be created on streets with higher volumes, given that the number of through lanes is maintained; they can also be created on higher-volume residential streets to slow traffic. Chicanes may be constructed by alternating parallel or angled parking in combination with curb extensions.
Pedestrian Access and Amenities			
Marked Crosswalk	Marked crosswalks should be installed to provide designated pedestrian crossings at major pedestrian generators, crossings with significant pedestrian volumes (at least 15 per hour), crossings with high vehicle-pedestrian collisions, and other areas based on engineering judgment	Marked crosswalks provide a designated crossing, which may improve walkability and reduce jaywalking.	Marked crosswalks alone should not be installed on multi-lane roads with more than about 10,000 vehicles/day. Enhanced crosswalk treatments (as presented in this table) should supplement the marked crosswalk.

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
Textured Pavers	Textured pavers come in a variety of materials (for example, concrete, brick, and stone) and can be constructed to create a textured pedestrian surface such as a crosswalk or sidewalk. Crosswalks are constructed with the pavers, or can be made of stamped concrete or asphalt.	Highly visible to motorists, this measure provides a visual and tactile cue to motorists and delineates a separate space for pedestrians, as it provides a different texture to the street for pedestrians and motorists. It also aesthetically enhances the streetscape.	Appropriate for areas with high volumes of pedestrian traffic and roadways with low visibility and/or narrow travel ways, as in the downtown area of towns and small cities.
Anti-Skid Surfacing	Surface treatment is applied to streets to improve skid resistance during wet weather. This is a supplementary tool that can be used to reduce skidding in wet conditions.	Improves driver and pedestrian safety.	Appropriate for multi-lane roadways and roadways with higher posted speed limit and/or high vehicle volumes or collision rates.
Accessibility Upgrades	Treatments such as audible pedestrian signals, accessible push buttons, and truncated domes should be installed at crossings to accommodate disabled pedestrians.	Improves accessibility of pedestrian facilities for all users.	Accessibility upgrades should be provided for all pedestrian facilities following a citywide ADA Transition Plan.
Pedestrian Countdown Signal	Displays a "countdown" of the number of seconds remaining for the pedestrian crossing interval. In some jurisdictions the countdown includes the walk phase. In other jurisdictions, the countdown is only displayed during the flashing don't walk phase.	Increases pedestrian awareness and allows them the flexibility to know when to speed up if the pedestrian phase is about to expire.	The forthcoming 2009 MUTCD is expected to require all pedestrian signals to incorporate countdown signals within ten years. The signals should be prioritized for areas with pedestrian activity, roadways with high volumes of vehicular traffic, multi-lane roadways, and areas with elderly or disabled persons (who may walk slower than others may).
Transit			
High-Visibility Bus Stop Locations	This measure should include siting bus stops on the far side of intersections, with paved connections to sidewalks where landscape buffers exist.	Provides safe, convenient, and inviting access for transit users; can improve roadway efficiency and driver sight distance.	Appropriate for all bus stops subject to sight distance and right-of-way constraints.

PEDESTRIAN IMPROVEMENT MEASURES			
Measure	Description	Benefits	Application
Transit Bulb	Transit bulbs or bus bulbs, also known as nubs, curb extensions, or bus bulges are a section of sidewalk that extends from the curb of a parking lane to the edge of the through lane.	Creates additional space at a bus stop for shelters, benches, and other passenger amenities.	Appropriate at sites with high patron volumes, crowded city sidewalks, and curbside parking.
Enhanced Bus Stop Amenities	Adequate bus stop signing, lighting, a bus shelter with seating, trash receptacles, and bicycle parking are desirable features at bus stops.	Increase pedestrian visibility at bus stops and encourage transit ridership	Appropriate at sites with high patron volumes

