




Statewide Pedestrian Master Plan



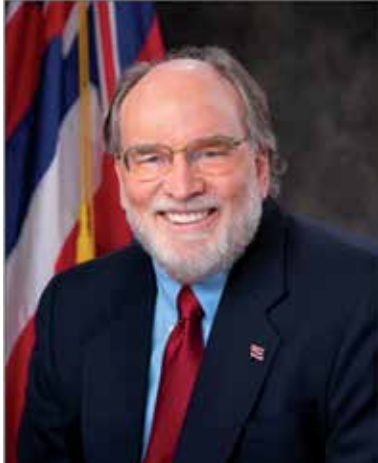
Prepared for
**Highways Division
Department of Transportation
State of Hawaii**

May 2013





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The State of Hawaii continues its commitment to making pedestrians safer on our roadways with the completion of our Statewide Pedestrian Master Plan. This plan will provide a solid foundation towards re-conceptualizing our highways and road systems to include an improved focus on pedestrian safety and mobility.

A product of years of collaboration between our state Department of Transportation, county governments, police departments, numerous public and private agencies and community groups, the plan will support a multi-modal transportation system that will provide improved balance between pedestrians, bicyclists, automobiles and other modes of transportation. Most notably, the plan will provide guidance on the best use of financial resources to implement pedestrian safety initiatives and improvements.

In 2010, there were 27 pedestrian fatalities in Hawaii statewide, a 41% increase from the previous year. Prior to 2010, pedestrian fatalities rates had been declining steadily since 2005. From January through July 2011, eleven more pedestrians have tragically lost their lives. This figure shows that there is much more work to be done to improve awareness among pedestrians and motorists alike.

Pedestrian fatalities are often due to simple carelessness and inattentive behavior and the rate of error is shared almost equally among drivers and pedestrians. In August 2011, we commemorated our second annual *Pedestrian Safety Month*, the only statewide pedestrian safety month in the nation, during which we, along with all of our partners, promoted pedestrian safety through enforcement campaigns, sign-waving activities and community workshops to build public awareness.

We will continue our efforts in the community to improve behaviors that affect pedestrian safety while the Statewide Pedestrian Master Plan will guide our transportation improvement projects and construction into the future.

Sincerely,

Neil Abercrombie
Governor
State of Hawaii



Pedestrian safety continues to be a top priority for the Hawaii Department of Transportation. Hawaii's goal is a straightforward one, to decrease the number of pedestrian injuries and fatalities statewide. The completion of our Statewide Pedestrian Master Plan will help us to achieve this goal by providing a long-term framework to guide our future highway improvements projects.

The Plan envisions a multi-modal transportation system that provides a safe and well-connected pedestrian network that encourages walking among all ages and abilities. This system would promote a positive pedestrian experience, environmental, economic and social sustainability, while also fostering healthy lifestyles and energy conservation.

In practice, the Plan will identify the most critical needs of our highway system infrastructure, including safety improvements or repairs, and develop projects to address the problems. It will also prioritize projects for implementation and provide guidance on the most effective use of federal, state and local resources. The Plan's companion document, the Hawaii Pedestrian Toolbox is currently under development. It identifies best practices in designing for pedestrian safety, mobility and accessibility and will serve as a resource for planners and designers.

All too often we hear about pedestrian fatalities and injuries that could've been prevented simply with greater attentiveness. The Plan will not only establish infrastructure and safety guidance for the state, but also include public education and law enforcement strategies to maximize its overall effectiveness.

Many organizations were essential to the creation of this plan, including our federal transportation partners, county governments, our local police departments and community groups too numerous to mention here, but we thank them all for their diligent work towards making Hawaii a safer place for all of us and our families.

Special thanks also go to the members of our Technical Advisory Committee and Citizen Advisory Committee for their recommendations and important advice that proved vital to the creation of the master plan.

Sincerely,

A handwritten signature in black ink, appearing to read 'Glenn Okimoto'.

Glenn Okimoto

Director

Hawaii Department of Transportation

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The project team would like to express sincere gratitude to all of the public officials, pedestrian advocates, and citizen participants who shared their time, energy, and talents in the development of this Statewide Pedestrian Master Plan.

Technical Advisory Committee

HDOT Design Branch
HDOT Highway Safety Branch Office
HDOT Project Coordination and Technical Services
HDOT Traffic Branch
HDOT Hawaii District Office
HDOT Kauai District Office
HDOT Maui District Office
HDOT Oahu District Office
County of Hawaii Planning Department
County of Hawaii Department of Public Works
County of Hawaii Mass Transit Agency
County of Kauai Planning Department
County of Kauai Department of Public Works
County of Kauai Transportation Agency
County of Maui Planning Department
County of Maui Department of Public Works
County of Maui Department of Transportation
City and County of Honolulu Department of Transportation Services
City and County of Honolulu Public Transit Division
Federal Highway Administration (ex-officio)

Speciality Resources

Department of Land and Natural Resources
HDOT Landscape
HDOT Right Of Way Branch
HDOT Office of Civil Rights
Disability and Communications Access Board (DCAB)

Stakeholder Category	Organization
Pedestrian	Get Fit Kauai
Bicyclist	Peoples Advocacy for Trails Hawaii
Senior	AARP
ADA	Eye of the Pacific Guide Dogs /Hawaii Center for Independent Living
Vehicle	DTRIC Insurance
Transit	Transit Rider
Education	Department of Education
Student	UH Department of Urban and Regional Planning Student
Developer	Land Use Research Foundation of Hawaii
Resident/Neighborhood Board	Maui Resident
Business Owner	Hawaii Chamber of Commerce
Health	Kaiser Hospital
Tourism	Outrigger Hotels
Enforcement	Honolulu Police Department
Cultural Resource	Oahu Aha Moku
Public at Large	American Planning Association
Public at Large	General public

LIST OF ACRONYMS AND ABBREVIATIONS

AADT	average annual daily traffic
ADA	Americans with Disabilities Act
AOC	Area of Concern
CAC	Citizens Advisory Committee
DCAB	Disability and Communication Access Board
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GIS	geographic information system
HDOT	Hawaii Department of Transportation
HSHP	Hawaii Strategic Highway Safety Plan, 2007 thru 2012
HSTP	Hawaii Statewide Transportation Plan
LED	light-emitting diode
LRLTP	Long-Range Land Transportation Plan
MAP-21	Moving Ahead for Progress in the 21st Century Act
mph	miles per hour
Plan	Statewide Pedestrian Master Plan
POP	pedestrian-oriented populations
SRTS	Safe Routes To School
STIP	Statewide Transportation Improvement Program
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program
USDOT	United States Department of Transportation
WWH	Walk Wise Hawaii



In the town of Naalehu, there is sidewalk on the makai side of Mamalahoa Highway.



Executive Summary





A pedestrian bridge in Eleele, Kauai allows pedestrians to cross the road above traffic

EXECUTIVE SUMMARY

As identified in the Hawaii Strategic Highway Safety Plan, 2007 thru 2012, Hawaii has experienced a high level of pedestrian fatalities. Between 2000 and 2009, Hawaii had an average of 2.4 pedestrian deaths per 100,000 people; the national average is 1.3.



The State of Hawaii Department of Transportation (HDOT) recognized the need to complement other programs that address pedestrian safety by preparing a community-based Statewide Pedestrian Master Plan (Plan) for the state's highway system.

The Plan's comprehensive approach not only focuses on improving pedestrian safety, it evaluates ways to enhance pedestrian mobility and accessibility to help create a multi-modal transportation system. The Plan serves as one component of implementing the HDOT's mission to provide a safe, efficient and accessible highway system. The Plan also prioritizes pedestrian infrastructure improvements and programs, promotes the Complete Streets vision for the state, and fulfills federal requirements for multimodal planning.

This Plan identifies ways to improve pedestrian safety through the:

- **Engineering** of infrastructure changes
- **Education** of pedestrians and drivers
- **Encouragement** of better pedestrian and driver awareness
- **Enforcement** of existing pedestrian laws
- **Evaluation** and planning of new projects and programs
- **Equity** in serving the diverse needs of pedestrians

Vision for the Pedestrian System

The vision and goals for Hawaii's pedestrian system were developed by the stakeholders (that is, the Technical Advisory Committee [TAC] and Citizens Advisory Committee [CAC]), in coordination with the HDOT. Goals were formulated to implement the vision and maintain consistency with other HDOT transportation system goals. The vision developed by the TAC and CAC is as follows:

VISION

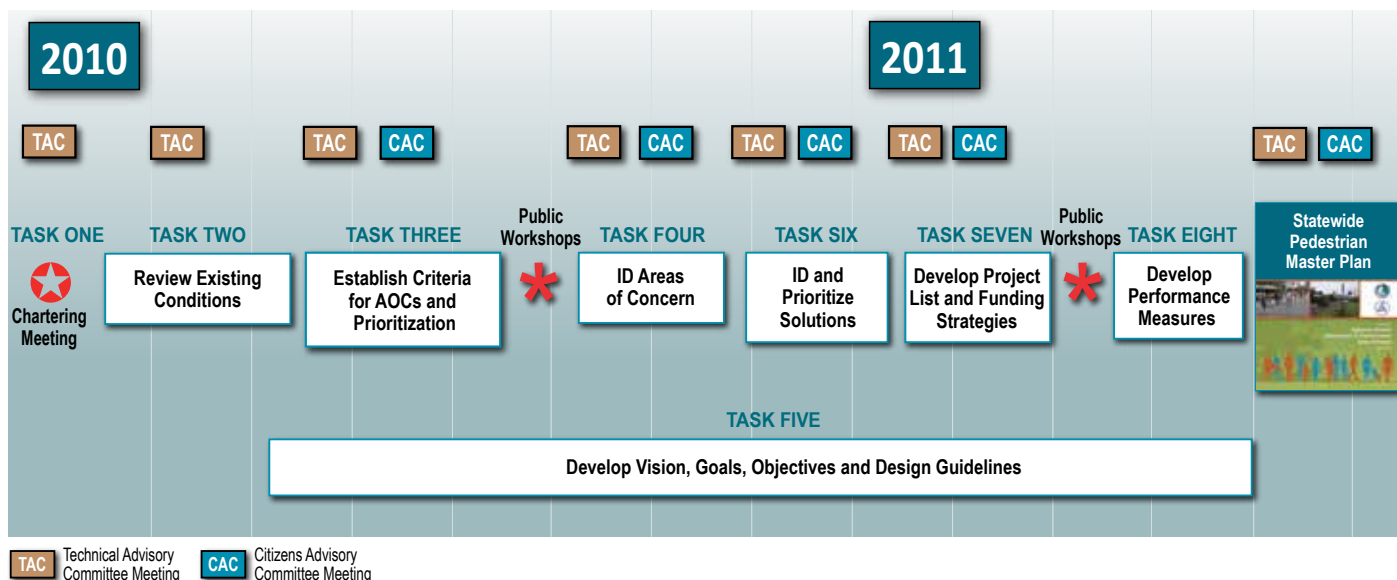


Hawaii's integrated and multi-modal transportation system provides a safe and well-connected pedestrian network that encourages walking among all ages and abilities. The system:

- *Promotes a positive pedestrian experience*
- *Promotes environmental, economic and social sustainability*
- *Fosters healthy lifestyles*
- *Conserves energy*

More people in Hawaii choose to walk for both transportation and recreation as a result of enhanced walking environments, mobility, accessibility, safety, and connectivity throughout the transportation system.

FIGURE ES-1
Major Tasks and Timeline of Project



Plan Formulation and Public Involvement

The major tasks in formulating the Plan are shown in Figure ES-1. Formulation included a stepped process designed to gain validation by key stakeholders along the way. There was extensive public involvement through project committees (the TAC and CAC), outreach to the general public, and the use of a project website www.hawaiipedplan.com. The TAC included technical staff of federal, state, and local agencies and jurisdictions with interest in the project. The CAC provided a balanced representation of stakeholder interests, affected communities, geographic areas, ages, and diverse populations, as well as a communication link with those interests and communities.

Areas of Concern (AOC)

Areas of Concern are places where pedestrian improvements are needed to improve accessibility, safety, and connectivity, or to provide access to pedestrian-oriented populations.



Public Meeting in Hilo, HI

Prioritized Areas of Concern





As a result of the community-based plan development process, a prioritized list of 31 areas of concern was identified. The key factors for determining the areas of concern were locations where there are:

1. Gaps in the pedestrian system
2. High concentrations of pedestrian-oriented populations (elderly, youth, low-income, and households with no access to vehicles)
3. Pedestrian hot spots (pedestrian crashes)

4. Needs for improved accessibility to pedestrian attractors, such as schools, shopping centers, employment centers, community centers, hospitals, and tourist destinations

These factors were determined by developing an inventory of the existing pedestrian environment. The conditions reviewed were existing pedestrian facilities, land use, transit routes, pedestrian attractors, classification of roadways, census characteristics, and locations of pedestrian crashes. The existing conditions, which were reviewed and validated by the stakeholder committees and the public, provided the foundation for the identification of the areas of concern.

The following table illustrates the top project recommendation for each island from the prioritization process. A full list of prioritized projects can be found in Chapter 5.

	Rank	ID #	Project Name	Description	Potential Solution
	1	O-9	Vineyard Boulevard, at Queen Emma Intersection, Oahu	There is considerable pedestrian activity in the area of the Vineyard Boulevard/Queen Emma Street intersection with two schools and senior housing nearby. 2004-2008 crash data indicates that most crashes occurred when there was a conflict between turning vehicles and pedestrians crossing Vineyard Boulevard.	Review the traffic signal timing to determine whether a leading pedestrian interval is feasible, add additional signage to alert drivers of pedestrians, and implement Walk Wise Hawaii (WWH), an educational program to educate the surrounding community about pedestrian and driver awareness.
	5	K-2	Kuhio Highway, between Wilcox Memorial Hospital and Hanamaulu Road, Kauai	There is a concern for pedestrians walking along this section of Kuhio Highway, where there are no sidewalks, eroding sections of sidewalk, and a bridge with narrow shoulders.	Improve pedestrian connections by replacing eroded sidewalks, closing sidewalk gaps, and replacing the footbridge along Kuhio Highway from Wilcox Memorial Hospital to Hanamaulu Road.
	10	H-3	Mamalahoa Highway, Naalehu, Hawaii	The mauka side of Mamalahoa Highway lacks adequate pedestrian facilities in Naalehu. Although the makai side has a sidewalk in good condition, it doesn't continue west through the town center. The site would benefit from additional sidewalks to enhance pedestrian connectivity from the parks, school, and services.	Improve pedestrian connectivity by closing sidewalk gaps along Mamalahoa Highway through the town of Naalehu to Ohai Road.
	12	M-2	Kaahumanu Avenue, Kahului, Maui	The area along Kaahumanu Avenue where the sidewalk is discontinuous creates a gap for pedestrian connectivity. In these areas, people either walk along a private parking lot, in the bike lane, or in the landscaping.	Fill sidewalk gaps with the addition of sidewalks or walkways along Kaahumanu Avenue between Wharf Street and Kainani Street. Develop wayfinding signage for visitors in the area.

Implementation

The HDOT is committed to ensuring that the work described in this Plan leads to implementation of projects and programs that will benefit pedestrians throughout the state. The HDOT will move forward with three strategies to ensure effective implementation of this Plan:

1 – Referencing best practices in pedestrian-oriented design. The Hawaii Pedestrian Toolbox, a companion document to this Plan, was developed to identify best practices in designing for pedestrian safety, mobility, and accessibility, including layout of sidewalks, presence and timing of pedestrian crossing signals, access management along roadways, and intersection design. The Hawaii Pedestrian Toolbox will serve as a resource for planners and designers seeking to provide better consideration for pedestrians in design.

2 – Seeking funding for projects. Funding is scarce for all types of transportation projects. Six methods are identified to pursue funding or ensure that the project and/or program identified gets implemented.

1. Determine which pedestrian solutions can be implemented as part of another project or program that is already programmed.
2. Determine which pedestrian improvements can be implemented as part of maintenance improvements.
3. Create an individual stand-alone project, if an improvement can't be implemented as part of another roadway project.
4. Look for federal funding opportunities.
5. Evaluate the potential for Public-Private Partnerships.
6. Recommend that new developments incorporate appropriate pedestrian improvements.



3 – Monitoring the performance of this Plan.

Performance measures are used for evidence-based decision making and forecasting, as well as monitoring progress towards long-term goals and objectives. Performance measures were developed by the TAC and CAC that are aligned with each goal and objective. The HDOT is committed to monitoring and evaluating the performance of this Plan.



Pedestrian Mall in Chinatown, Honolulu



Extra wide pedestrian crosswalk in Downtown, Honolulu



An advance pedestrian warning sign near Downtown, Honolulu



CHAPTER 1

Introduction and Background





Roadway and pedestrian facilities along Kuhio Highway in Lihue, Kauai

1. INTRODUCTION AND BACKGROUND

The Statewide Pedestrian Master Plan (Plan) is a comprehensive strategy developed by the State of Hawaii Department of Transportation (HDOT) for improving pedestrian safety, mobility, and accessibility along state highways throughout Hawaii.

This Plan helps to fulfill the vision of the *Hawaii Strategic Highway Safety Plan, 2007 thru 2012 (HSHSP)* of reducing traffic-related deaths. This Plan has been developed through a community-based process and identifies ways to improve pedestrian safety through the:

- **Engineering** of infrastructure changes
- **Education** of pedestrians and drivers
- **Encouragement** of better pedestrian and driver awareness
- **Enforcement** of existing pedestrian laws
- **Evaluation** and planning of new projects and programs
- **Equity** in serving the diverse needs of pedestrians

Pedestrian facilities are a critical part of a well-functioning transportation system. Every traveler is a pedestrian at some point during their trip, if only when traveling to and from motorized vehicles. The extent to which travelers depend on pedestrian facilities varies—some travelers drive most of the time, others use public transportation, and still others cannot or choose not to drive, and therefore depend more heavily on the pedestrian system. Regardless of the needs of individual travelers, all users of the transportation system benefit from a safe, well-connected, and well-maintained pedestrian network.

KEY DEFINITIONS

Pedestrian:

Hawaii State law defines a Pedestrian as:

“Any person who is afoot or who is using a wheelchair or a means of conveyance propelled by human power other than a bicycle”

Pedestrian Facility:

Infrastructure that is designed specifically for use by a pedestrian. These include:

- Sidewalks
- Crosswalks (signalized and non-signalized)
- Shared use paths

Highway shoulders are not specifically designated and designed for use by pedestrians, and are therefore not considered pedestrian facilities in the context of this Plan.

State Highways:

Roadways, highways and freeways under the jurisdiction of the HDOT, Highways Division. State highways are typically arterials and/or higher speed roadways.

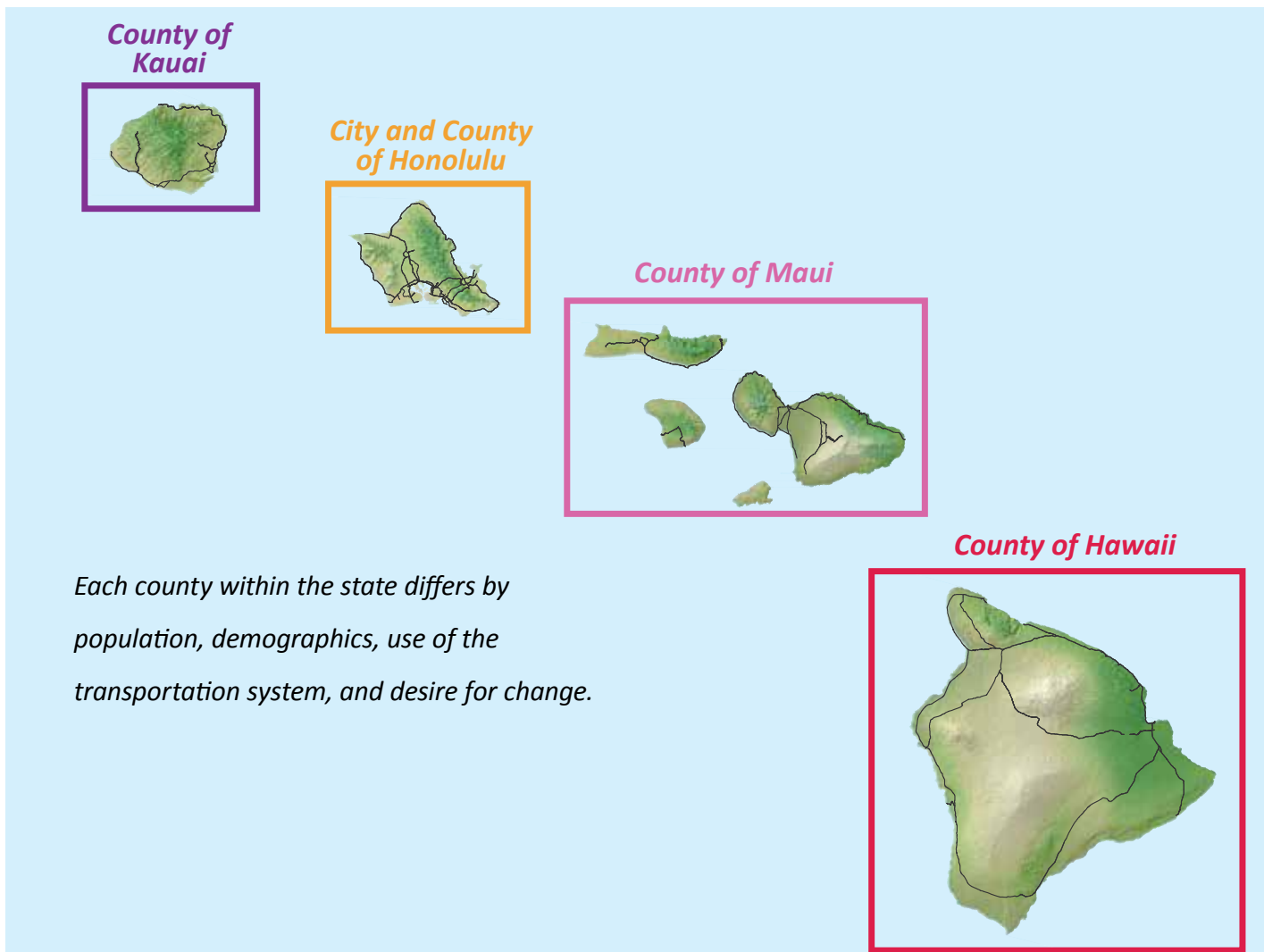
Complete Street:

A transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit riders, movers of freight, and motorists appropriate to the function and context of the facility.