**APPENDIX B
RESOURCE LIST**

RESOURCE LIST
<p><i>A Guide for Reducing Collisions Involving Pedestrians (NCHRP Report 500)</i> ://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_500v10.pdf</p>
<p>Pedestrian and Bicycle Information Center ://www.walkinginfo.org/</p>
<p>National Center for Safe Routes to School ://www.saferoutesinfo.org/</p>
<p><i>Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations (HRT-04-100)</i> ://www.thrc.gov/safety/pubs/04100/index.htm</p>
<p><i>How to Develop a Pedestrian Safety Action Plan (FHWA-SA-05-12)</i> ://www.walkinginfo.org/pp/howtoguide2006.pdf</p>
<p><i>Improving Pedestrian Safety at Unsignalized Crossings (NCHRP Report 562)</i> ://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_562.pdf</p>
<p><i>Road Safety Audits: Case Studies (FHWA-SA-06-17)</i> ://safety.fhwa.dot.gov/rsa/rsa_cstudies.htm</p>
<p><i>Pedestrian Road Safety Audit Guidelines and Prompt Lists</i> ://drusilla.hsrc.unc.edu/cms/downloads/PedRSA.reduced.pdf</p>
<p>PEDSAFE: The Pedestrian Safety Guide and Countermeasure Selection System (FHWA-SA-04-003) ://www.walkinginfo.org/pedsafe/</p>
<p>Pedestrian and Bicycle Crash Analysis Tool (PBCAT) ://www.bicyclinginfo.org/bc/pbcats.cfm</p>
<p>FHWA, <i>A Resident's Guide for Creating Safe and Walkable Communities</i> ://safety.fhwa.dot.gov/ped_bike/ped/ped_walkguide/index.htm</p>
<p>FHWA, <i>Pedestrian Safety Guide for Transit Agencies</i> (FHWA-SA-07-017) http://safety.fhwa.dot.gov/ped_bike/ped/ped_transguide/</p>
<p>FHWA Pedestrian Safety Training Courses: a pedestrian safety action plan (two-day course) <i>next California course:</i> ://www.google.com/calendar/embed?src=lssandt@email.unc.edu for pedestrian safety (two-day course) <i>next California course:</i> ://www.google.com/calendar/embed?src=lssandt@email.unc.edu and designing for pedestrian safety (three-day course) <i>next California course:</i> ://www.google.com/calendar/embed?src=lssandt@email.unc.edu</p>
<p>Adapted from FHWA <i>Pedestrian Road Safety Audit Guidelines and Prompt Lists</i></p>

**APPENDIX C
RECOMMENDATION GRAPHICS**



City of Hermosa Beach
Pedestrian Safety Assessment
Walking Audit Route
(West)

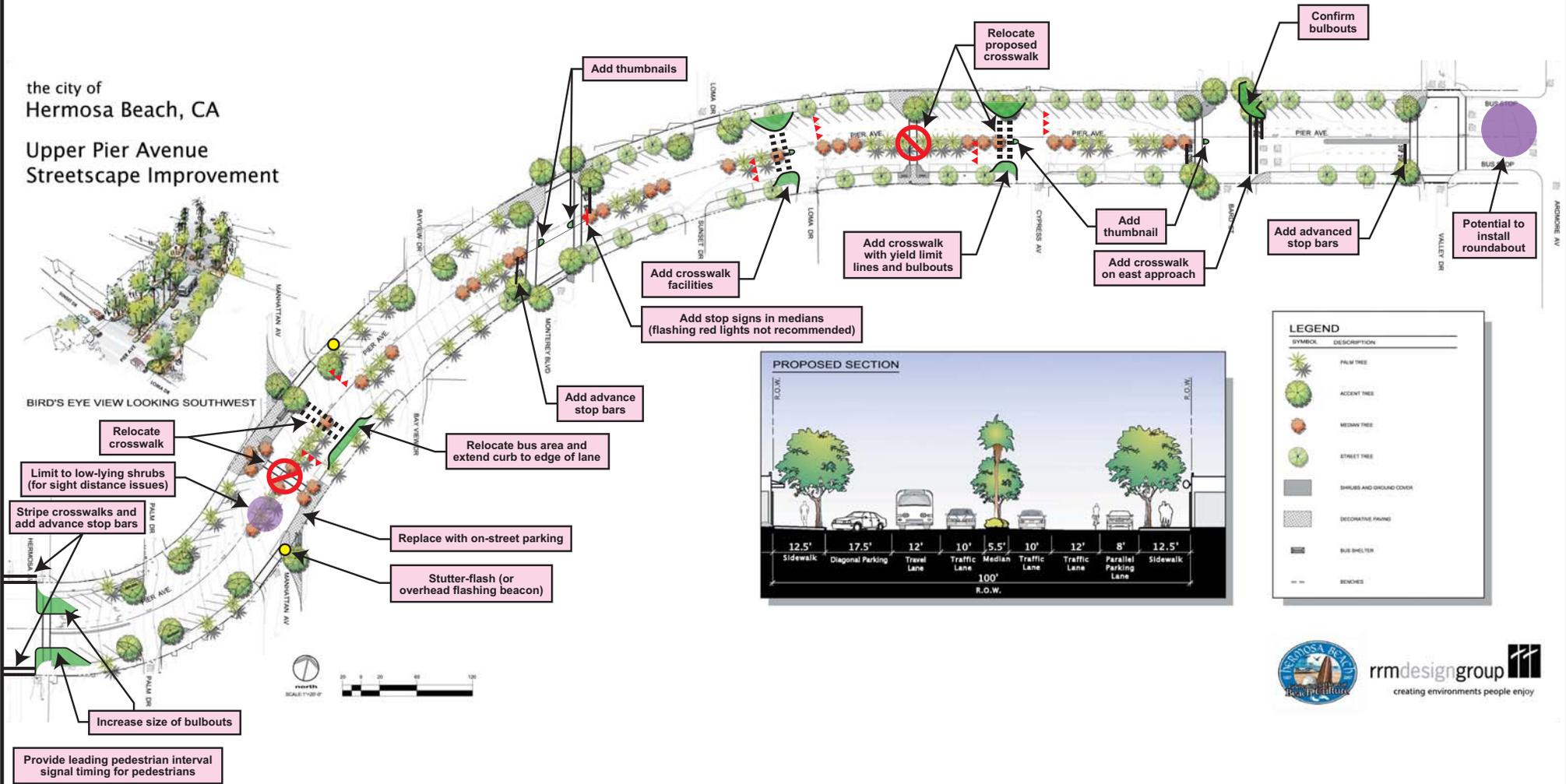




City of Hermosa Beach
Pedestrian Safety Assessment
Walking Audit Route
(East)



the city of
Hermosa Beach, CA
Upper Pier Avenue
Streetscape Improvement



City of Hermosa Beach
Pedestrian Safety Assessment
Pier Avenue





14th St.

Pier Ave.

Hermosa Ave.

Cypress Ave.

Bard St.

Valley Dr.

11th Pl.

Additions:
- parallel striping
- bulbouts
- thumbnails

Add bulbout along east side

Bayview Dr.

Monterey Blvd.

Sunset Dr.

Loma Dr.

11th St.

Typical All-Way Stop Controlled Int.:
- bulbouts
- parallel crosswalk striping
- advanced stop bars
- thumbnails

Advance stop bars

Add crosswalk to south leg of intersection

Loma Drive:
- regain public right-of-way (when applicable)
- consider as "bike boulevard"

11th St.

Relocate bus stop (and place within lane)

Replace on-street parking

10th St.

Extend median (eliminate U-Turn movement)

9th St.

Install raised crosswalk with bulbouts

Advanced yield lines for uncontrolled crossings

Palm Dr.
Manhattan Ave.

Provide continuous sidewalk in public right-of-way

Parallel crosswalk striping

8th St.

Trim vegetation and add curb ramps at this corner

Advanced stop bars

Same treatment as 10th St. (controlled)

7th St.

Typical controlled pedestrian crossing with advanced stop bars and parallel crosswalk striping

Same treatment as 10th St. (controlled)

Same treatment as 9th St. (uncontrolled)

Same treatment as 10th St. (controlled)

6th St.

City of Hermosa Beach
Pedestrian Safety Assessment
Hermosa Avenue



16th Street Corridor Recommendations

- Address ADA issues:
 - sidewalk connectivity
 - driveway cross-slopes

Hermosa Beach School

Widen sidewalk along Valley and provide landscape buffer

- Provide ADA-accessible connection across Greenway
- Provide landscape buffer/low wall along Ardmore
- Provide raised crosswalk across Ardmore
- Provide sidewalk along 16th Street

Close right-turn lane and replace with parking and corner bulb

Open sidewalk

- Prohibit RTOR in EB and WB directions
- Provide for 3 feet/sec pedestrian walking speed
- Install pedestrian countdown signals
- Upgrade ADA accessibility: ramps, push buttons, signals
- Provide permanent "speed feedback" signs on NB and SB approaches

16th St.

16th St.

Pier Ave.

15th St.

14th St.

13th St.

11th Pl.

Provide crosswalk with HAWK pedestrian signal (prior to or in-lieu of roundabout at Valley)

Relocate bus stops to far sides of intersections at Pier (SB) and 10th / Aviation (NB) to reduce jaywalking

Add crosswalks and walkways

Provide parking structure with tennis courts on top level and pedestrian paseos

Hermosa Beach shuttle turnaround/transit center

Provide ADA ramp access through "porkchop"

11th St.

10th St.

Close driveway

Relocate yield line prior to crosswalk

Manhattan Ave.

Bayview Dr.

Monterey Blvd.

Sunset Dr.

Loma Dr.

Cypress Ave.

Bard St.

Valley Dr.

Ardmore Ave.

Pacific Coast Hwy.

Aviation Blvd.

City of Hermosa Beach
Pedestrian Safety Assessment
Pacific Coast Highway