Figure 1-1 depicts state highways within each county of the State of Hawaii. This Plan seeks to recognize and incorporate the diversity of the state, and provide solutions for each county that are appropriate to its context.

FIGURE 1-1
Hawaii State Highways by County



Diversity of the transportation system in Hawaii.

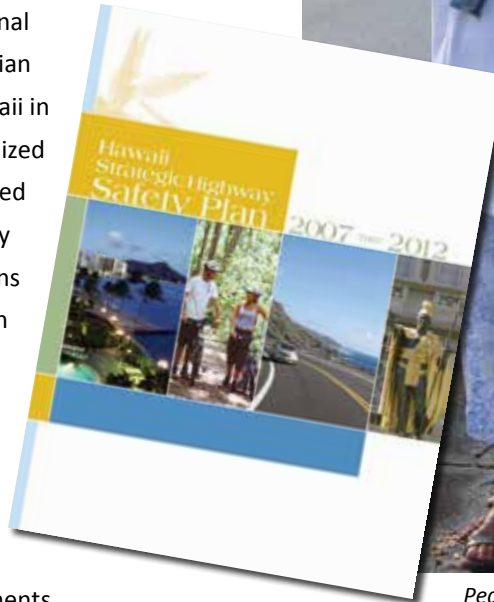
1.1 Purpose of the Plan

The purpose of the Plan is to improve pedestrian safety and enhance pedestrian mobility on state highways. The need for this plan comes from the high level of pedestrian fatalities in Hawaii, as identified in the Hawaii Strategic Highway Safety Plan, 2007 thru 2012. More recently, the Alliance for Biking and Walking listed Hawaii as the 8th highest state in the nation for overall levels of bicycling and walking, but as only the 30th for pedestrian safety.¹ Between 2005 and 2007, Hawaii had an average of 5.5 pedestrian deaths per 10,000 pedestrians, while the national average is 5.6.¹ Most of the pedestrian fatalities that have occurred in Hawaii in the past decade have been in urbanized areas and most of them have involved a pedestrian 65 years or older. Many pedestrian crashes involved collisions between pedestrians and vehicles in crosswalks.

This Plan serves the HDOT's mission to provide a safe, efficient and accessible highway system. It helps to prioritize pedestrian infrastructure improvements and programs throughout the state, promote the Complete Streets vision for the state, and fulfill federal requirements for multimodal planning as described below.

Prioritizing pedestrian improvements. The Plan identifies 31 projects that will improve pedestrian safety and mobility around the state. Approximately half of the solutions identified address gaps in the pedestrian system and approximately half involve intersections with multiple crashes. These projects were identified through a technical analysis and thoroughly vetted with stakeholders and communities throughout the state. Chapter 4 explains the process for identifying the areas of concern, Chapter 5 describes the project and program recommendations, and Chapter 6 describes the implementation process for the Plan. The Plan will provide guidance on efficient and effective use of federal, state and local resources to implement pedestrian initiatives.

¹ Alliance for Biking & Walking. 2010 Benchmarking Report. <http://www.peoplepoweredmovement.org/site/index.php/site/memberservices/C529>



Pedestrian sign waving event in Honolulu, HI.

Advancing Complete Streets. All state and county transportation agencies are required by state law to adopt a Complete Streets policy. The HDOT adopted a Complete Streets policy that requires consideration of all transportation



modes when designing new or renovated transportation facilities. This Plan helps to advance the fulfillment of the Complete Streets policy by prioritizing improvements to the

pedestrian system; as more pedestrian facilities are added or improved upon state highways, the transportation system becomes more complete and creates an environment that reduces risk and supports the safe movement of people by all modes.

Fulfilling Federal Planning Requirements. The Plan fulfills federal and state requirements by considering pedestrian needs and concerns into the transportation planning process. The Federal laws enacted under the **Moving Ahead for Progress in the 21st Century Act of 2012** (MAP-21) continued funding and resources for multimodal transportation options authorized under the prior legislation.² MAP-21 continues to build on and refine many of the existing highway, transit, bike, and pedestrian programs and policies.

Additional Benefits. The Plan will help to improve the quality of life, environment, and livability of Hawaii's communities. It will benefit communities throughout the state by providing options for residents to incorporate more activity into daily life. Studies show that provision of infrastructure for walking and bicycling has a direct influence on improving public health, particularly by decreasing levels of obesity and diabetes. Increasing pedestrian infrastructure in Hawaii may not only improve public safety but may also contribute to improving public health throughout the state. The goals and objectives listed in this Plan are aligned with the Healthy Hawaii Initiative of the Department of Health and with the Nutrition and Physical Activity Coalition, who seek to improve public health through encouraging greater amounts of physical activity. Another benefit of providing pedestrian infrastructure is offering transportation choices for residents and visitors that reduce reliance on single-occupant vehicles, which can improve energy efficiency in travel and lessen vehicle emissions.



1.2 Vision for the Statewide Pedestrian System

Based on the purpose of the Plan, the vision for the statewide pedestrian system was developed to be consistent with the existing goals defined in the Hawaii Statewide Transportation Plan (HSTP) and the draft Statewide Long-Range Land Transportation Plan (LRLTP). The vision was developed through an iterative process, with input from two stakeholder committees, the Technical Advisory Committee (TAC) and the Citizen Advisory Committee (CAC). The TAC included technical staff of federal, state, and local agencies and jurisdictions with interest in the project. The CAC was formed through an application process and is made up of citizens throughout the state. The CAC provided a balanced representation of stakeholder interests and affected communities, geographic areas, ages, and diverse populations, as well as a communication link with those interests and communities. More information on the CAC and TAC is provided in Section 2.2.

VISION



Hawaii's integrated and multi-modal transportation system provides a safe and well-connected pedestrian network that encourages walking among all ages and abilities. The system:

- *Promotes a positive pedestrian experience*
- *Promotes environmental, economic and social sustainability*
- *Fosters healthy lifestyles*
- *Conserves energy*

More people in Hawaii choose to walk for both transportation and recreation as a result of enhanced walking environments, mobility, accessibility, safety, and connectivity throughout the transportation system.

² Public Law 112-141, July 6, 2012

1.3 Goals and Objectives of the Plan

The project team, TAC, and CAC developed the following overarching goals for the statewide pedestrian system. These goals implement the vision described on the previous page and are aligned with the HDOT's overarching goals for the land transportation system in the state. The objectives provide guidance on how to achieve our goals. They are specifically developed to be measurable so that the Plan's effectiveness and performance can be evaluated over time.

GOALS AND OBJECTIVES FOR THE STATEWIDE MASTER PLAN

To Support Hawaii's Safe And Integrated Multimodal Transportation System

Goal 1:

Improve pedestrian mobility and accessibility.

Objectives:

- A. Increase pedestrian activity.
- B. Encourage use of the Hawaii Pedestrian Toolbox.
- C. Implement projects along state highways to enhance mobility and accessibility.
- D. Improve maintenance of pedestrian facilities.

Goal 2:

Improve pedestrian safety.

Objectives:

- A. Reduce the number of crashes and fatalities involving pedestrians.
- B. Increase driver and pedestrian knowledge of laws, legal requirements, rights, and responsibilities.
- C. Modify driver and pedestrian behaviors to improve pedestrian safety.
- D. Use best practices for design and operation of all pedestrian crossings.

Goal 3:

Improve connectivity of the pedestrian network.

Objectives:

- A. Support development of seamless and continuous pedestrian networks along state highways with connections to paths, walkways, trails, transit centers, rail stations, and other pedestrian facilities.
- B. Encourage pedestrian connectivity across jurisdictions.
- C. Support Safe Routes to School programs to encourage more students to walk to and from school.

To Protect and Enhance Hawaii's Unique Environment and Quality of Life

Goal 4:

Promote environmental benefits of walking.

Objectives:

- A. Broaden public awareness about the environmental benefits of pedestrian travel.
- B. Reduce overall vehicle miles traveled through increased pedestrian trips.
- C. Increase the use of other modes of transportation that reduce the use of fossil fuels.
- D. Integrate pedestrian facility design with the natural environment to the greatest extent possible.

Goal 5:

Encourage walking to foster healthy lifestyles.

Objectives:

- A. Broaden public awareness about the health benefits of walking/ pedestrian travel.
- B. Improve public health through encouragement of walking.
- C. Support community-based events such as fun runs, walks, parades, and other pedestrian-based activities that encourage walking for daily exercise and socialization.

To Encourage The Transportation System's Support of Hawaii's Economy And Future Growth Objectives

Goal 6:

Enhance communities and economic development by creating pedestrian-oriented areas and positive pedestrian experiences.

Objectives:

- A. Encourage priority pedestrian infrastructure investment in communities that are in high-density residential, visitor/ tourist locations, and/or that have higher pedestrian-oriented populations (seniors, youth, low-income, and households with no access to vehicles).
- B. Encourage reference to and use of the Hawaii Pedestrian Toolbox to create pedestrian settings that provide a positive pedestrian experience and attract high levels of activity.
- C. Require development projects to include pedestrian infrastructure for the appropriate land use and facility.

To Support The State's Energy Efficiency Goals

Goal 7:

Promote and support walking as an important transportation mode that reduces overall energy use.

Objectives:

- A. Strengthen public awareness about the energy conservation benefits of walking.
- B. Increase the use of other modes of transportation that reduce the use of fossil fuels.
- C. Reduce resident and visitor motor vehicle fuel demand to help meet 2030 targets for energy efficiency.
- D. Encourage Smart Growth development with coordinated land use and transportation planning.

1.4 Consistency with Plans and Policies

As mentioned briefly in Sections 1.1 and 1.2, it was important for the vision, goals, and objectives of the Plan to be aligned and consistent with relevant federal, state, and local plans and policies. More than 20 federal, state, and local plans, policies, and programs were reviewed and evaluated for relevance to this Plan's development process. Appendix A, Plan and Policy Review, contains a summary of the plans, policies, and programs that were reviewed. The following paragraphs identify key plans, policies, and programs and how the Plan maintains consistency across them.

1.4.1 Federal Laws and Policies

Federal transportation statute and regulations provide direction and funding mechanisms for statewide and regional plans and programs. Federal transportation planning regulations are intentionally broad to allow the States and Metropolitan and Regional Planning Organizations (MPOs and RPOs) the flexibility to tailor policy implementation that works best for those places. The Plan fulfills the requirements of federal laws such as MAP-21 and the Americans with Disabilities Act, and the 2010 USDOT policy statement on accommodating bicycles and pedestrians.

The Federal laws enacted under the **Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21)** continued funding and resources for multimodal transportation options authorized under the prior legislation.² MAP-21 continues to build on and refine many of the existing highway, transit, bike, and pedestrian programs and policies. To streamline federal highway transportation programs, a new program called Transportation Alternatives Program (TAP) was established to provide for a variety of alternative transportation projects that were previously eligible activities under separately funded programs. The purpose of the Plan, as well as the development of project solutions, is consistent with MAP-21 general guidance.

The Americans with Disabilities Act of 1990 falls under Title 42 of the US Code Chapter 126. The ADA provides regulatory policy that prohibits discrimination on the basis of disability. The policy requires that state transportation facilities include



design measures that allow access for persons with disabilities including, but not limited to, mobility, visual, hearing, cognitive, or other impairments. The Plan provides design guidance and project solutions that ensure consistency with ADA design standards and guidelines that reflect the safety and connectivity needs for persons with disabilities.

The USDOT **Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations** encourages state DOTs to consider the inclusion of pedestrian facilities on state routes and transportation facilities, and integrate pedestrian facilities into transportation systems as an incentive to meet federal funding eligibilities. The Plan's purpose is consistent with the USDOT policy to incorporate safe and convenient walking and bicycling facilities into transportation projects. Transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes, when feasible.

²Public Law 112-141, July 6, 2012

1.4.2 State Plans and Policies

Statewide plans and policies provide a general policy framework for transportation planning and provide direction for project and program implementation (including guidelines and standards) for Hawaii state roadway facilities. These plans and policies can also serve as examples for counties and cities within the state for the development of their own policies, guidelines, and standards.

The Plan is a result of statewide policy direction identified in the HSTP and the HSHSP that calls for improving safety and mobility on the state highway system.

The **Hawaii Statewide Transportation Plan** links broad policy goals with specific action items. It provides the foundation that connects these action items with the transportation planning done at the regional and county levels. The goals and objectives for this Plan tie directly to the goals and objectives of the HSTP.

The **Hawaii Strategic Highway Safety Plan, 2007-2012** addresses issues related to improving traffic safety data collection, increasing traffic safety awareness, and other crucial traffic safety issues. Improving highway safety is a key component strategy of the HSHSP and an important component of this Plan. Safety was included as a factor used to identify pedestrian areas of concern as well as in the criteria to prioritize the project and program solutions.

This Plan is also aligned with policies in the draft Statewide Long-Range Land Transportation Plan (LRLTP), Bike Plan Hawaii, and the Hawaii Statewide Transportation Improvement Program (STIP). Other state policies and programs, such as the Na Ala Hele Trails and Access Program, were reviewed for consistency and pedestrian connectivity.

1.4.3 Local Plans and Policies

Regional and local plans and policies are more specific than federal or statewide plans and policies in that they address a smaller geography and define specific projects for specific community contexts. Some of the local plans outline specific pedestrian transportation improvement projects. Although this Plan addresses highway facilities under the HDOT's jurisdiction, these regional and local plans were used to inform the development of the Plan. The Plan is consistent with

the goals and policies adopted in local planning documents in communities throughout the state and supports policies provided in local planning documents, such as the following:

- County of Hawaii General Plan (2005)
- Hawaii Long-Range Land Transportation Plan (1998)
- Oahu General Plan (2006)
- Oahu Regional Transportation Plan 2035 (2011)
- Oahu Bike Plan (2012)
- County of Maui General Plan 2030 – Countywide Policy Plan (2010)
- Joint State/County Maui Interim Transportation Plan (2002)
- Maui Long-Range Land Transportation Plan (1997)
- Maui Island Plan (2009 draft – not yet adopted)
- County of Maui Bus Routes and Bus Route Assessment (2008)
- County of Kauai General Plan (2000)
- Kauai Long-Range Land Transportation Plan (1997)

Each plan specifies goals and policies for various elements and long-term needs that reflect the communities' desires. Guidance for land use regulations and the character of new developments is often provided. All plans encourage the development of a balanced multimodal transportation system.



Each slipper in the Walk Wise Hawaii display represents a pedestrian fatality from November 2001 to June 2010 in Hawaii (a total of 240 pedestrian deaths).



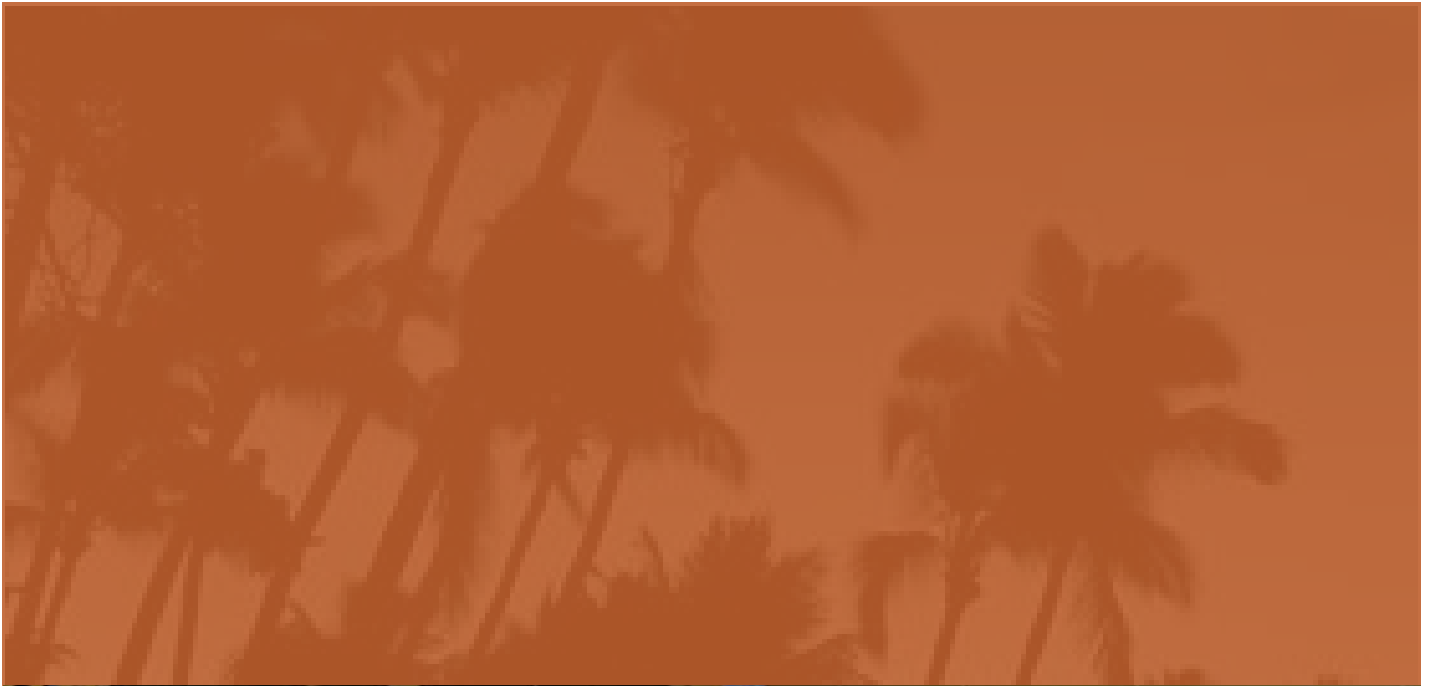
The median refuge island provides a cut-through for accessibility and shortens the crossing distance at this wide intersection in Honolulu.



CHAPTER 2

Approach





Residents give input on the areas of concern at a public meeting on Kauai

2. APPROACH

This section provides an overview of the methodology used to develop the Plan. It describes the major tasks in the plan development process, the public involvement efforts, and the decision-making process.

2.1 Plan Development Process

Development of the Plan was initiated in February 2010 and continued through September 2011, culminating in the preparation of this document and the Hawaii Pedestrian Toolbox. Figure 2-1 depicts the process of major work tasks; each task is described on the next page. This document addresses and provides guidance for improvements of the HDOT pedestrian facilities within the City and County of Honolulu, the County of Hawaii, the County of Maui, and the County of Kauai (the islands of Niihau and Kahoolawe do not have any state highway facilities and were not included in the development of this Plan). It does not address existing conditions of the pedestrian system on county or city-owned facilities. However, the methodologies used in the Plan could be applied in a similar way to county and city-level planning.



FIGURE 2-1
Workflow and Timeline of Project

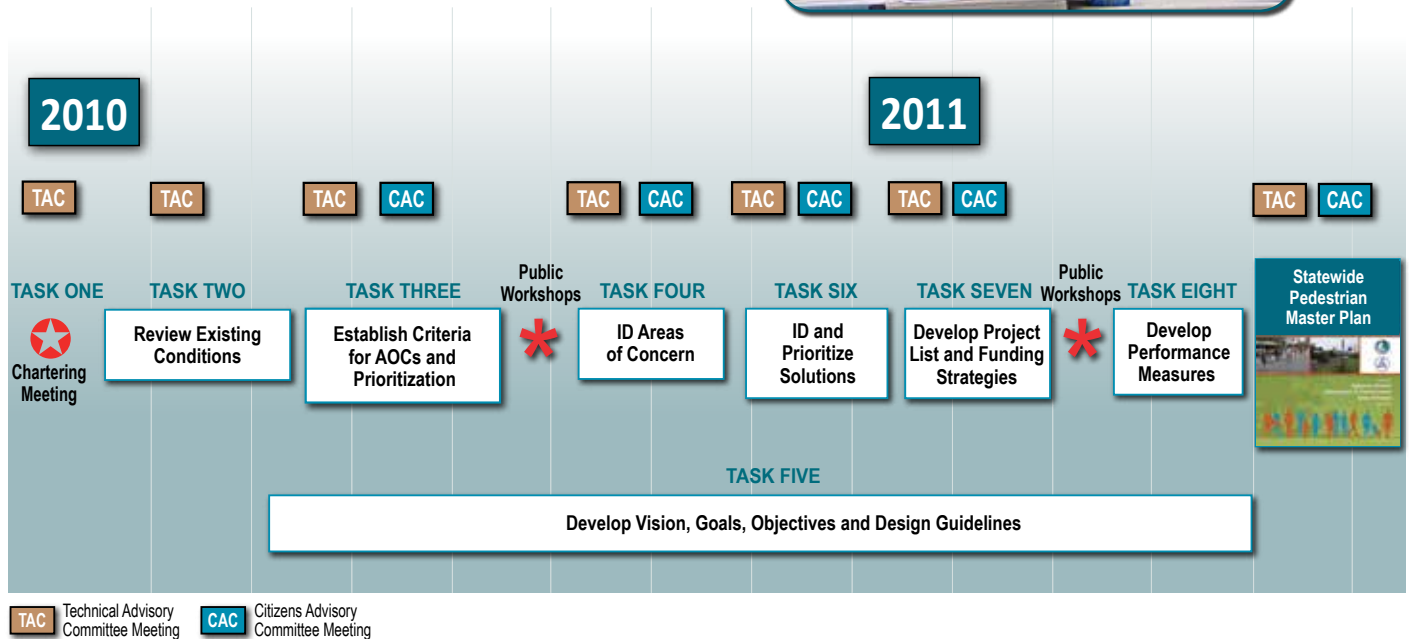


Figure 2-1 depicts the workflow and timeline of the project. Each task is described in more detail on the next page.



PLAN DEVELOPMENT PROCESS

Task 1: Team Chartering

This task included defining the project, convening the TAC and the CAC, developing the Public Involvement Program, defining the project decision-making structure, and establishing the goals of the project.

Task 2: Review of Existing Conditions

This task included creating a statewide inventory of pedestrian facilities. This provided the basis for identifying needs for improvements during later tasks. The review was done in two ways: through an inventory of Geographic Information Systems (GIS) data and through input from members of the TAC, CAC, and public. The results of the existing conditions inventory and a more detailed description of the methodology are included in Chapter 3. Task 2 also included a review of federal, state, and local regulatory and policy requirements related to pedestrian and multimodal transportation facilities to ensure consistency with plan development.

Task 3: Establish Criteria for Areas of Concern and Prioritization

This task focused on establishing factors to identify the areas of concern, as well as establishing criteria for project and program prioritization. It was important to conduct this task early to ensure transparency and prevent bias in the project selection and prioritization process in subsequent tasks. Stakeholders were heavily involved in this step of the process. The methodology used to develop the areas of concern factors and the prioritization criteria are summarized in Chapters 4 and 5 respectively.

Task 4: Identify Areas of Concern

This task involved the examination of existing conditions completed in Task 2 in light of the factors developed in Task 3. GIS analyses and stakeholder input were used to develop the list of areas of concern. A detailed list of the areas of concern for each county and the methodology used to identify them are provided in Chapter 4.

Task 5: Develop Policy and Design Guidelines

This task focused on developing policy guidance, as well as a set of design guidelines and best practice approaches. The vision, goals, and objectives provide the policy framework for the Plan and are shown in Chapter 2. The companion document to the Plan, the Hawaii Pedestrian Toolbox, contains the design guidelines and best practices for pedestrian planning, design, operation, and education.

Task 6: Identify and Prioritize Solutions

This task identified projects and programs to address the identified needs within the areas of concern and prioritized solutions based on criteria established in Task 3. The criteria for the prioritization and results are shared in Chapter 5.

Task 7: Develop Project List and Funding Strategies

This task focused on implementation recommendations for the prioritized list of projects and programs. The funding strategy and potential sources are shared in Chapter 6.

Task 8: Develop Performance Measures

This task identified indicators to be used as performance measures, aligned with the goals and objectives of the Plan. The importance of performance measures and ongoing evaluation of the Plan are discussed further in Chapter 6.

2.2 Public Involvement

The development of this Plan has included extensive public involvement through project committees, a project website, and outreach to the general public. In addition, the project team made specific efforts to communicate project information to members of Title VI and Environmental Justice communities. The following section summarizes public involvement activities. More detail can be found in Appendix B, Public Involvement Summary.

2.2.1 Stakeholder Committees

The extensive public involvement activities for the project included both a TAC and a CAC. The TAC included technical staff of federal, state, and local agencies and jurisdictions with interest in the project. Agencies represented included HDOT program branches, HDOT District Offices, County of Hawaii, County of Maui, County of Kauai, City and County of Honolulu, FHWA, the Disability and Communications Access Board, and the Department of Land and Natural Resources. Responsibilities of the TAC included representing the interests of their agencies or jurisdictions in group deliberations, communicating project progress to their elected or appointed officials, reviewing project deliverables, and providing recommendations to the HDOT.

The CAC provided a balanced representation of stakeholder interests, affected communities, geographic areas, demographics, ages, and diverse populations, as well as a communication link between the project team and local interests and communities. The selection of the CAC members was made through an advertised application process. Members included the general public, affected citizens groups, representatives of local and regional business and labor sectors, and advocates for key interests, including different modes, environmental representatives, and civic groups. The CAC included representatives from minority and disadvantaged groups consistent with the HDOT's commitment to environmental justice. Responsibilities of CAC members included representing their constituents' perspectives during group deliberations, communicating project progress with their constituents, providing feedback at key milestones throughout the project, providing recommendations to the HDOT, and acting as ambassadors for the project.

CAC members on neighbor islands were videoconferenced in.



The public validates existing conditions at a public workshop in Maui.



CAC meetings were open to the public.

2.2.2 Small Group Meetings and Individual Interviews

In addition to the TAC and CAC, smaller stakeholder meetings and individual interviews were conducted to help learn about interests and community-related programs and coordinate the Plan with other ongoing efforts. The meetings were also helpful to ensure consistency with other agencies and pedestrian efforts. Meetings were held with agencies such as the Honolulu Police Department and the state Department of Education and Department of Health. Presentations about the ongoing efforts were also made to the Oahu Metropolitan Planning Organization's CAC.

2.2.3 Public Workshops

The project team conducted two sets of public workshops throughout the state to obtain input from the general public and to share information.

- The first set of public workshops was held in July and August of 2010. These workshops were held in seven locations throughout the state: Hilo, Kona, Kahului, Lihue, Kapolei, Honolulu, and Kaneohe. The purpose of these workshops was to introduce the communities to the Plan, let the communities know how to participate and become involved in the Plan development process, and review and validate existing conditions of the statewide pedestrian network. The participants also shared their community's values, concerns, and priorities related to walking opportunities and issues.
- The second set of public workshops was held in March and April of 2011. These workshops were held in six locations throughout the state: Hilo, Kona, Kahului, Lihue, Honolulu, and Waianae. The purpose of these workshops was to inform the communities of the Plan's vision and goals, educate the communities on the Hawaii Pedestrian Toolbox, and provide an update and get feedback on the proposed solutions to address the areas of concern.

The public provided valuable input at the public workshops.

2.2.4 Outreach to Special Populations

The project team conducted outreach to Title VI and Environmental Justice communities in accordance with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. Outreach efforts included advertisements in minority-focused news publications as well as direct outreach to minority-based organizations. Each public workshop was held in an accessible location and included access to language translators upon request.



2.2.5 Website

The project team maintained a project website www.hawaiipedplan.com throughout the life of the planning process. This website provided information on the project's purpose, background, and timeline. It was also used to announce the dates and locations of upcoming CAC meetings and workshops open to the general public. The website also served as an archive of key project materials and included a comment tool for citizens to directly comment on the project.

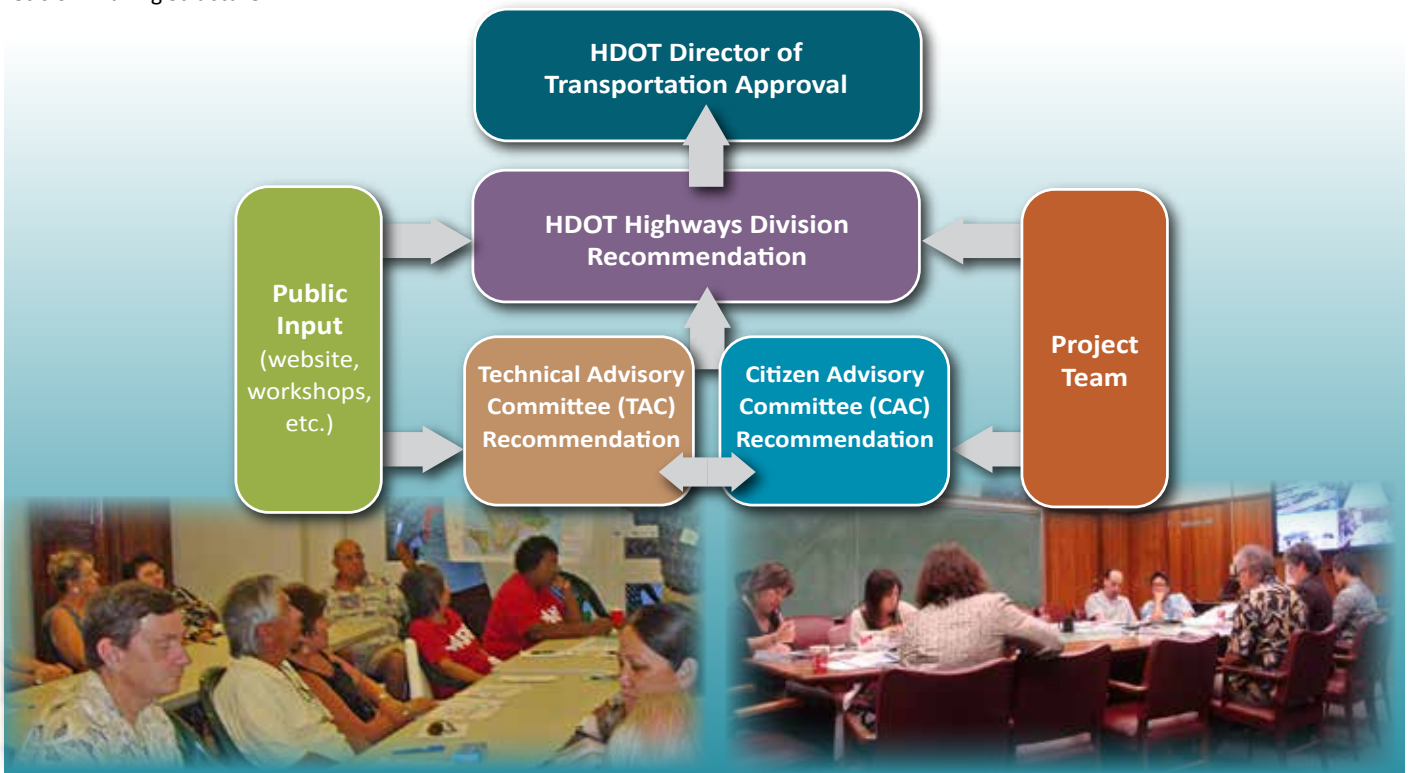
2.3 Decision-Making Process

The TAC and the CAC were instrumental in the decision-making process for this Plan. Both committees received input from the general public and made key recommendations to the HDOT about the contents of the Plan. Figure 2-2 depicts the overall decision-making structure for the project.

www.hawaiipedplan.com



FIGURE 2-2
Decision-Making Structure



Stakeholder input guided decision-making for the Plan.



Residents were able to share their groups' concerns with everyone else at the public meetings.



CHAPTER 3

Existing Pedestrian Environment





A concrete barrier along the sidewalk separates pedestrians from traffic near the Salt Lake neighborhood

3. EXISTING PEDESTRIAN ENVIRONMENT

To create a baseline and provide the foundation for identification of the areas of concern, an inventory of the existing pedestrian environment was conducted for each of the counties.

The Hawaiian Islands are home to more than 1.3 million people, and over 6 million people visit the islands each year, drawn by the scenic beauty, tropical climate, and relaxed atmosphere. Pedestrians in Hawaii are diverse. They include people of all ages, young and old, people of varying physical stature and capability, and people from different countries and cultures who speak and read a variety of languages. A higher proportion of older adults live in Hawaii compared to other states, largely because many retirees are drawn to the mild climate and attractive environment. Some pedestrians have mobility and sight impairments and other disabilities.

People of all income levels live in Hawaii, and the incidence of poverty in some communities affects peoples' capability to buy and maintain vehicles. Throughout the islands there are households with no access to vehicles and residents who rely on walking as their main transportation mode.

In addition, most visitors who come to Hawaii choose not to rent a car and have limited access to personal vehicles. Many walk to and from their destinations, along with riding available transit systems and taking part in local tour programs.

Because these residents and visitors walk to and from destinations each day for transportation, fitness, and recreation, they have an important need for safe, reliable, efficient, convenient, and attractive pedestrian facilities. Considering the diversity of pedestrians in Hawaii is important when planning and designing facilities to accommodate their needs.

Conditions that were considered included land use, pedestrian facilities, transit routes, pedestrian attractors, functional classification, census characteristics, and safety. Each of these are described on the next page. These conditions affect pedestrians on state highways, either by influencing where pedestrians are likely to be found, the physical context of the route, or the types of pedestrians who live nearby. State highways are typically arterials and/or high speed roadways.

The existing conditions information was gathered via the following sources:

- GIS data from the State Data Clearinghouse, the HDOT, and the counties
- Census data from the 2000 census (2010 census data was unavailable during the existing conditions research for this Plan.)
- Pedestrian crash data on state facilities from the years of 2004 to 2007 and part of 2008 (the most recent data available) from the HDOT Traffic Branch
- Google and Bing aerial and street view maps
- State Route System Roadway Inventory, 2009 (provided by the HDOT)
- Site visits



Conditions Considered

Pedestrian Facilities

Most of the state highways within urban areas have sidewalks on at least one side of the roadway. In rural areas, most of the state highways do not have pedestrian facilities and pedestrians often walk along the paved shoulder. In areas where the roadway is constrained by topography or available right-of-way, shoulders are narrower or absent.

Land Use

Urban/rural classification and land uses affect the roadway design and type of pedestrian usage in a location. Most of the land uses in urban areas are consistent with city and town centers: commercial, higher density residential, resort, and industrial uses. Higher-density areas are more likely to attract pedestrians as destinations are closer together; parking and available streets become more congested. In rural areas, uses include agriculture, open space, conservation, and parkland areas. These areas do not typically attract as many pedestrians, with the exception of some recreational destinations such as parks and beaches.

Transit

Transit routes influence pedestrian use of state highways because transit riders walk to transit stops. Maui, Kauai, and Hawaii all have transit service in the form of bus routes, which mainly follow the state highways and connect cities and towns. Oahu has a well developed island-wide bus system that uses state highways as well as county roads to provide transit service. The rail system on Oahu will include a 20-mile guideway served by 21 stations concentrating pedestrian activities at these locations.

Pedestrian Attractors

Pedestrian attractors that were considered included a variety of public and commercial facilities, such as parks, schools, libraries, hospitals, transit centers, future rail stations, and community and neighborhood centers. The analysis also included private attractors like shopping centers, tourist attractions, employment centers, museums, hotel areas, and cruise ship terminals. These facilities are found throughout the state in both urban and rural settings, though there are typically more attractors within urbanized areas.

Functional Classification

Functional classifications guide the design and expected volume of traffic on the highways, while posted speeds and average annual daily traffic (AADT) allow for analysis of the roadway usage and the quality of the pedestrian environment. Because state highways are the focus of this Plan, most of the functional classifications are higher order, with higher speeds in the rural areas, slower speeds in the urban areas, and high traffic levels.

Census Characteristics

Census data help define general demographic and population characteristics. This provides an understanding of locations with a high percentage of pedestrian-oriented populations (POP). These include the elderly (over age 65), youth (under age 17), low-income households, and those who have no access to vehicles. (The poverty threshold is set nationwide through the United States Census and is based on the number of individuals in a household and the annual income of the household, adjusted annually to reflect inflation.)

Safety

Based on the most recent available pedestrian crash data (between 2004 and mid-2008), the majority of the pedestrian crashes occur in the urbanized areas. However, the islands of Oahu and Kauai have a number of pedestrian crashes in rural areas along the coast, generally associated with pedestrians crossing the road to visit parks and beaches in areas that lack pedestrian facilities. Pedestrian fatalities also follow these trends.



County of Kauai



City and County of Honolulu



County of Maui



County of Hawaii

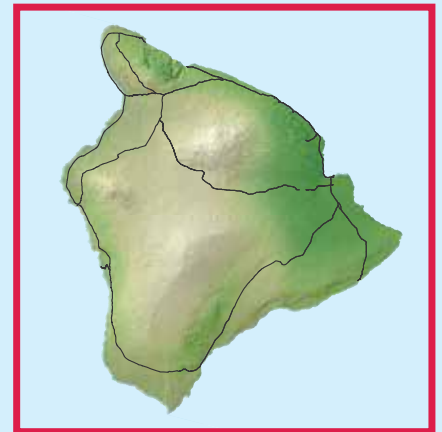


Table 3-1, which reflects the uniqueness of the counties, summarizes selected data for each. A summary of the inventory results by county follows, with additional detail provided in Appendix C, Existing Conditions Report. The summaries give a general, high-level idea of the existing conditions in the entire state, using available data.

TABLE 3.1
County Specific Data

County	Kauai	Honolulu	Maui	Hawaii	TOTAL
Population (2000 Census)	5%	70%	11%	14%	1,360,301 people
Lane Miles of State Highways	9%	40%	18%	31%	2,479 lane miles
Urban Area (2000 Census Urban Areas)	4%	42%	10%	6%	County urban area/total land area in the county
Percent of Pedestrian Crashes (Study period of 2004 to mid 2008)	3%	84%	6%	7%	1,569 accidents

3.1 County of Hawaii

The County of Hawaii is the state's largest island (physically), with a population of 185,079, second to Oahu. The vast majority of the land within the County of Hawaii is rural, with areas dedicated to conservation, open space, and agricultural lands. The county contains forest reserves, state parks, and a national park that attract pedestrians. These are located in relatively undeveloped areas in the central and southern parts of the island. The island is populated with many small towns (such as Honokaa, Paauilo, Naalehu and Laupahoehoe) that are within rural areas. The two largest towns, Hilo and Kailua-Kona, have a range of land uses including high, medium, and low density urban; university use; resort; and industrial designations. These uses generally attract more pedestrians than the rural areas. Hilo and Kailua-Kona have numerous schools, libraries, shopping areas, hotel areas, and county recreation parks. In addition, they are cruise ship destinations.

3.1.1 State Highways and Pedestrian Infrastructure

The most traveled highway on the island of Hawaii is Hawaii Belt Road (Highway 11) in Hilo near the airport, followed closely by Queen Kaahumanu Highway in Kailua-Kona. Rural roads around the island carry much less traffic than in Hilo and Kailua-Kona. Posted speed limits in the county vary between 25 and 55 miles per hour (mph). The rural areas tend to have higher speed limits (around 45 to 55 mph) and the towns and more urban areas have lower speed limits (generally 25 to 35 mph).

There are very few sidewalks in the county because the state highways pass through predominantly rural areas connecting small towns and communities. Within the cities of Hilo and Kailua-Kona, there are sidewalks along sections of one side of the state highway; Figure 3-1 depicts existing sidewalk locations along the state highways in the county. Most of the highways have shoulders along one or both sides, varying in width between one and ten feet, though there are some stretches without shoulders on either side. This occurs most notably along Saddle Road (Highway 200), which is currently being reconstructed, and on one stretch along the west side, south of Honaunau on Hawaii Belt Road (Highway 200).

The county transit provider is the Hele-On Bus. The bus provides low-cost island passenger service primarily along the coastal areas on the state highway. There are a few routes that extend inland to a city or town: these include the bus route that passes through Pahoa to Kalapana on the east side; another route that extends to Hawi in the north, from Kailua-Kona; and a third route that travels along Mamalahoa Highway (Highway 190) from Waimea to Kailua-Kona.

3.1.2 Pedestrian Safety

Crashes involving pedestrians on state highways in the county have primarily been located in three areas around the island: near Kona, near Hilo, and near Hawi. Crashes near Hawi have been near Kamehameha Park and the Bond Memorial Branch public library. Crashes near Kona have been in locations that attract pedestrians, including the Hulihee Palace State Monument, the Hale Halawai Park, the Kailua-Kona Wharf, and the hotels adjacent to the wharf. Crashes in Hilo have been within the urbanized area, near a variety of locations that attract pedestrians.

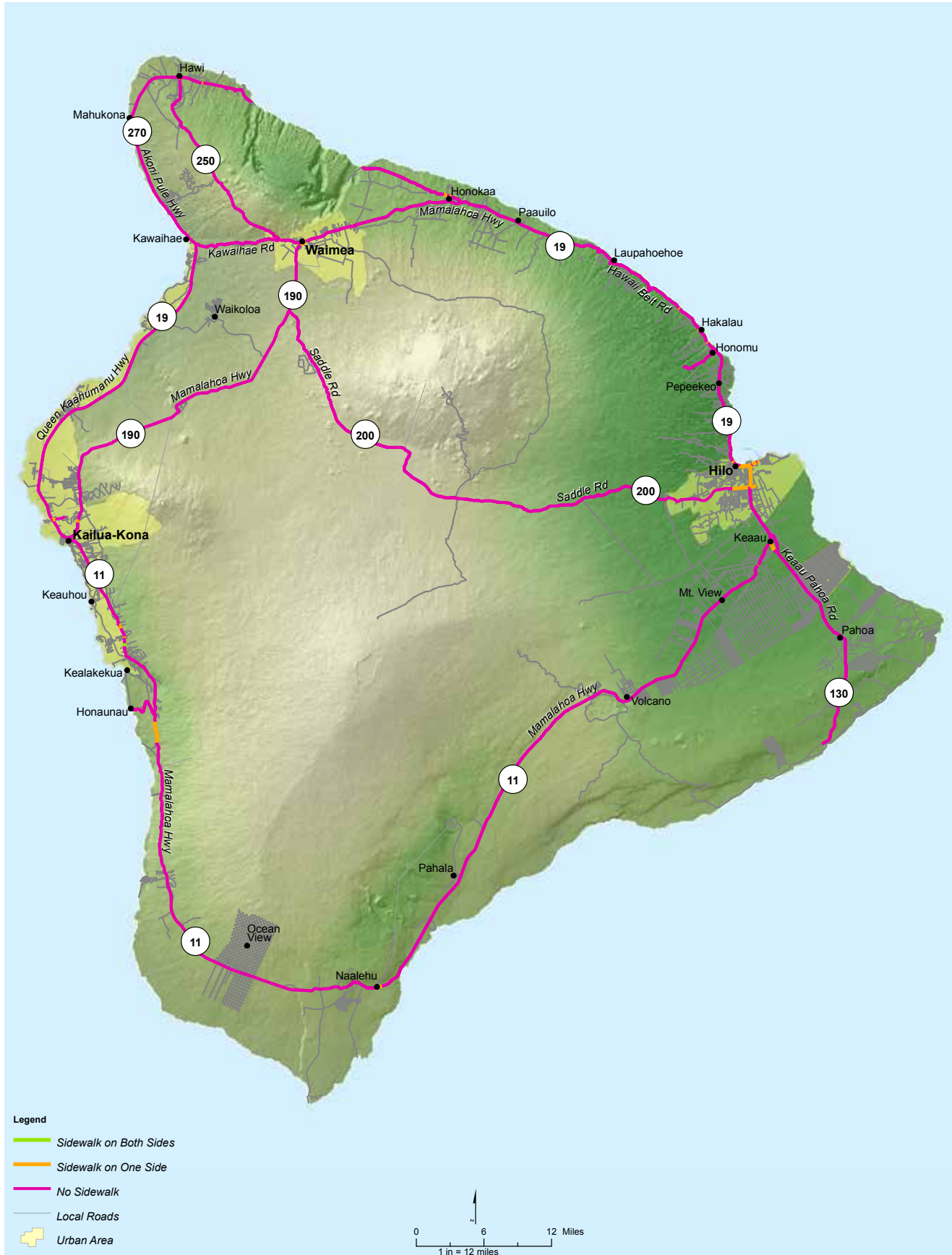
3.1.3 Pedestrian-Oriented Populations

The County of Hawaii has some areas of concentrated elderly populations, primarily near Kailua-Kona and north of Hilo. The county also has a relatively high percentage of youth under 17. Many areas within the county have higher than average percentages of their population living below the poverty line level. These low-income areas include the southern and eastern part of the county, including the towns of Naalehu, Hilo, and Pahoa.



Naalehu, Hawaii

FIGURE 3-1
Sidewalk Locations on State Highways in the County of Hawaii



3.2 County of Maui

The County of Maui includes the islands of Maui, Molokai, and Lanai. Maui is the most developed of the three, with a population of 154,834. The predominant land uses on Maui include forests and rangeland. The urbanized areas in Kahului, Wailuku, Lahaina, Kihei, and Makawao contain schools, parks, community centers, and shopping centers. Kahului is also a cruise ship destination.

Maui has one national park, Haleakala, in the eastern part of the island. There are resort areas on Maui between Kapalua and Lahaina and along Piilani Highway (Hwy 31), between Kihei and Makena.

The majority of lands on both Molokai and Lanai are rural and are designated as forest, rangeland, or agricultural land. On Lanai, the town center is in the center of the island and contains a senior center, public library, and resorts. Molokai has a community center, a library, a few schools, parks, and hotels.

3.2.1 State Highways and Pedestrian Infrastructure

The most heavily traveled roadways on Maui are Kaahumanu Avenue and Kahului Beach Road in the central valley and Honoapiilani Highway (Highway 30) near Lahaina. Maui has higher traffic speeds in the rural areas and slower speeds in towns and cities. Speed limits on Lanai and Molokai are generally between 20 and 45 mph, which are lower than the larger islands.

There are a few locations where highways on Maui have sidewalks: near Kahului, near Hana on the east side of the highway, and near Keawakapu, north of Makena. Most highways on Maui have shoulders of at least one to two feet and many have shoulders between six and ten feet wide. Hana Highway (Highway 360) has neither shoulders nor sidewalks. Figure 3-2 shows existing sidewalk locations along the state highways in the County of Maui.

Molokai and Lanai are predominantly rural and have few pedestrian facilities. Molokai has a few sections of highway that have sidewalks on one side, while Lanai has no highways with sidewalks. Lanai has shoulders on the entire state highway on the island, varying in width between one to two feet and

six to ten feet. On Molokai, Maunaloa Highway (Highway 460) has three to five foot shoulders. The other state highways have very narrow or no shoulders.

The County of Maui's transit provider is Maui Bus, which provides service on Maui only. Lanai and Molokai do not have transit service. Transit routes on Maui are primarily limited to the central and western part of the island, with one route through central Maui between Kahului and Maalaea. There are a handful of routes that make a small loop in a city or town, while other routes pass through the more populated rural areas on the island.

3.2.2 Pedestrian Safety

There have been relatively few crashes involving pedestrians in the County of Maui. Those that have occurred have been concentrated in more urbanized areas, particularly in Kahului and Lahaina. There have been very few crashes involving pedestrians on Molokai and Lanai.

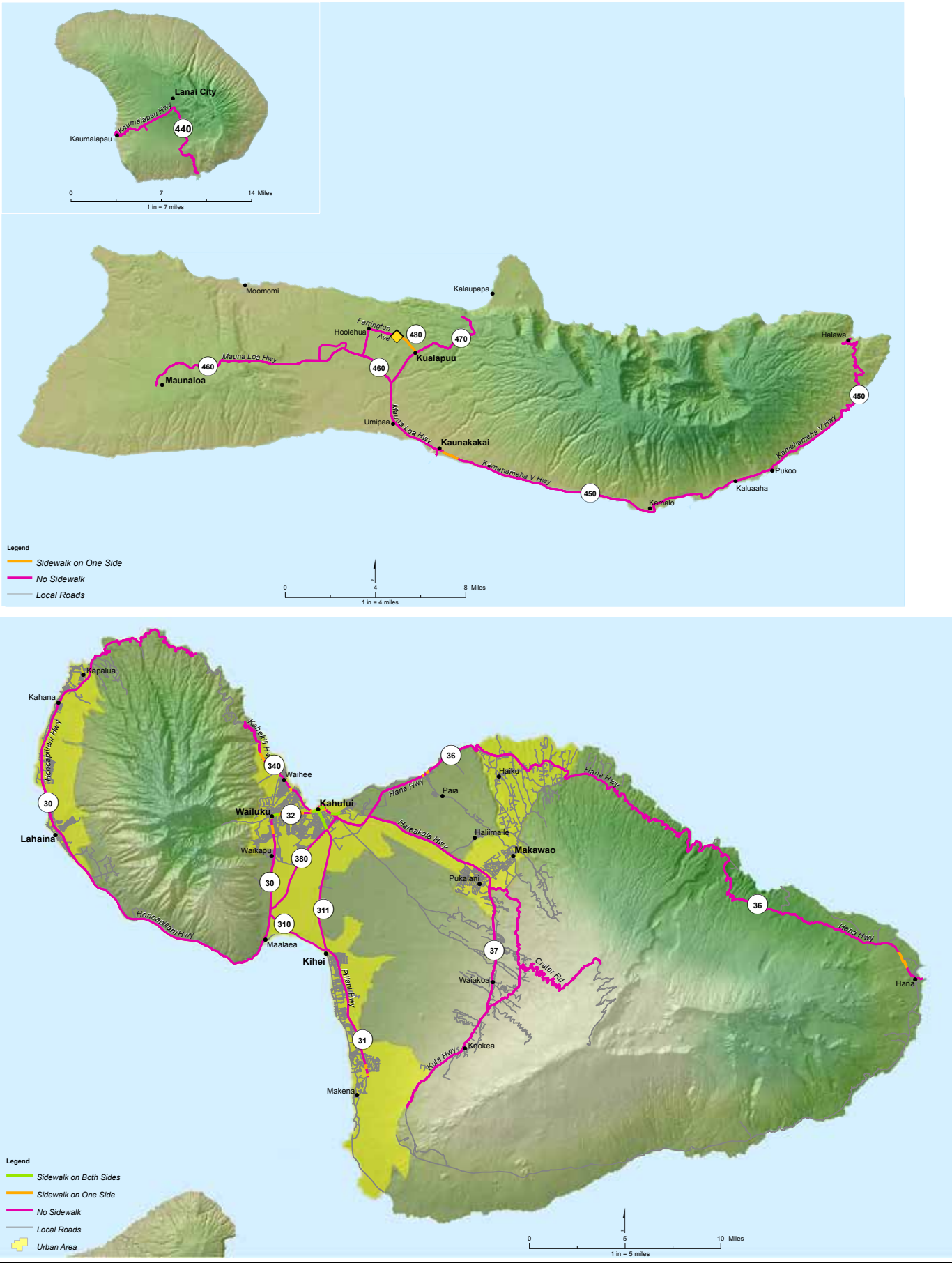
3.2.3 Pedestrian-Oriented Populations

The central portion of Maui and the Kalaupapa area of Molokai include a higher than average concentration of elderly persons. Maui, Molokai, and Lanai do not have a higher than average concentration of youth. Lanai does not have higher than average concentrations of either elderly or youth. Of the three islands, Molokai has a higher than average concentration of persons living below the poverty level.



Pukalani, Maui

FIGURE 3-2:
 Sidewalk Locations on State Highways in the County of Maui



3.3 County of Kauai

The County of Kauai is one of the state's least populated counties, with a population of 67,091. The majority of Kauai's land is rural, designated for open space and agriculture. The two most urbanized areas in the county are Kapaa and Lihue. Each of these areas has destinations that attract pedestrians, including shopping areas, libraries, schools, local parks, and community centers. In addition, Lihue is a cruise ship destination. There are small residential communities spread out along much of the island's coast, but they are not typically designated as urban land. Major resort areas in Kauai include Princeville, Wailua, Kapaa, and Poipu.

3.3.1 State Highways and Pedestrian Infrastructure

The highways on the east side of the island carry the most traffic, primarily Kuhio Highway (Highway 56) through Lihue and to the north along the Kapaa coast. Speeds on Kauai tend to be higher because of the more rural nature of the island, though Kokee Road (Highway 550) near Waimea Canyon has a 25 mph speed limit because of the winding and steep nature of the road. Speed limits in towns are generally 25 to 35 mph.

Kauai is predominantly rural and has few sidewalks; however, the majority of the highways on Kauai have six to ten foot

paved shoulders. Most of the sidewalks that exist are concentrated on the eastern side of the island, near Kapaa and Lihue, with a few sidewalks on the southwestern side in Waimea and near Hanapepe. Figure 3-3 depicts existing sidewalk locations on Kauai.

The county's transit provider is Kauai Bus. Transit routes in Kauai generally follow the state highways, with some small loops on local roads through populated areas including Poipu, Hanapepe, and Nawiliwili.

3.3.2 Pedestrian Safety

Kauai has had relatively few crashes involving pedestrians. The crashes that have occurred are typically clustered in town centers, near pedestrian attractors. The majority of the crashes that have occurred have involved pedestrians under the age of 17.

3.3.3 Pedestrian-Oriented Populations

The highest percentage of elderly people in Kauai is located near Waimea. Kauai also has a high percentage of persons living below the poverty line. Kauai does not have a higher than average percentage of youth. There is one block group near Lihue where 30 to 55 percent of the population has no access to vehicles.



Kapaa, Kauai



Hanalei, Kauai



Lihue, Kauai

Legend

- Sidewalk on Both Sides
- Sidewalk on One Side
- No Sidewalk
- Local Roads
- Urban Area

0 4 8 Miles
1 in = 4.417 miles

3.4 City and County of Honolulu

The City and County of Honolulu is comprised of the island of Oahu. Oahu is the state's most developed island, with a population of over 953,200. It has more mixed land use patterns than the other islands. After forest and agricultural uses, the predominant land uses on the island are commercial and residential. Industrial and urban uses are concentrated in the central and southern parts of Oahu. The Primary Urban Center includes the coastal plain that extends along Oahu's southern shore from Waialae-Kahala in the east to Pearl City in the west and from the shoreline to the westerly slopes of the Koolau Mountain Range, and is the densest urban area in the state. It contains many pedestrian attractors, including a zoo, shopping areas, parks, monuments, the Pearl Harbor Memorial sites, museums, and cruise ship terminals. The central Honolulu area also has multiple schools, universities, libraries, and community centers.

3.4.1 State Highways and Pedestrian Infrastructure

Oahu highways carry the highest amount of traffic of any of the islands. Highways and freeways in the central areas of Honolulu experience congestion during peak commute hours. Congestion levels decrease further away from the populous south shore. Oahu's interstate highways have higher speed limits, between 55 and 60 mph, while the more urban and winding highway sections along the coast have lower speed limits of between 25 and 35 mph.

Oahu has the most extensive sidewalk system of any of the islands. Many highways have sections with sidewalks at least on one side of the road, and many highways in the urban areas of Honolulu have sidewalks on both sides. The majority of highways on Oahu have paved shoulders on one or both sides of the road; these vary in width from one to ten feet. The shoulders tend to be wider in urban areas and narrower in rural areas. The interstate highway corridors (H-1, H-2, H-201, and H-3) have no sidewalks, as pedestrians and bicyclists are prohibited by law. Figure 3-4 shows existing sidewalk conditions in the City and County of Honolulu.

Honolulu's transit provider is called The Bus and is run by the Oahu Transit Service. Oahu's transit system is the most extensive of all the islands. Multiple routes cross over the mountains in the southeastern part of the islands, several routes extend through the central part of the island, and one route runs almost completely around the coast of the entire island.

These areas generally have sidewalks of varying widths to accommodate a variety of pedestrian volumes. Oahu is also the only island in the state that has transit centers, with centers in Wahiawa, Waianae, Waipahu, Mililani, Kapolei, Alapai, and Middle Street.

3.4.2 Pedestrian Safety

The City and County of Honolulu has had the highest numbers of crashes of any island involving pedestrians. Most of the pedestrian crashes on the island have occurred in the Primary Urban Center. There has also been a high incidence of crashes in the built-out southern coast, including the Waikiki, Pearl City, and Ewa areas. Other high crash areas include the urbanized areas between Makaha and Nanakuli, the central valley near Wahiawa, and Kalaniana'ole Highway on the east side.

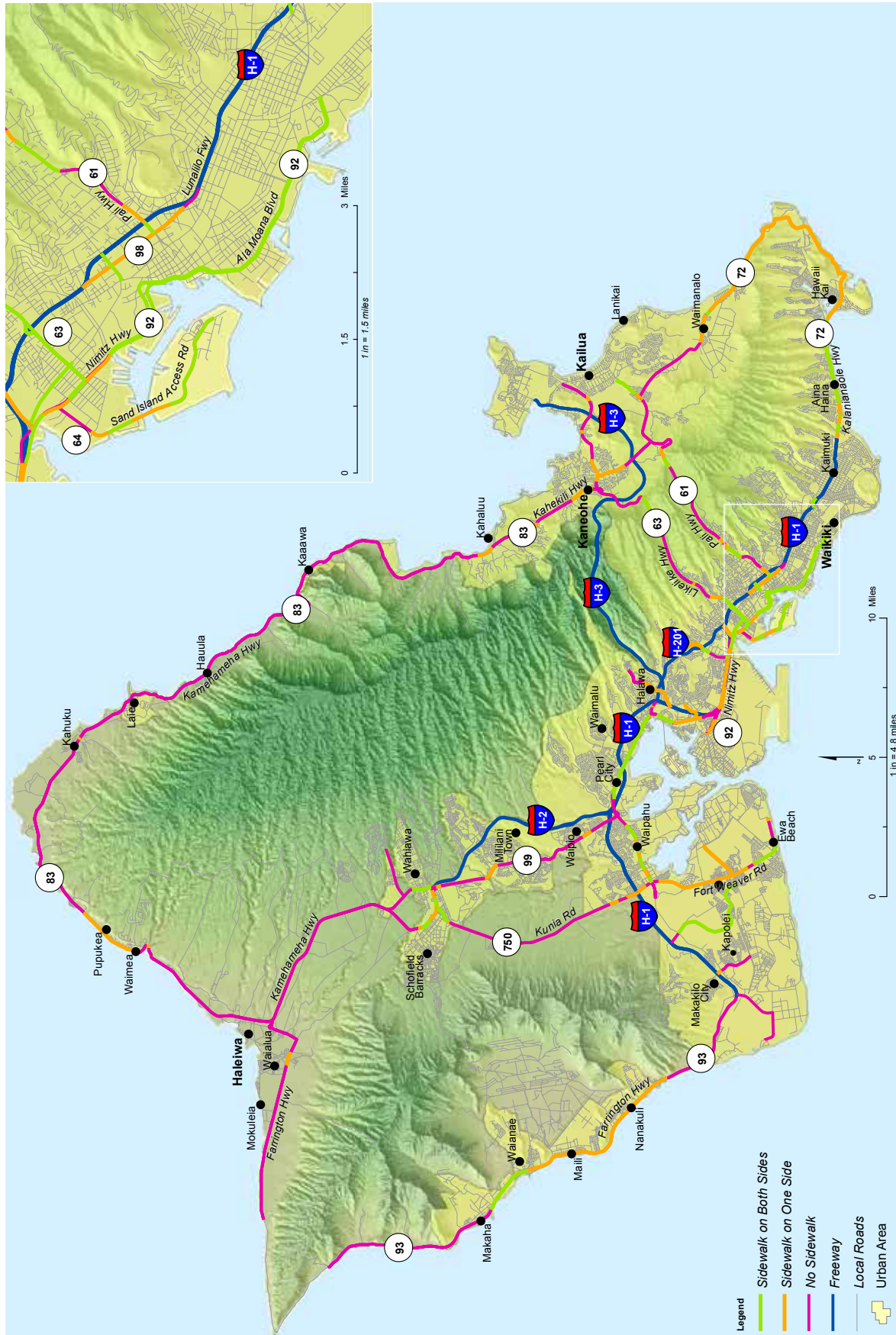
3.4.3 Pedestrian-Oriented Populations

The Primary Urban Center, particularly the areas to the north and east, has relatively high percentages of elderly populations. The central and western parts of Oahu have high percentages of youth under 17. In addition, there are some areas of Honolulu and central Oahu where there are high percentages of people without access to vehicles.



Hobron Lane and Ala Moana Boulevard, Honolulu, HI

FIGURE 3-4
 Sidewalk Locations on State Highways in the City and County of Honolulu





A crosswalk with an advance stop bar in Kapaa, Kauai.



CHAPTER 4

Areas of Concern





A pedestrian looks for traffic as he waits to cross the street on Vineyard Boulevard in Honolulu

4. AREAS OF CONCERN

This chapter describes the areas of concern along the state highway system that have been prioritized for pedestrian improvements. The areas of concern were used to determine the locations of key project recommendations for the development of a prioritized pedestrian project list.

The areas of concern (AOCs) were identified through a technical analysis of existing conditions, input from the TAC and CAC, and validation from the general public. This chapter begins by describing the methodology for identifying the areas of concern and describes those areas of concern within each county. The areas of concern described in this chapter form the basis for the solution development and project and program recommendations in Chapter 5.

4.1 Methodology

The development process used to identify the areas of concern was based on specific technical factors. The project team worked closely with the TAC, CAC, and members of the public to ensure that the areas of concern identified met both technical factors and represented community concerns. Figure 4.1 illustrates the overall development process for the areas of concern and the development of the prioritized project list.

To identify the need for pedestrian improvements, factors were defined at the beginning of the area of concern development process. They were based on technical knowledge of best practices and reflect the information gathered as part of the inventory of existing conditions.

FIGURE 4.1
Area of Concern Development Process



What Are Areas of Concern?

Areas of concern are locations along the state highway system where pedestrian improvements are recommended. These areas have the following characteristics:

- Safety concerns (pedestrian hot spots)
- Gaps in the existing sidewalk system
- Located near pedestrian-intensive land uses and pedestrian attractors
- High concentrations of pedestrian-oriented populations

DEFINITIONS

Pedestrian Attractors — locations that attract a lot of pedestrians, such as parks, schools, tourist attractions, transit centers, etc.

Pedestrian Hot Spot — locations where multiple pedestrian crashes have occurred.

These factors were established to ensure a transparent and unbiased evaluation process that could easily be explained to and validated by the public and stakeholders. The factors were endorsed by the TAC and CAC and validated by the public via a series of public meetings. The four key factors that were developed to indicate the need for pedestrian improvements were:

- **Connectivity** (areas with sidewalk system gaps)
- **Accessibility** (areas located near pedestrian-intensive land uses)
- **Pedestrian-Oriented Populations** (these include the elderly, youth, low-income populations, and households that have no access to vehicles)
- **Safety** (locations prone to safety concerns, such as pedestrian hot spots)

The project team overlaid these key factors with each other using a GIS analysis based on the existing conditions data. The locations with the highest density of factors were identified as potential areas of concern. Figure 4-2 shows the results of the

GIS analysis in Honolulu. This map information was discussed with the TAC and CAC. This technical exercise was used as a tool for the TAC and CAC to determine areas of concern. Table 4-1 defines each factor and how it was measured in the GIS analysis. Further details on the GIS data used and technical methods are provided in Appendix D, Methodology for the Areas of Concern.

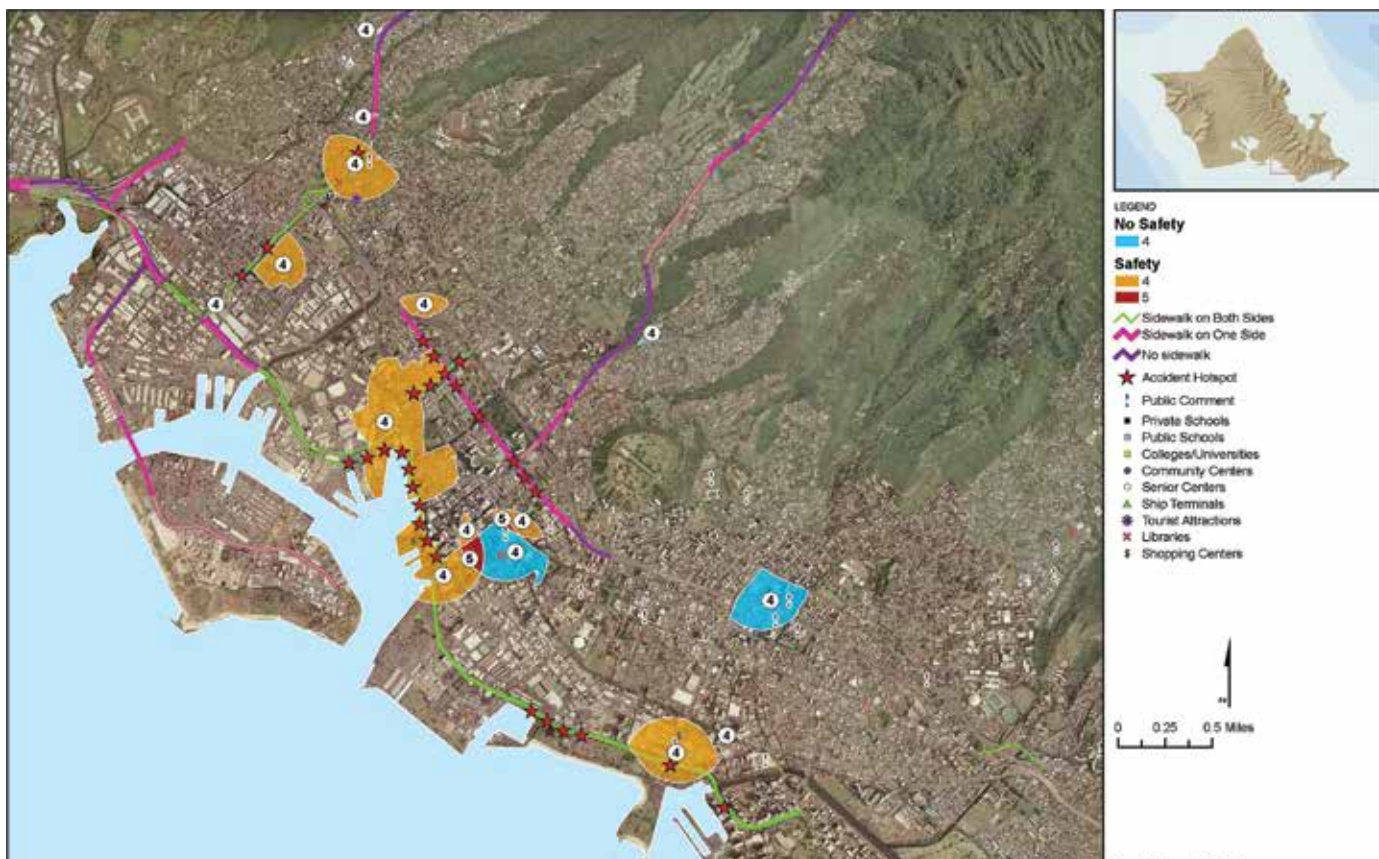


FIGURE 4-2
A GIS analysis helped to determine locations of areas of concern.

TABLE 4-1

Technical Definition of Factors

Factor	Description	Measurement
Connectivity	A well-connected sidewalk system can help improve pedestrian travel, protect pedestrians from vehicle conflicts, and improve pedestrian access to and from the transit network and other needed services. Locations with gaps in the sidewalk system, especially in urban or rural town areas, can create undesirable walking conditions. It should be noted that while pedestrians may use roadway shoulders, many communities prefer sidewalks over shoulders when possible. This is particularly true on the state highway system, where vehicle traffic levels are generally higher than on other roadways.	<p>Locations in need of connectivity improvements are defined as those where:</p> <ul style="list-style-type: none"> • Sidewalks are missing on both sides of the highway for 1/8 mile or less in urban areas • Sidewalks are missing on both sides of the highway for 1/4 mile or less in rural areas • Specific for Kauai (per Kauai TAC) - Sidewalks are missing for 1 mile or less <p>These measurements were designed to identify places where there is a small gap in existing pedestrian infrastructure.</p>
Accessibility	Accessibility is defined for this Plan as the ability of the greatest number of people to access the pedestrian system. Certain land uses generate high levels of pedestrian activity. Areas with close proximity to pedestrian-intensive land uses are a factor for establishing the areas of concern.	<p>Key land uses that need to be served by the pedestrian system include schools, tourist destinations, harbors, stadiums, state and county beaches, state and county parks, transit centers and major bus stops on Oahu, future rail stations on Oahu, hotels, libraries, medical facilities, police stations, government service buildings, high-density residential districts, and commercial districts.</p> <p>These land uses were mapped using GIS. Then, a 1/4 mile was drawn around each land use, reflecting the typical distance pedestrians would be willing to walk to each destination. Schools were given a 1 mile buffer, and future rail stations were given a 1/2 mile buffer.</p> <p>Pedestrian access to schools was very important to the project stakeholders, therefore, access to schools was counted separately.</p>
Pedestrian-Oriented Populations	This factor addresses the needs of populations that may have limited access to transportation options. Youth, elderly, low-income populations, and households that have no access to vehicles are more reliant on the pedestrian system because they may not be able to drive or afford a safe and reliable vehicle. Areas where these types of populations are concentrated can be considered to have "high pedestrian potential." This factor will help to ensure that the transportation needs of disadvantaged populations are taken into consideration when establishing the areas of concern.	<p>Locations of high concentrations of elderly, youth, low-income, and households with no access to vehicle populations were mapped using GIS.</p> <ul style="list-style-type: none"> • Low-income is defined as households living at or below the poverty level. • Elderly is defined as 65 years of age or older. • Youth is defined as 17 years of age or younger. <p>High concentrations are those where the percentage of the population exceeds the average percentage for each county. Locations were mapped using 2000 US Census block groups.</p>
Safety	Reducing the number of crashes involving pedestrians is one of the key components of this Plan. This factor was used to identify those locations with a high concentration of pedestrian crashes or safety-related complaints.	<p>Areas were identified for safety concerns in three ways:</p> <ol style="list-style-type: none"> 1. Pedestrian crash hot spots. Locations in urban areas with five or more pedestrian crashes or two pedestrian fatalities within the study period, and locations in rural areas with three or more pedestrian crashes or two pedestrian fatalities within the study period. Locations are defined as +/- 0.1 mile in either direction. 2. High-complaint areas. The TAC provided a list of locations where their agencies or departments receive high numbers of pedestrian safety-related complaints and high complaint areas from the public. 3. TAC recommendations. The TAC identified any key areas that they believed need to be addressed through the areas of concern exercise.

Once the initial area of concern locations were identified through the GIS analysis, the TAC and CAC “ground-truthed” the findings based on their technical and professional knowledge. They examined areas where the data showed overlapping areas of concern and areas where the data was outdated or inaccurate. The project team used these results to further refine the list of areas of concern. During this process, the TAC and CAC brought up locations that pedestrians had identified as needing improvements, and opportunity areas that could be coordinated with other ongoing or planned efforts. A total of six additional areas of concern were identified by the TAC and CAC. To incorporate the input from the public obtained during the first round of public outreach meetings, locations where public comments were received from three or more people were added to the list. A total of seventeen new areas of concern locations were identified through this public involvement process.



The public reviewed and validated the existing conditions analysis during the first round of public meetings.

PUSH
BUTTON
FOR



Throughout the validation process for the areas of concern, various stakeholders were contacted and existing conditions were further researched to develop project descriptions and analyses of the issues and/or concerns. Once the descriptions and analyses were developed, potential solutions were generated. The potential solutions are shared in Chapter 5. Details of each area of concern can be found in Appendix E, Areas of Concern.

The public reviewed and commented on the areas of concern during the second round of public meetings.



4.2 County of Hawaii Areas of Concern

Five Areas of Concern were identified within the County of Hawaii. One was identified through the technical analysis, and four were identified based on feedback from the TAC, CAC, or the general public. These are described further on Table 4-2 and shown on Figure 4-3.

TABLE 4-2
County of Hawaii Areas of Concern

ID No.	Areas of Concern	Identification Method		Factor				Description
		Factor Overlay Analysis	Stakeholder Input	Connectivity	Accessibility	POP	Safety	
H1	Hawaii Belt Road, Paaulo Elementary School	•		•	•	•		Students lack a dedicated and intuitive way to walk or bike between school and the pedestrian bridge. Currently there are no signs indicating to motorists that a school is nearby.
H2	Bayfront Highway, Kaipalaoa Landing		Public	•	•			There is a need to accommodate pedestrians that cross the Bayfront Highway. Pedestrians cross where Waianuenue Avenue intersects with the highway. Existing sidewalks from downtown lead towards this intersection, so it is understandable that pedestrians looking to access the waterfront would choose to cross in this location.
H3	Mamalahoa Highway, Naalehu		TAC	•	•			The mauka side of Mamalahoa Highway lacks adequate pedestrian facilities in Naalehu. Although the makai side has a sidewalk in good condition, it doesn't continue west through the town center. The site would benefit from additional sidewalks to enhance pedestrian connectivity from the park, school, and services.
H4	North Kona, Queen's Lei		CAC	•	•			The Kailua-Kona area lacks multi-modal connectivity options. Queen's Lei is a 16.75-mile circulation loop for bicyclists and pedestrians. It would provide for the needs of a variety of pedestrians and bicyclists, including commuters, school children, neighborhood residents, and recreational users.
H5	Akoni Pule Highway, at Kawaihae Road intersection		Public	•	•			There is a need to accommodate pedestrian crossings at the intersection of Akoni Pule Highway and Kawaihae Harbor Road. There is currently no crosswalk nor signage to warn motorists to be aware of pedestrian crossings.

FIGURE 4-3
County of Hawaii Areas of Concern

Hawaii Belt Road, Paauilo Elementary School



H1

Bayfront Highway, Kaipalaoa Landing

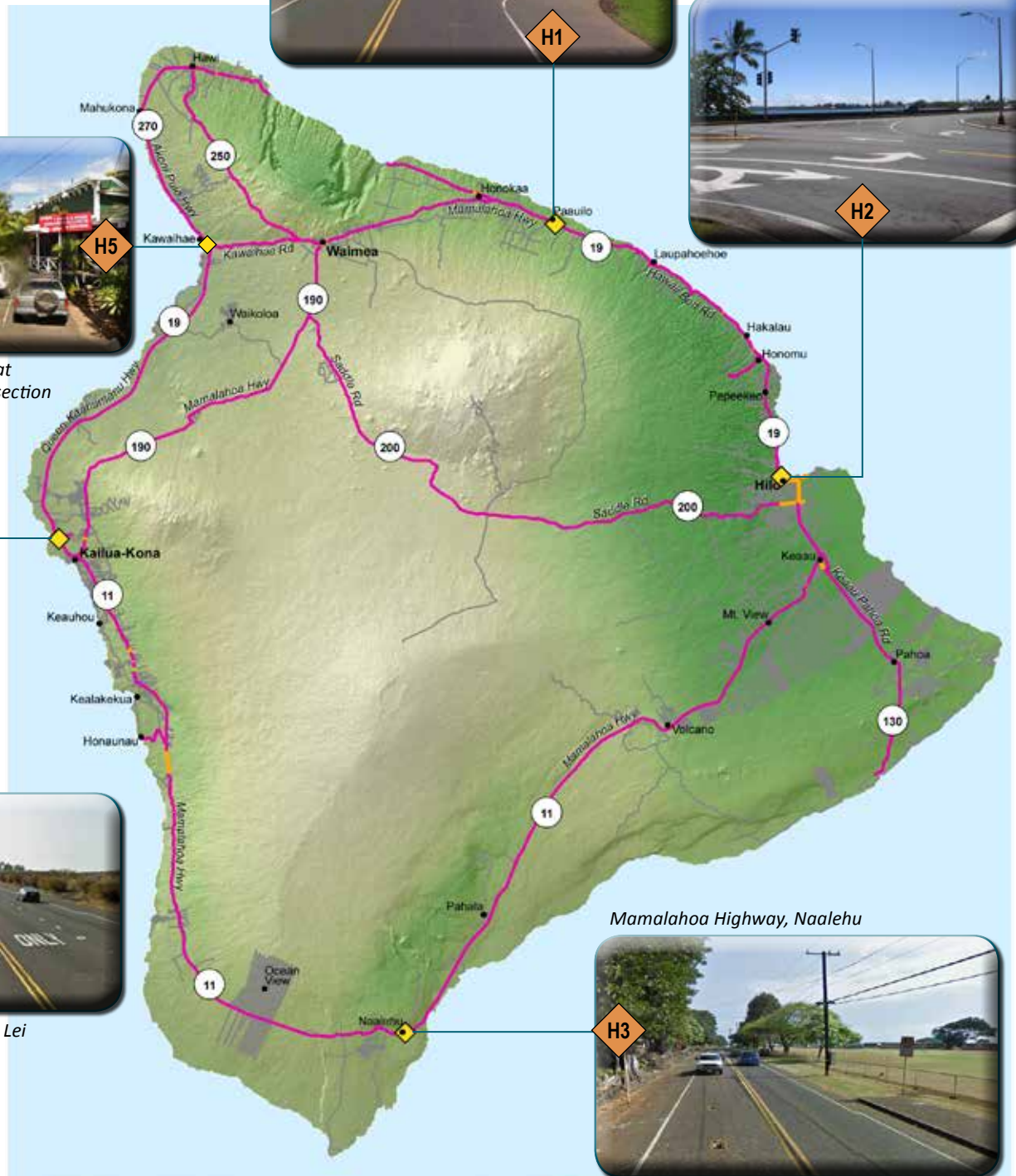


H2



*Akoni Pule Highway, at
Kawaihae Road intersection*

H5



H4

North Kona, Queen's Lei

Mamalahoa Highway, Naalehu



H3

- LEGEND**
- Sidewalk on Both Sides
 - Sidewalk on One Side
 - No Sidewalk
 - Freeway
 - Local Roads

4.3 County of Maui Areas of Concern

Seven Areas of Concern were identified within the County of Maui. Two were identified through the technical analysis, and five were added based on input from the TAC, CAC, or the general public. They are described further on Table 4-3 and depicted on Figure 4-4.

TABLE 4-3
County of Maui Areas of Concern

ID No.	Areas of Concern	Identification Method		Factor				Description
		Factor Overlay Analysis	Stakeholder Input	Connectivity	Accessibility	POP	Safety	
M1	Farrington Avenue, Molokai High School	•		•	•	•		Students lack dedicated pedestrian facilities to walk to school, as sidewalks transition into shoulders just past the high school. Improved pedestrian accommodations would benefit the community and enhance pedestrian connectivity in the area.
M2	Kaahumanu Avenue, Kahului Harbor		Public	•	•			The area along Kaahumanu Avenue where the sidewalk is discontinuous creates a gap for pedestrian connectivity. In this area, people either walk along a private parking lot, in the bike lane, or in the landscaping, or they cross to the other side of the road. The landscaped areas are not well lit and contain trees and highway signage.
M3	Hana Highway, Paia Youth Center	•		•	•	•	•	Between 2004 and 2008, there were four pedestrian-related crashes in this study area, primarily at the signalized intersection of Hana Highway and Baldwin Avenue. Vehicles often park in the shoulder along Hana Highway, blocking pedestrian access from the parking lot to the Youth Center.
M4	Haleakala Highway, Kula Highway, near Makawao		CAC	•	•			Students from the Makawao and Pukalani communities lack a dedicated path to and from school. It would be preferable for these young, inexperienced commuters to walk/bike on a facility separated from vehicular traffic.
M5	Piilani Highway, at Moi Place intersection		TAC				•	The intersection of Piilani Highway (Highway 31) and Moi Place in Kihei is currently unsignalized. A marked crosswalk is provided for pedestrians to cross the highway on the south side of the intersection. There is no advance signing to warn drivers of the potential presence of pedestrians.
M6	Mokulele Highway/ Puunene Avenue		TAC	•	•			A shared use path runs along Puunene Avenue on the makai side of the road, and ends at the intersection with Hookele Street. An existing shared use path also runs along Puunene Avenue, starting at the intersection with Puukani Street. A gap in pedestrian connectivity exists between Hookele and Puukani Streets.
M7	Main Street, at Church Street and High Street intersections		TAC		•		•	At both the Church Street and High Street intersections with Main Street, the design radii of several of the curb returns is very generous. This allows for vehicles to turn onto or off of Main Street at relatively high speeds, and reduces the amount of time that pedestrians and drivers have to react to the presence of one another. In addition, there are a lot of turning movements at the Main and High Street intersection, which can be confusing for pedestrians.



FIGURE 4-4
County of Maui Areas of Concern

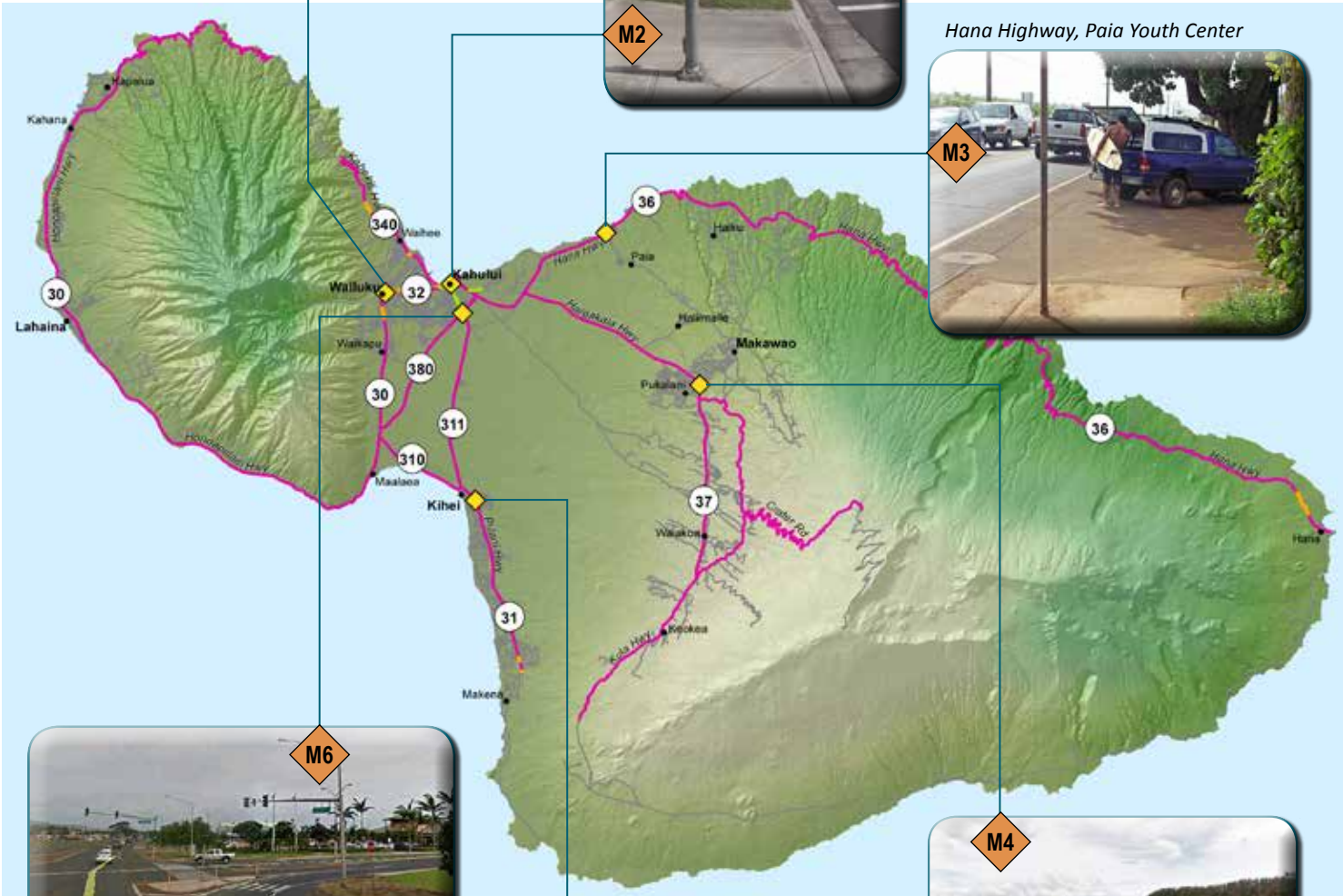
Main Street, at Church Street and High Street intersections



Kaahumanu Avenue, Kahului Harbor



Hana Highway, Paia Youth Center



Mokulele Highway/Puunene Avenue



Piilani Highway, at Moi Place intersection



Haleakala Highway, Kula Highway near Makawao

- LEGEND**
- Sidewalk on Both Sides
 - Sidewalk on One Side
 - No Sidewalk
 - Freeway
 - Local Roads

4.4 County of Kauai Areas of Concern

Six Areas of Concern were identified in the County of Kauai. One was identified through the technical analysis and five were added based on input from the TAC, CAC, or the general public. They are described further in Table 4-4 and depicted on Figure 4-5.

TABLE 4-4
County of Kauai Areas of Concern

ID No.	Areas of Concern	Identification Method		Factor				Description
		Factor Overlay Analysis	Stakeholder Input	Connectivity	Accessibility	POP	Safety	
K1	Kuhio Highway, at Kawaihau Road intersection		Public	•	•		•	Along Kuhio Highway (Highway 56) in Kapaa, three roads from the mauka side (Cane Haul Road, Hauaala Road, and Kawaihau Road) intersect the highway within a 250-foot stretch. Pedestrians from the residential neighborhood in the area have a difficult time crossing the highway in order to access the multi-use path on the makai side of the road.
K2	Kuhio Highway, between Wilcox Memorial Hospital and Hanamaulu Road		TAC	•	•		•	It is a concern for pedestrians walking along this section of Kuhio Highway, where there are no sidewalks, eroding sections of sidewalks, and a bridge with narrow shoulders. It is also difficult for pedestrians to cross the highway because of the lack of crosswalks. In addition, vehicles have been observed speeding along this section of the highway.
K3	Kuhio Highway at Ehiku Street, Lihue		Public	•	•			There is a sidewalk gap along Kuhio Highway at Ehiku Street where pedestrians have to walk on a grass buffer. An existing drainage swale and overgrown landscaping further impede passage. The lack of crosswalks across Kuhio Highway limits safe options for pedestrian connectivity along this corridor.
K4	Rice Street, near Nawiliwili Harbor		Public	•	•			Along this section of Rice Street, pedestrians walk on paved shoulders between the harbor and hotel. There are areas that are narrow for pedestrian use, including crossing the Nawiliwili Bridge. The existing bridge does not appear to have available width to accommodate pedestrian facilities.
K5	Kaumualii Highway, at Papalina Road intersection	•	TAC			•	•	There were four crashes recorded at this intersection between 2004 and 2008, with three out of the four crashes involving a pedestrian crossing in the crosswalk. The fourth crash resulted from a motorist running off the roadway. All crashes occurred on a clear day during daytime.
K6	Kuhio Highway, between Aku Road and Hanalei Dolphin Center		Public	•	•			As mentioned in the Kuhio Highway Historic Roadway Corridor Plan 2005, there is a need to create a pedestrian-friendly environment along Kuhio Highway through Hanalei Town. Improvements should be pedestrian-oriented through the Hanalei town center (Hanalei Post Office to Hanalei Trader), where commercial and public facilities occur.

FIGURE 4-5
County of Kauai Areas of Concern

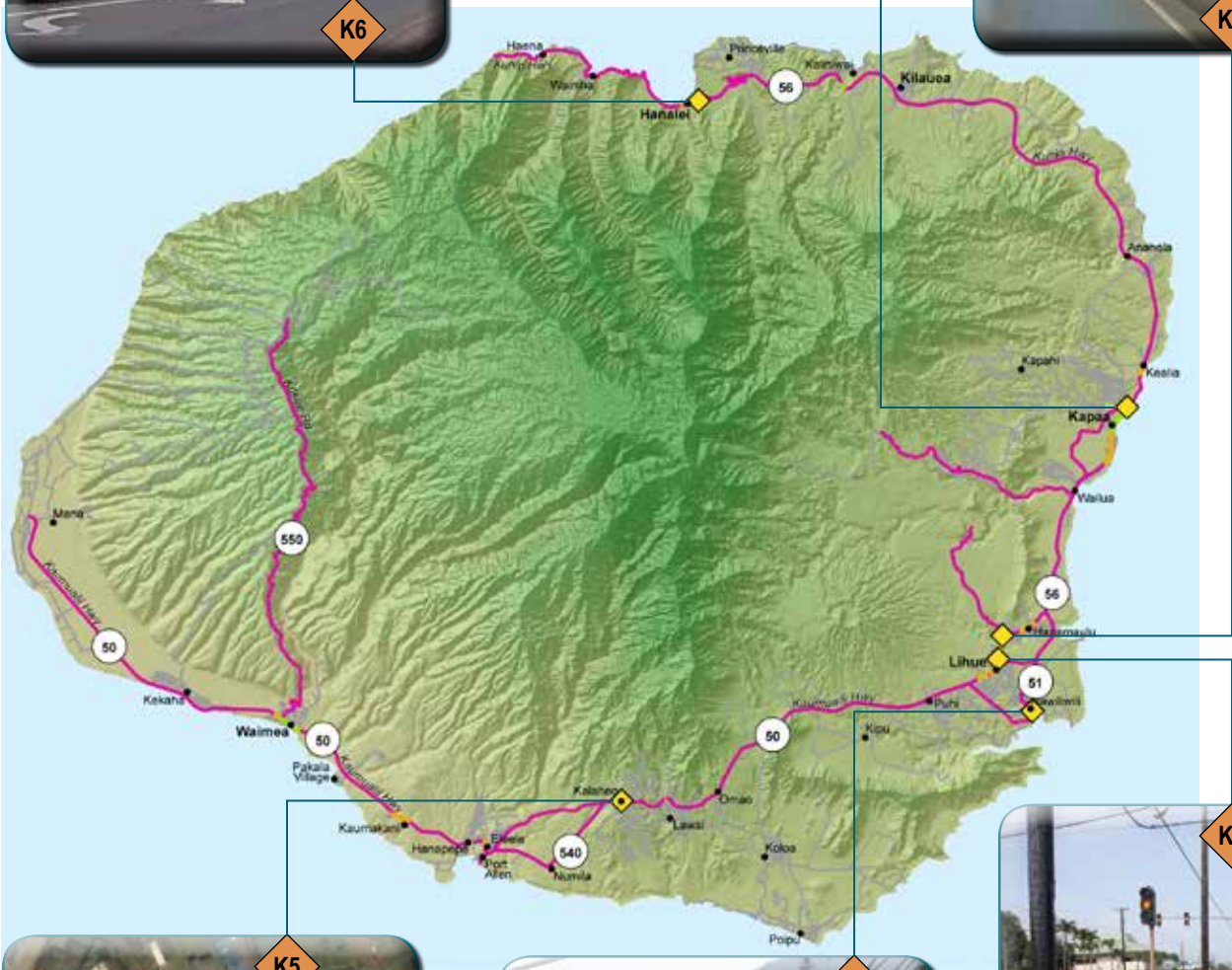
Kuhio Highway, between Aku Road and Hanalei Dolphin Center



Kuhio Highway, at Kawaihau Road intersection



Kuhio Highway, between Wilcox Memorial Hospital and Hanamaulu Road



Kaumualii Highway, at Papalina Road intersection



Rice Street near Nawiliwili Harbor



Kuhio Highway at Ehiku Street, Lihue

- LEGEND**
- Sidewalk on Both Sides
 - Sidewalk on One Side
 - No Sidewalk
 - Freeway
 - Local Roads

4.5 City and County of Honolulu Areas of Concern

Thirteen Areas of Concern were identified in the City and County of Honolulu. Nine were identified through the technical analysis and four were added based on input from the TAC, CAC, or the general public. They are described further in Tables 4-5 and 4-6 and depicted on Figures 4-6 and 4-7.

TABLE 4-5
City and County of Honolulu Areas of Concern O1 to O6

ID No.	Areas of Concern	Identification Method		Factor				Description
		Factor Overlay Analysis	Stakeholder Input	Connectivity	Accessibility	POP	Safety	
O1	Kamehameha Highway, at Pualalea Street, Kahuku		TAC			•	•	Between 2004 and 2008, there were five pedestrian crashes (including one fatal pedestrian fatality) that occurred at the intersection of Kamehameha Highway and Pualalea Street. The crashes took place during the day while pedestrians were crossing within the crosswalks. The intersection has an unsignalized pedestrian crosswalk, and advance warning signs are not provided.
O2	Kamehameha Highway, between Avocado Street and Kilani Avenue	•				•	•	Between 2004 and 2008, there were ten pedestrian crashes that occurred on this section of Kamehameha Highway. Six of them occurred at the intersection of the Kamehameha Highway and Olive Avenue. Most crashes occurred in the crosswalk when there was a conflict between turning vehicles and pedestrians crossing. Left turns from Kamehameha Highway onto Olive Avenue are protected but vehicles are also allowed to make the left turns on green when it is permissive.
O3	Waialae Avenue, at Hunakai intersection		TAC		•		•	Between 2004 and 2008, six pedestrian crashes occurred at the subject intersection, including two fatal crashes. The majority of pedestrian crashes occurred between vehicles turning from Hunakai Street and pedestrians crossing Waialae Avenue. Traditional text-based pedestrian walk signals are still in place at the intersection.
O4	Fort Weaver Road, Ilima Intermediate School	•	Public		•	•	•	The Fort Weaver Road (Highway 76) and Makule Road intersection in Ewa Beach is unsignalized and frequently used by school kids going to Ilima Intermediate School. The intersection is stop-controlled on Makule; there is a stop bar northbound on Fort Weaver Road, but none southbound. Out of the eleven pedestrian crashes on Fort Weaver Road that occurred between 2004 and 2008, four occurred while pedestrians crossed near the crosswalk at Makule Road.
O5	Farrington Highway, Nanakuli	•	Public	•	•	•	•	In Nanakuli, Farrington Highway (Highway 93) has narrow paved shoulders and no sidewalks. Local residents lack a dedicated path to walk/bike along Farrington Highway, where services are spread out along the route.
O6	Farrington Highway, Waianae Town	•	Public	•		•	•	Between 2004 and 2008, there were 22 pedestrian crashes that occurred along the study segment, with 15 pedestrian crashes occurring in the northern half mile approaching Ala Walua Street. The majority of pedestrian crashes occurred while the pedestrians were crossing within the crosswalks.

FIGURE 4-6
City and County of Honolulu Areas of Concern

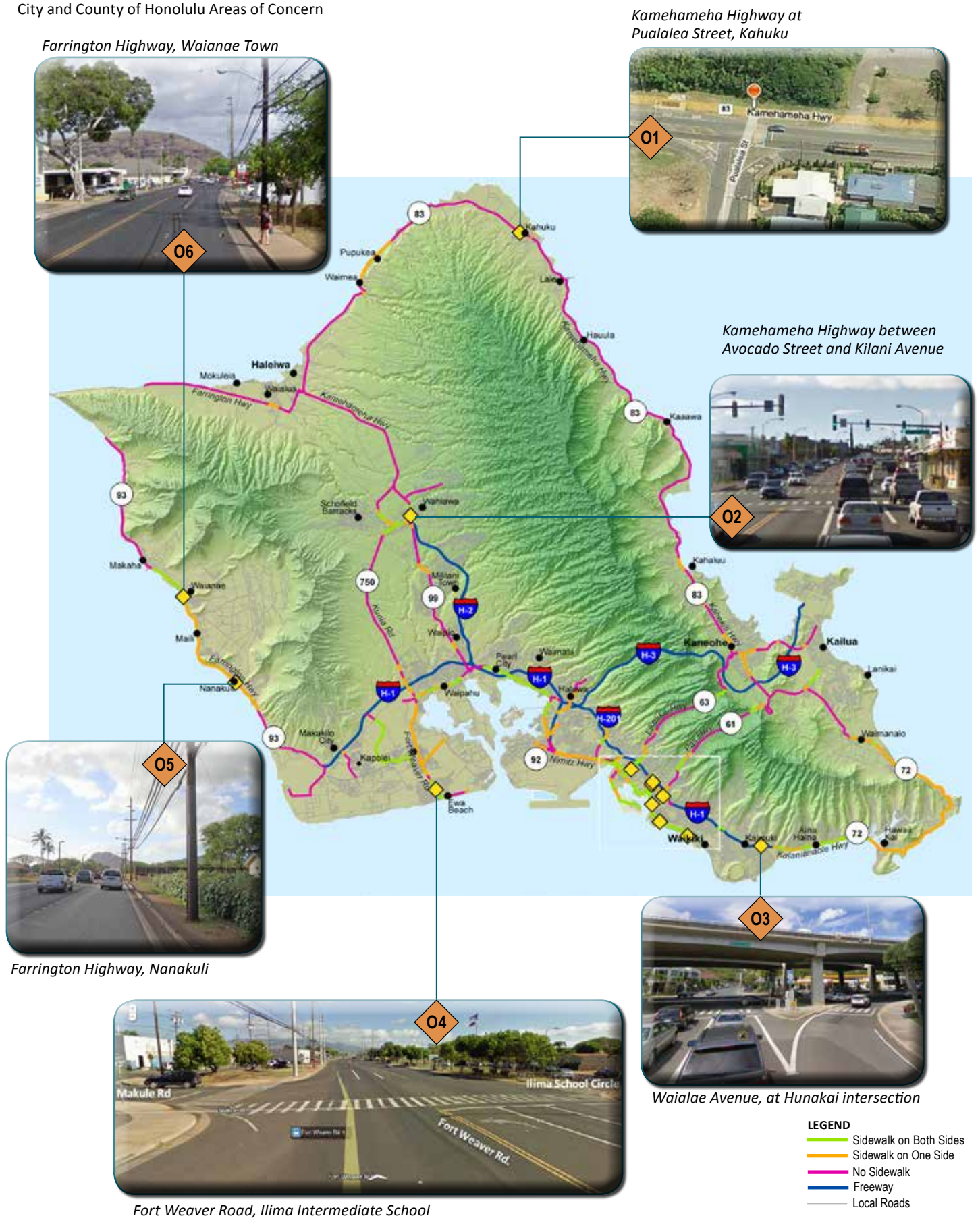
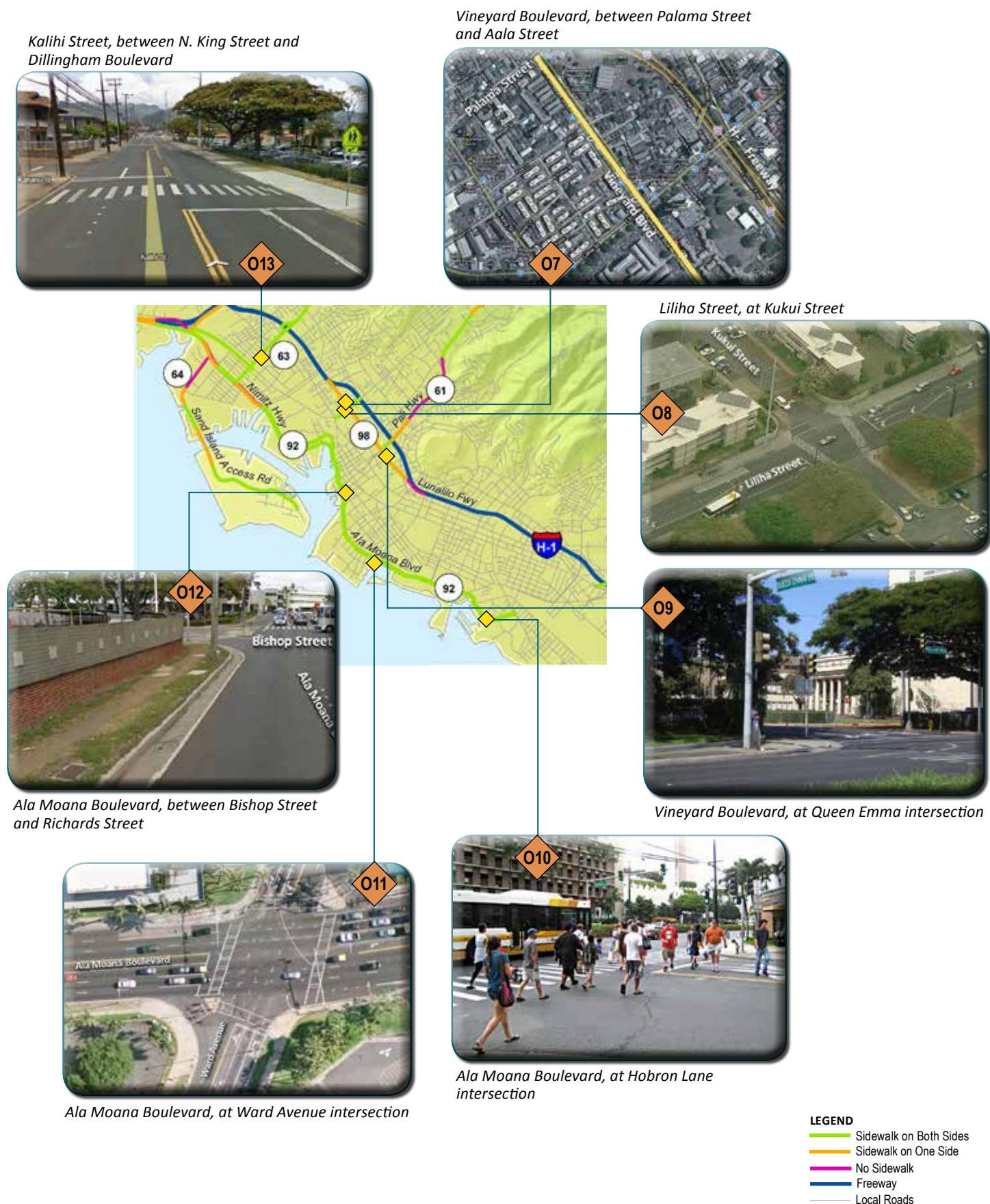


TABLE 4-6

City and County of Honolulu Areas of Concern O7 to O13

ID No.	Areas of Concern	Identification Method		Factor				Description
		Factor Overlay Analysis	Stakeholder Input	Connectivity	Accessibility	POP	Safety	
O7	Vineyard Boulevard, between Palama Street and Aala Street	•			•	•	•	Vineyard Boulevard (Highway 98) is a divided principal arterial with a 30-mph posted speed limit. There are sidewalks on both sides of the street with a median refuge. There is high pedestrian activity in this commercial/residential neighborhood. Crash data indicates that conflicting movements of turning vehicles and pedestrian crossings, and pedestrians crossing outside of crosswalk or against the walk signal were primary factors involved in the 13 pedestrian crashes that occurred within this section of Vineyard Boulevard between 2004 and 2008.
O8	Liliha Street, at Kukui Street		TAC, CAC		•	•	•	The intersection of Liliha Street and Kukui Street is a busy intersection with a lot of through traffic and high pedestrian activity. Crash data indicates that the intersection area has experienced ten pedestrian crashes between 2004 and 2008. There are marked crosswalks, but the intersection is neither stop-controlled nor signalized.
O9	Vineyard Boulevard, at Queen Emma intersection	•	TAC		•		•	There is considerable pedestrian activity in the area of the Vineyard Boulevard Queen Emma Street intersection with two schools and senior housing nearby. The intersection is signalized with crosswalks, pedestrian countdown timers, and a median refuge. 2004 -2008 crash data indicates that most crashes occurred when there was a conflict between turning vehicles and pedestrians crossing Vineyard Boulevard.
O10	Ala Moana Boulevard, at Hobron Lane intersection	•			•	•	•	Ala Moana Boulevard is a divided facility, with a few openings for crossing. Pedestrian traffic crossing Ala Moana Boulevard at Hobron Lane is heavy. The crosswalks have pedestrian signal heads with countdown timers and pedestrian-activated push buttons.
O11	Ala Moana Boulevard, at Ward Avenue intersection							The intersection of Ala Moana Boulevard and Ward Avenue in Honolulu experiences high volumes of traffic and considerable pedestrian volumes. The crosswalks across Ala Moana Boulevard are long and do not have median refuges for crossing pedestrians. The makai side crosswalk at Ward Avenue crosses at a skewed angle, which adds to its length.
O12	Ala Moana Boulevard, between Bishop Street and Richards Street	•	TAC	•	•		•	Ala Moana Boulevard in Honolulu experiences high volumes of traffic and considerable pedestrian volumes. There is a sidewalk gap on the makai side of Ala Moana Boulevard between Richards Street and Bishop Street, which is impractical for pedestrians traveling along Ala Moana Boulevard.
O13	Kalihi Street, between N. King Street and Dillingham Boulevard	•			•	•	•	Eight crashes involving pedestrians occurred on Kalihi Street between 2004 and 2008. Four crashes occurred while the pedestrian was crossing within a marked crosswalk, while three occurred outside of crosswalks. The lack of crosswalks may not be the primary contributing factor, since there are crosswalks at most, if not all, street intersections along Kalihi Street.

FIGURE 4-7
City and County of Honolulu Areas of Concern O7 to O13





Refer to the Manual on Uniform Traffic Control Devices (MUTCD) for sign design requirements and required distances at crosswalks and intersections.



CHAPTER 5

Recommendations





Pedestrians walk along Kuhio Highway in Lihue, Kauai

5. RECOMMENDATIONS

This chapter presents the recommended project solutions for addressing the areas of concern, consistent with the goals and objectives of this Plan.

5.1 Solutions Development

As the areas of concern location list was refined, the project team worked with the TAC to develop and explore potential solutions for each location. Using best practices from the Hawaii Pedestrian Toolbox, a variety of options were evaluated as possible solutions. Engineering, education, and enforcement were all considered. The potential solutions were shared with the CAC and the public to obtain feedback on whether the solution would address the location needs. The feedback was used to fine-tune and adjust the solutions as needed.

5.2 Prioritization Process

The project team identified several evaluation criteria to prioritize the projects to address the areas of concern. The criteria were developed early in the process (in the same time frame as the factors used to identify the areas of concern) to ensure transparency and provide clear direction relating to the higher-priority projects. The criteria, shown in Table 5-1, were derived from the goals and objectives and were refined based on feedback from the TAC and CAC.

Each criterion was assigned one or more analysis questions and a scale for measuring the evaluation. The scale for each question was from zero to five, with zero representing the lowest value and five representing the highest. Each area of concern project was given a score for each criterion. The purpose of these criteria was to evaluate the projects by how they address different stakeholder and community values. The TAC, CAC, and general public were asked to rank the criteria during the first round of public meetings. The values of the various stakeholders were noticeable. Table 5-2 shows the results of the ranking exercise. Each criterion was assigned a weight based on the stakeholder and community values.

Each project was then given a ranking based on the summation of the scores (from the analysis questions) and the weight assigned to each criterion. The criteria in Table 5-1 were a critical step in the prioritization process because they served as an objective way to rank projects. The rankings derived

from the analysis questions for each criterion showed the advantages and disadvantages of the proposed projects and solutions in relation to each other. Comparisons of the scores for the projects and solutions were more important than the scores themselves.

A detailed explanation of results and the scores of the prioritization are provided in Appendix F, Prioritization Process. Table 5-3 lists the prioritized projects and potential solutions in order.

TABLE 5-1

Project Prioritization Criteria

Criterion	Analysis Questions
Pedestrian Connectivity	To what extent does the project provide a direct new or improved connection to pedestrian attractors?
	To what extent does the project fill a sidewalk gap (or address any area where the sidewalk is in need of repair)?
Pedestrian Safety	To what extent does the project address pedestrian safety?
Environment	Does the project impact mountainous terrains, coastal roads (climate change impacts), cultural and historic resources, threatened and endangered species, or Section 4(f) park resources?
Property Impacts	To what extent does the project impact property?
Cost	How costly is the project?
Funding Availability	To what extent does the project have potential funding sources and how competitive is the project for funding among similar projects?
Pedestrian-Oriented Populations	To what extent does the project serve pedestrian-oriented populations which are high concentrations of elderly persons, youth, persons earning below the poverty line, and persons with limited access to vehicles, as defined by the US Census?

TABLE 5-2

Criteria ranked by the TAC, CAC, and public, in the order that was most important to them

Criteria	TAC	CAC	Public				
			Hawaii	Maui	Kauai	Oahu	Total
Pedestrian Safety	1	2	1	1	2	1	1
Pedestrian Connectivity	2	1	2	2	1	2	2
Pedestrian-Oriented Populations	3	3	3	3	3	3	3
Pedestrian System Gaps	4	4	4	4	4	4	4
Environment	7	5	5	5	5	7	5
Funding Availability	7	6	7	7	6	5	6
Cost	5	7	6	6	7	6	7
Property Impacts	8	8	8	8	8	8	8

5.3 Recommended Project Solutions

Table 5-3 lists the project solutions recommended for the areas of concern presented in Chapter 4. The table also lists the projects in the order of priority. This prioritization is meant to be used when seeking new sources of funding. Additional information on the projects is provided in Appendix E, Areas of Concern Project Descriptions.

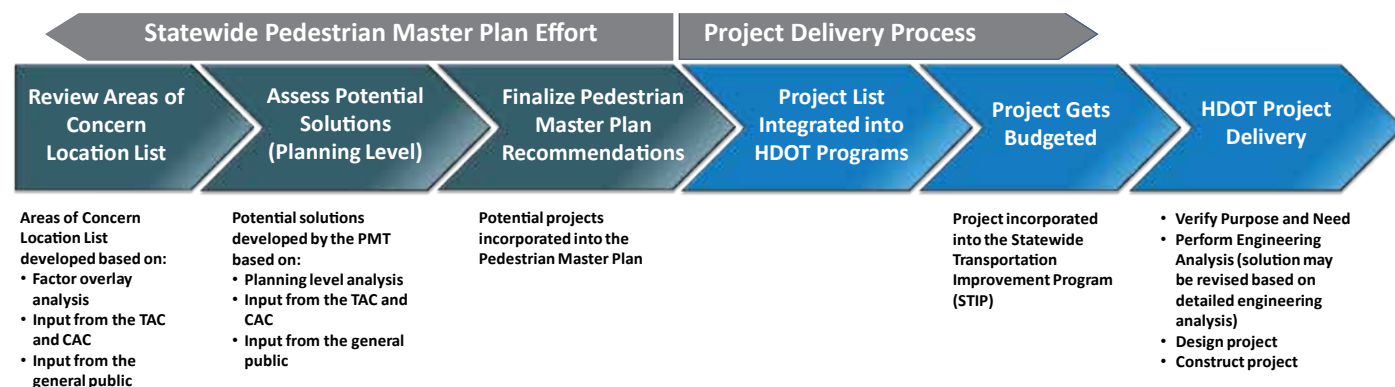
TABLE 5-3

Prioritized List of Projects

Rank	ID #	Project Name	Potential Solution
1	O-9	Vineyard Boulevard, at Queen Emma Intersection	Review the traffic signal timing to determine whether a leading pedestrian interval is feasible, add additional signage to alert drivers of pedestrians, and implement Walk Wise Hawaii (WWH), an educational program to educate the surrounding community about pedestrian and driver awareness.
2	O-6	Farrington Highway, Waianae Town	Implement WWH, an educational program to educate the community about pedestrian and driver awareness. Re-stripe faded crosswalks and install advanced stop bars with advance pedestrian signage.
3	O-7	Vineyard Boulevard, between Palama Street and Aala Street	Implement WWH, an educational program to educate the community about pedestrian and driver awareness. Install additional pedestrian signage for drivers turning onto Vineyard Boulevard and consider the feasibility of a leading pedestrian interval.
4	O-13	Kalihi Street, between N. King Street and Dillingham Boulevard	Consider the consolidation of some of the crosswalks to a primary one across from Kalakaua Middle School, with the installation of a Rectangular Rapid Flash light-emitting diode Beacon (RRFB). The site would also benefit from enhanced crosswalk markings with wider white lines.
5	K-2	Kuhio Highway, between Wilcox Memorial Hospital and Hanamaulu Road	Improve pedestrian connections by replacing eroded sidewalks, closing sidewalk gaps, and replacing the footbridge along Kuhio Highway from Wilcox Memorial Hospital to Hanamaulu Road.
6	O-2	Kamehameha Highway between Avocado Street and Kilani Avenue	Conduct a review of signal phasing to explore whether or not the permissive left turn movement is needed or if the demand could be handled by a longer phase of protected left turn movement. Implement WWH, an educational program, to the surrounding community.
7	O-8	Liliha Street, at Kukui Street	Install a traffic signal at the intersection of Liliha Street and Kukui Street to provide pedestrians with a dedicated crossing phase.
8	O-1	Kamehameha Highway at Pualalea Street, Kahuku	Install an unsignalized pedestrian crosswalk, as well as advance signing and stop bars to warn drivers of the potential presence of pedestrians.
9	O-3	Waiālae Avenue, at Hunakai Intersection	Replace the traditional pedestrian walk signals with new pedestrian countdown timers.

Rank	ID #	Project Name	Potential Solution
10	H-3	Mamalahoa Highway, Naalehu	Improve pedestrian connectivity by closing sidewalk gaps along Mamalahoa Highway through the town of Naalehu to Ohai Road.
11	O-10	Ala Moana Boulevard, at Hobron Lane Intersection	Conduct a traffic study to modify the existing signal timing to optimize signals and lengthen pedestrian crossing time along the corridor, if warranted.
12	M-2	Kaahumanu Avenue, Kahului	Fill sidewalks gaps with the addition of sidewalks or walkways along Kaahumanu Avenue between Wharf Street and Kainani Street. Develop wayfinding signage for visitors in the area.
13	O-12	Ala Moana Boulevard, between Bishop Street and Richards Street	Enhance pedestrian connectivity by installing sidewalks on the makai side of Ala Moana Boulevard between Bishop Street and Richards Street.
14	K-5	Kaumualii Highway, at Papalina Road Intersection	Construct intersection improvements at Kaumualii Highway and Papalina Road, such as pedestrian countdown timers and advanced pedestrian warning signs to help improve motorist awareness of pedestrians.
15	M-3	Hana Highway, Paia Youth Center	Connect the pedestrian gap on Hana Highway, near Paia Town, from the end of the existing sidewalk on Hana Highway near Paia Town to the shared use path at Paia Youth Center's parking entrance. Install pedestrian signs at the existing crosswalk.
16	M-1	Farrington Avenue, Molokai High School	Construct a dedicated pedestrian facility, from Kalae Highway to Molokai High School, for kids to walk to and from school.
17	O-4	Fort Weaver Road, Ilima Intermediate School	Conduct a traffic study at the intersection of Fort Weaver Road and Makule Road to verify the need for a traffic signal and the location of crosswalks.
18	O-5	Farrington Highway, Nanakuli	Improve pedestrian connectivity by constructing a shared use path along Farrington Highway, from Hakimo Road to Nanakuli Avenue.
19	K-4	Rice Street, near Nawiliwili Harbor	Provide a sidewalk or walkway connection from the Nawiliwili Bridge to shopping and services, the Marriott Hotel, and other destinations to the north.
20	K-3	Kuhio Highway at Ehiku Street, Lihue	Improve pedestrian circulation in Lihue, by completing the sidewalk gap on Kuhio Highway and installing a crosswalk across Ehiku Street near Walmart.
21	M-7	Main Street, at Church Street and High Street Intersections	Perform possible traffic signal modification at Main Street and High Street and possible reduction of the curb radii at the Main Street and Church Street to reduce vehicle speeds around the corners and shorten the crossing distance.
22	H-2	Bayfront Highway, Kaipalaoa	Conduct a pedestrian study to install a series of marked crosswalks to link Downtown Hilo to the waterfront.
23	M-4	Haleakala Highway, Kula Highway, near Makawao	Construct a shared use path or sidewalk along Kula Highway and Haleakala Highway between Aapueo Parkway and Makawao Avenue.
24	H-1	Hawaii Belt Road, Paaui Elementary School	Install additional school signs to remind drivers of the proximity of Paaui Elementary and Intermediate School.
25	M-5	Piilani Highway, at Moi Street Intersection	Install advance signing and advance stop bars to warn drivers of the potential presence of pedestrians.
26	O-11	Ala Moana Boulevard, at Ward Avenue Intersection	Reduce the curb radii at the southeast corner to reduce the pedestrian crossing distances and lower vehicle speeds around the right turn.
27	M-6	Mokulele Highway/ Puunene Avenue	Connect the pedestrian gap along Mokulele Highway/Puunene Avenue with a shared use path between Hookele Street and Puukani Street.
28	H-4	North Kona, Queen's Lei	Enhance pedestrian circulation in Kona, by constructing a portion of the Queen's Lei shared use pathway between Keahole Airport Road and Makala Boulevard.
29	H-5	Akoni Pule Highway, at Kawaihae Road Intersection	Realign Akoni Pule Highway to improve the sight distance for drivers and pedestrians at the Akoni Pule Highway and Kawaihae Harbor Road intersection. Install crosswalks and pedestrian advance warning signs.
30	K-6	Kuhio Highway, between Aku Road and Hanalei Dolphin Center	Enhance pedestrian connectivity by providing a separated shared use path along Kuhio Highway through the Hanalei Town Center (from Hanalei Post Office to Hanalei Trade Center).
31	K-1	Kuhio Highway, at Kawaihau Road Intersection	Construct one access to and from the communities along Cane Haul Road, Hauaala Road, and Kawaihau Road in Kapaa to and from the shared use path on the makai side of Kuhio Highway.

FIGURE 5-1
Project Delivery Process



The next step for the prioritized project list is integration into a variety of the HDOT programs. As shown in Figure 5-1, as the projects are programmed and budgeted, they move into the project delivery stage. During the project delivery stage, a more thorough engineering analysis will be conducted on the project's feasibility and an environmental assessment of environmental impacts will be prepared. During this time, the project will further evolve and may change from the initial analysis conducted in this Plan. If any of the projects, regardless of ranking, are co-located with other roadway improvement projects, they may be implemented more quickly than others that may be higher on the priority list. Chapter 6 describes the implementation strategy for these projects.

5.4 Recommended Program Solutions

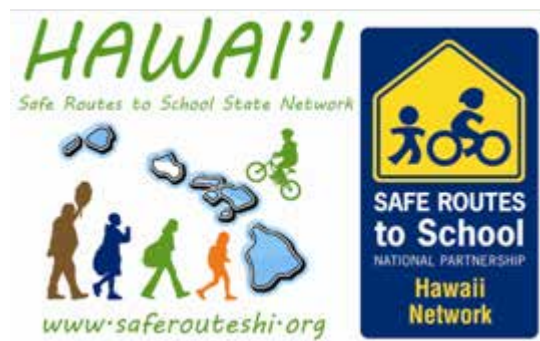
As mentioned previously, there was a desire to incorporate education and enforcement into the project solutions for the areas of concern. The project team looked at a variety of governmental and non-governmental organization programs that are in place. The project team, TAC, and CAC recommended the endorsement of two existing programs to support the goals and objectives of this Plan: Walk Wise Hawaii and Safe Routes to School. In addition to those, the project team, TAC, and CAC urge continued enforcement of pedestrian safety laws by the county police departments.



Walk Wise Hawaii (WWH) is a pedestrian and driver safety educational program sponsored by the HDOT. The program also has public partnerships with the City and County of Honolulu's Department of Transportation Services, the City and County of Honolulu's Elderly Affairs Division, the state Department of Health, and the Honolulu Police Department. It works through community partnerships, presentations, and the media to educate pedestrians and drivers on safe walking and driver awareness. The program operates with grants from the National Highway Traffic Safety Administration and currently has partnerships with key businesses and organizations throughout the state. WWH sponsors an annual major education campaign that is designed to inform citizens about safe behaviors and laws for pedestrians and drivers. The public education campaign is targeted to the general public, with an emphasis on elderly citizens and youth. WWH provides outreach at community events throughout the state and online. One of the proposed solutions for the areas of concern is a WWH educational campaign targeted to key pedestrian attractors or community centers in the area. The

WWH Speakers Bureau is an effective way to educate both pedestrians and drivers with Pedestrian and Driver Pledges. In addition to the Speakers Bureau, periodic energetic pedestrian sign-waving events and enforcement stings will help remind the community about pedestrian safety. The continued enforcement of existing pedestrian safety laws and increased presence of local police officers in highly traveled pedestrian areas will help to educate and reinforce citizens' and visitors' knowledge of driver and pedestrian laws.

Safe Routes to School (SRTS) is a federally-funded program designed to encourage children to bike or walk to and from school. SRTS program activities remain eligible under the current Transportation Alternatives Program (TAP). The SRTS program in Hawaii is administered by the HDOT. The purpose of the SRTS program is to promote walking and bicycling to and from school, encourage elementary and middle school aged children to be physically active, and prevent childhood obesity. SRTS proposals can be received from entities eligible to receive TAP funds, such as local governments, transit agencies, natural resource or public land agencies, and schools statewide for infrastructure and non-infrastructure projects within approximately two miles of an elementary or middle school. SRTS implements its vision through five distinct ways: engineering (improving infrastructure for bicyclists and pedestrians), education (teaching children about safe behaviors for walking and bicycling), enforcement (partnering with law enforcement agencies to enforce pedestrian safety laws), encouragement (sponsoring events like Walk to School Day), and evaluation (monitoring and documenting the number of children who walk or bike to school). It is recommended that the HDOT continue to support the SRTS program.



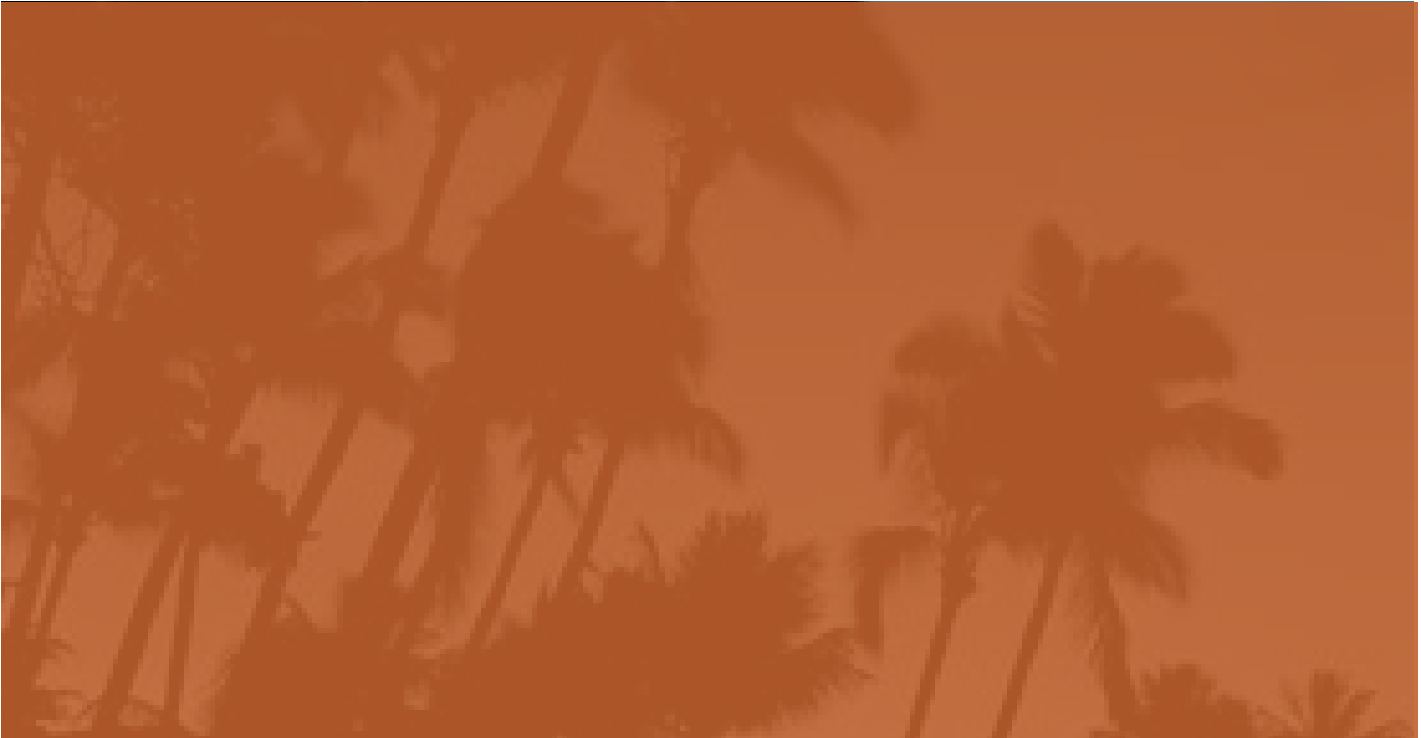


A crosswalk and detectable warning strip at the front of Molokai High School

CHAPTER 6

Implementation





A pedestrian uses the crosswalk to cross Mamalahoa Highway in Captain Cook, Hawaii

6. IMPLEMENTATION

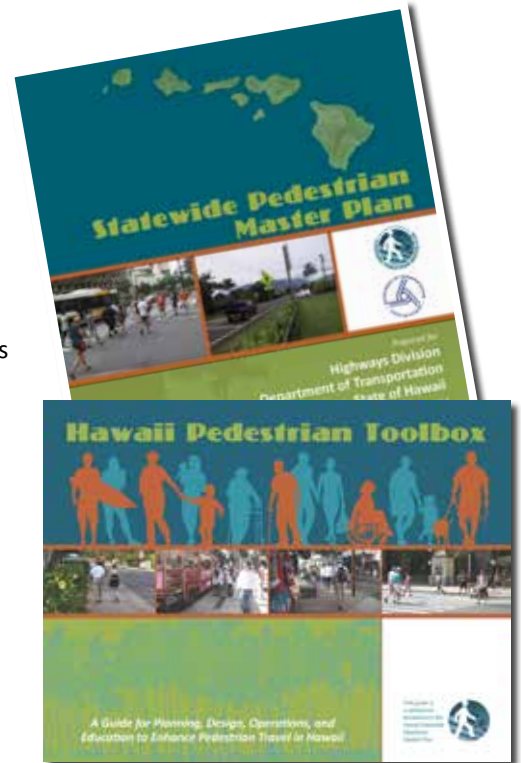
This chapter describes the HDOT's strategies for implementing the projects and programs described in Chapter 5. It includes a description of best practices in pedestrian-oriented street design from the Hawaii Pedestrian Toolbox, a listing of performance measures for use in monitoring this Plan, and suggested funding strategies for the projects identified in Chapter 5.

A plan is only worthwhile if it leads to action. The HDOT is committed to ensuring that the work described in this Plan leads to implementation of new projects and support for existing programs to benefit pedestrians throughout the state. The HDOT will move forward with three strategies to ensure effective implementation of this Plan:

1) Referencing best practices in pedestrian-oriented design. Best practices in designing for pedestrian safety, mobility, and accessibility include actions such as thoughtful layout of sidewalks, presence and timing of pedestrian crossing signals, access management along roadways, and land use design. These practices are summarized below in Section 6.1 and described in greater detail in the companion document to this Plan, the Hawaii Pedestrian Toolbox.

2) Seeking funding for projects. Funding is scarce for all types of transportation projects. The HDOT will seek funding for the projects described in Chapter 5 using the sequence of methods described below in Section 6.2.

3) Monitoring the performance of this Plan. The HDOT will monitor the performance of this Plan using the performance measures described in Section 6.3.



6.1 Hawaii Pedestrian Toolbox

The Hawaii Pedestrian Toolbox is an important guide for project implementation throughout the state, providing consistent and cohesive guidance for planning, design, and operation of pedestrian facilities. As a companion document to the Plan, the Hawaii Pedestrian Toolbox presents best practices based on a compilation of adopted guidance from around the United States and other countries. The Toolbox was developed to specifically address areas of concern identified during the development of the Plan, and is tailored to the unique characteristics and context of the state. It will help planners and design practitioners in Hawaii be more cognizant of pedestrians in infrastructure planning and design. They will be able to reference these best practices and adapt the guidance to fit their projects. The intent is to provide a comprehensive document that can be applied under a wide variety of

applications and diverse conditions in Hawaii. Implementation of this guidance will improve pedestrian accessibility, mobility, connectivity, and safety. In addition to providing guidance related to planning, design, and operations, the Toolbox also presents best practices related to education, enforcement, and encouragement to enhance pedestrian travel in Hawaii. The Toolbox directly supports the policy framework (vision, goals, and objectives) of the Plan by:

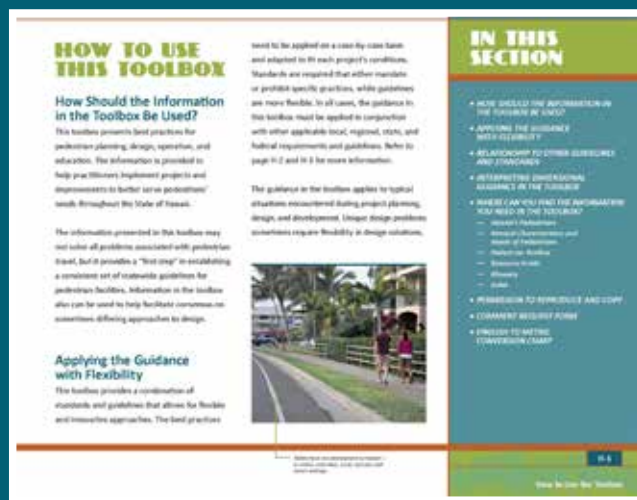
- Promoting best practices throughout the state and achieving a broader-scale positive change in the pedestrian environment;
- Providing consistency in pedestrian design guidance;
- Providing comprehensive guidance in a number of pedestrian-related topics; and
- Supporting Hawaii's Complete Streets principles.

Hawaii Pedestrian Toolbox

The guidance in each Toolbox section has been specifically tailored to the needs and characteristics of pedestrians across Hawaii. Planners and engineers will be able to reference these best practices and other relevant standards and guidance to fit their projects. The Toolbox sections are summarized below.

INTRODUCTION

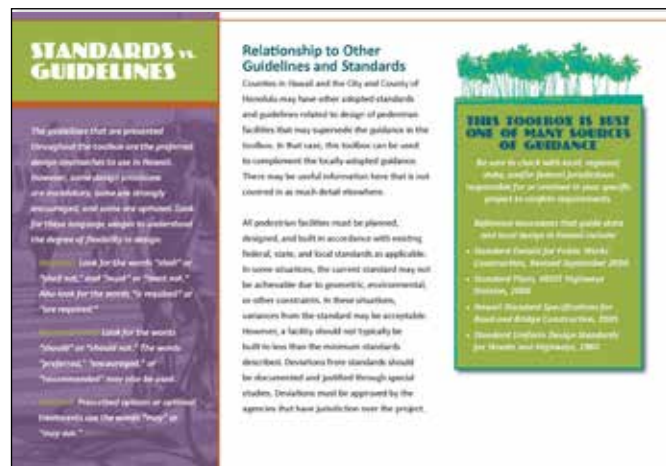
The Hawaii Pedestrian Toolbox starts out with an Introduction and sections on How to Use the Toolbox and Hawaii's Pedestrians. The How to Use the Toolbox section discusses the difference between standards and guidelines and how the Toolbox is to be used in relationship with other adopted standards and guidelines. The section on Hawaii's Pedestrians presents statistics on Hawaii's pedestrians as well as the characteristics of pedestrian travel and pedestrian trip lengths. It also includes a section on understanding pedestrian characteristics and needs in Hawaii.



The How to Use This Toolbox section defines the difference between standards and guidelines.

TOOLBOX SECTION 1

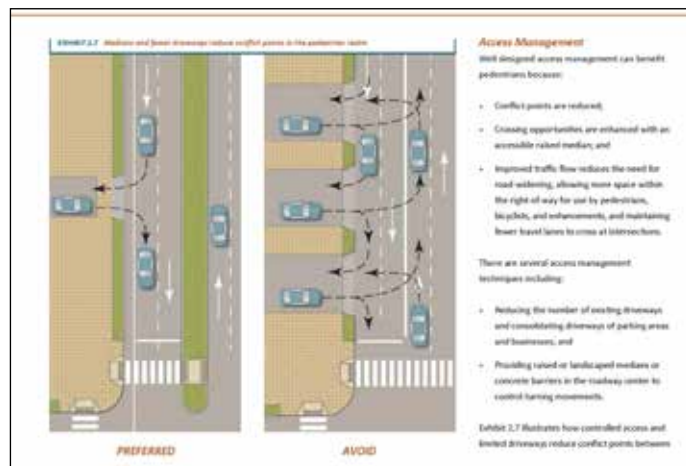
Thinking about Pedestrians from the Start—Creating Pedestrian Friendly Communities provides planning level guidance that can be applied on a community-wide or district-wide basis. This section of the toolbox encourages practitioners to consider pedestrian needs as part of all planning and design and to address those needs integrally and holistically as part of every project.



Toolbox 1 – Creating Pedestrian-Friendly Communities includes tools and techniques to measure the walkability of your community.

TOOLBOX SECTION 2

Pedestrian-Friendly Streets summarizes best practices related to accommodating pedestrians in street design, including Hawaii's principles related to Complete Streets and sustainable streets. The section also presents guidance related to how to organize the pedestrian realm within street and roadway rights-of-way.



Toolbox 2 – The section on Pedestrian-Friendly Streets shows the importance of access management.

TOOLBOX SECTION 3

Accessibility addresses considerations related to compliance with ADA and PROWAG requirements applicable to pedestrian facilities. The measures presented in this section are provided to ensure that these facilities can accommodate the elderly, hearing impaired and the visually impaired.

TOOLBOX SECTION 4

Sidewalks and Walkways covers specific guidance related to their design based on their function, location, and usage. Considerations in determining the need of sidewalks and walkways are also presented here. Dimensional guidance that is applicable to various settings (urban, suburban, and rural) is provided, along with the minimum and recommended widths.

TOOLBOX SECTION 5

Intersections and Crossings focuses specifically on the design of locations where pedestrians cross streets and roadways, as well as grade-separated crossings. These locations are especially important because pedestrians are extremely vulnerable due to their proximity to vehicles. The following design practices at intersections are addressed in this section:

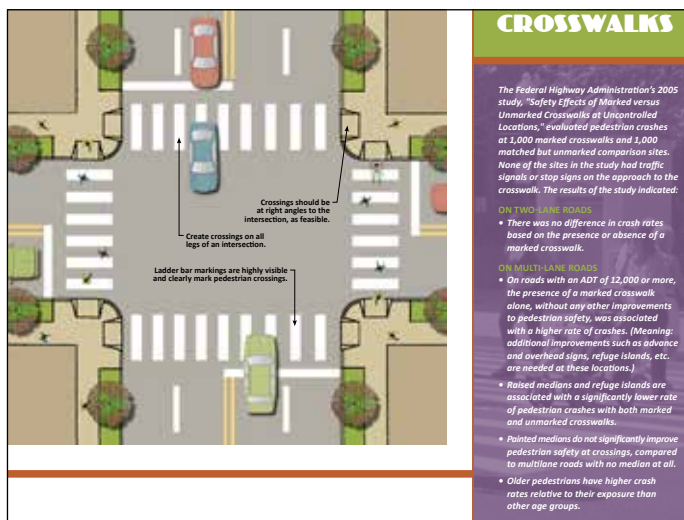
- Crosswalk Markings
- Advance Stop Bars
- Curb Ramps
- Signalization
- Pedestrian Related Signs
- Raised Intersections
- Medians and Center Refuge Islands
- Right-Turn Lanes/Slip Lanes



Toolbox 3 – The Accessibility section discusses a variety of measures such as speech messages at crossings, Braille signage, and warning surfaces that can improve safety and connectivity.



Toolbox 4 – In many places in Hawaii, the state highways serve as main streets through rural areas and small communities.

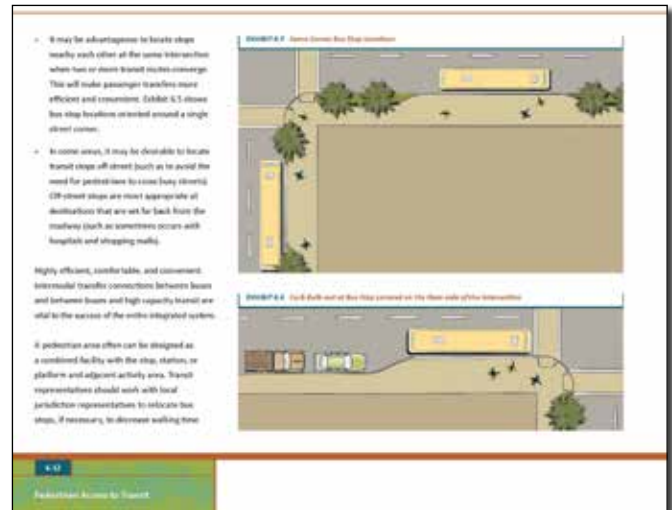


Toolbox 5 – The section on intersections provides tools for addressing pedestrians at crossing locations.

TOOLBOX SECTION 6

Pedestrian Access to Transit addresses best practices for creating a seamless connection between pedestrian and transit modes of transportation. Specific topics addressed include:

- Why Pedestrian Access to Transit is Important
- Accessibility
- Transit in Hawaii
- Transit Compatible Planning and Site Design
- Coordination between Agencies
- Transit Oriented Development
- Transit Stop Locations
- Pedestrian Routes to Transit
- Intersections and Crossings Near Transit
- Designing and Improving Transit Facilities for Good Pedestrian Access



Toolbox 6 – Pedestrian Access to Transit includes strategies on bus stop locations and design.

TOOLBOX SECTION 7

Shared Use Paths covers design practices related to trails and paths that are shared by pedestrians and bicyclists. Specific topics addressed include plans for local and regional connectivity, the difference between shared use paths and recreation trails and path components, dimensions, and other design treatments.



Toolbox 7 – Designing for pedestrians includes a different set of horizontal geometrics standards for shared use paths than for roadways.

TOOLBOX SECTION 8

Children and School Zones addresses considerations related to enhancing school walking routes and pedestrian access to and from schools. This section will address special considerations related to children and how to improve student pedestrian safety. Other topics are neighborhood design and the location of new schools, design considerations in areas surrounding schools, traffic control and crossings near school, and crossing guards. The SRTS program is discussed, along with other educational tools and programs for student pedestrian safety.



Toolbox 8 – Establishing the appropriate location and site design for a school in a community can make a difference on whether children will walk to and from school or not.

TOOLBOX SECTION 9

Special Pedestrian Districts and Site Design for Pedestrians

provides guidance for pedestrian-friendly site design and creating special pedestrian districts. Specific topics addressed include:

- The Value of Pedestrian-Friendly Development
- Planning for All Transportation Modes as Part of Site Development
- Pedestrian-Friendly Site Design
- The Benefits of Mixed-Use Development
- Special Pedestrian Districts and Sites and Corridors Used Exclusively by Pedestrians
- Shared Streets, Festival Streets, and Play Streets

TOOLBOX SECTION 10

Effective Pedestrian Programs addresses education, enforcement, encouragement, evaluation, and equity as part of pedestrian planning, design, and operations. The influences of the built environment and infrastructure are summarized. Specific education topics addressed include:

- Overview of Existing Education Programs and Campaigns in Hawaii
- Education and Outreach Tools and Strategies
- Educational Training Programs

Specific enforcement topics addressed include:

- Targeted Behaviors
- Enforcement Campaigns and Programs
- Other Enforcement Technologies and Practices
- Additional Law Enforcement Methods
- Community-Based Strategies

Specific encouragement topics addressed include:

- Media Campaigns and Strategies
- Pedestrian Advocacy
- Walking Incentives
- Walking Programs

TOOLBOX SECTION 11

Maintenance and Pedestrian Safety in Work Zones covers best practices related to maintenance of pedestrian facilities, as well as actions to enhance pedestrian mobility and safety in construction zones. Maintenance items included are the walkway surface, drainage, signs, signals, pavement markings, trees and plantings, and street furniture. Best practices for pedestrian safety in work zones include protective barriers, covered walkways, sidewalk closures, and work zone maintenance.



Toolbox 9 – Creating good pedestrian-friendly development encourages people to walk more.



Toolbox 10 – Encouragement and education are important tools to use to improve the awareness of pedestrian safety.



Toolbox 11 – Pedestrians need to be accommodated in work zones.

6.2 Funding Strategies

This section describes potential strategies for funding the prioritized project list in Chapter 5. (See the box on this page for a list of potential funding sources and funding mechanisms.)

It is important to note that funding is competitive. Although there appear to be several programs available through the federal government for pedestrian projects, the actual amount of funding available is small and Hawaii competes for funds with other states in the country. Under the current federal transportation authorization, the Transportation Alternatives Program (TAP) is a new program established to provide funding for a variety of programs and projects defined as transportation alternatives, including on and off road pedestrian and bicycle facilities and community improvement activities, such as environmental mitigation. Other options are funding mechanisms, which can be complex and often require property owner and/or taxpayer approval.

Because funding is scarce and funding sources are complex, it is important to be strategic in seeking to implement the prioritized project list. The project team recommends the following approach:

- 1. Determine which pedestrian solutions can be implemented as part of another project or program that is already programmed.** Areas where roadway improvements are already programmed for capital improvements may be the easiest opportunities to improve or incorporate pedestrian facilities. Education solutions that can be incorporated as part of an existing program will also be an easier opportunity.
- 2. Determine which pedestrian improvements can be implemented as part of maintenance improvements.** Areas where restriping is needed or the installation of pedestrian signs would be helpful can be scheduled as part of routine maintenance for that roadway facility.
- 3. Create an individual stand-alone project, if an improvement can't be implemented as part of another roadway project.** Seek to exhaust all other opportunities before creating the project as a stand-alone pursuit.
- 4. Look for federal funding opportunities. Evaluate whether the funding opportunity is reasonable based on the likely competition for the funds and the amount of effort required to obtain it.** Consider partnering with governmental and non-governmental organizations to seek federal funds.

5. Evaluate the potential for Public-Private

Partnerships. Seek to partner with private organizations within each community to implement the solutions identified in this Plan.

- 6. Recommend that new developments incorporate appropriate pedestrian improvements.** Developers of new facilities are required to evaluate vehicular access to their development. Each county should consider requiring that developers implement appropriate pedestrian facilities as well as improvements geared towards automobiles.

Potential Funding Sources or Mechanisms

The following list of potential funding sources for pedestrian projects is discussed in greater detail in Appendix F, Funding Strategies.

Federal

- Surface Transportation Program
- Transportation Alternatives Program
- Safe Routes to School Program
- Highway Safety Improvement Program
- National Highway Traffic Safety Administration
- Recreational Trails Program
- Enhanced Mobility of Seniors and Individuals with Disabilities Program
- Congestion Mitigation and Air Quality Improvement Program
- Community Development Block Grant
- Transit-Oriented Development Planning Pilot

State

- State Highway Fund
- State and County General Fund
- Government obligation bonds

Local

- Improvement districts
- Parking fees and fines
- Tax increment financing
- Community facilities district
- Public private partnerships
- System development charges and developer obligations
- Parking space tax

6.3 Performance Measures and Monitoring

Performance measures are used for evidence-based decision making and forecasting, as well as monitoring progress towards long-term goals and objectives. The FHWA defines a performance measure as “a qualitative or quantitative measure of outcomes, outputs, efficiency, or cost-effectiveness.” The Federal Transit Administration (FTA) notes that “measuring performance is a way to gauge the impacts of the decision making process on the transportation system.” Performance measures can also add transparency and more visible relevance to transportation planning processes. They can help to communicate the value of projects to people in the community and better inform agencies in their decision making.

The HDOT is committed to monitoring the performance of this Plan through the performance measures in Table 6-1. The performance measures were developed with the TAC and CAC to measure the HDOT’s progress in meeting the goals and objectives of the Plan. Figure 6-1 depicts an anticipated monitoring cycle for this Plan.

To balance the need of monitoring performance measures with the constrained resources of the HDOT, a tiered approach has been developed. Tier 1 performance measures are essential ways to measure the efforts of the Plan to achieve its goals. They are also focused on the factors that the TAC and CAC placed the greatest emphasis on, such as safety and connectivity. Tier 1 performance measures provide the minimum amount of information required to analyze the Plan’s progress in meeting each goal. Tier 2 performance measures are important pieces of information that would greatly help in understanding how well the Plan is performing, but that can be a lesser priority if staff availability is a constraint. A baseline of the performance measures has been conducted with this Plan. Table 6-1 identifies the performance measure and whether it is Tier 1 or Tier 2.

FIGURE 6-1
Performance Monitoring and Evaluation Process

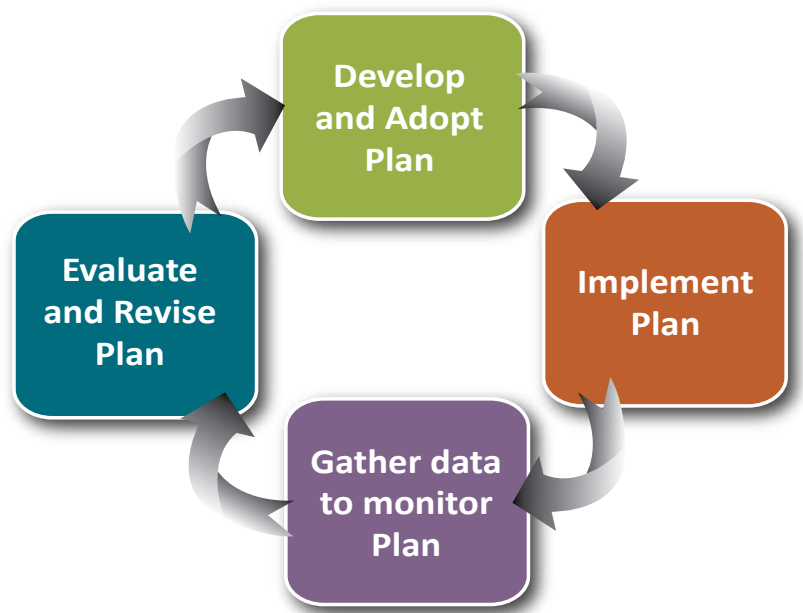


TABLE 6-1
Performance Measure by Goal and Objective

Goal 1: Improve Pedestrian Mobility and Accessibility		
Objective	Performance Measures	Tier
a. Increase pedestrian activity	Adoption of statewide and county Complete Streets policies	1
	Pedestrian mode split (percentage of trips by foot)	2
b. Encourage use of the Hawaii Pedestrian Toolbox	Provide training for agency staff and consultants on the Hawaii Pedestrian Toolbox	1
c. Implement projects along state highways to enhance pedestrian mobility and accessibility	Percentage of roadway projects completed that include improvements to pedestrian facilities	1
d. Improve maintenance of pedestrian facilities	Dollar amount spent on sidewalk repairs.	2
Goal 2: Improve Pedestrian Safety		
Objective	Performance Measures	Tier
a. Reduce the number of crashes and fatalities involving pedestrians	Number of annual pedestrian crashes and fatalities	1
b. Increase driver and pedestrian knowledge of laws, legal requirements, rights, and responsibilities	Dollar amount spent on pedestrian safety educational programs sponsored or co-sponsored by the HDOT	1
	Number of public awareness campaigns related to pedestrian safety implemented each year	1
	Hours of or number of pedestrian-related law enforcement stings implemented each year	1
	Number of the HDOT bike/pedestrian staff per million people	2
c. Modify driver and pedestrian behaviors to improve pedestrian safety	Existence of laws protecting pedestrian right-of-way in crosswalks	1
	Number of driver's test questions on pedestrians and information on pedestrians in the Hawaii Driver's Manual	1
	Number of police citations for pedestrian-related violations	2
d. Use best practices for design and operation of all pedestrian crossings	Provide training for agency staff and consultants on the Hawaii Pedestrian Toolbox (Same performance measure as Goal 1, Objective b)	1
	Percentage of projects that include pedestrian crossing safety treatments	1
	Number of pedestrian countdown timers installed at signalized intersections	2
Goal 3: Improve Connectivity of the Pedestrian Network		
Objective	Performance Measures	Tier
a. Support development of seamless and continuous pedestrian networks along state highways with connections to paths, walkways, trails, transit centers, and other pedestrian facilities	Miles of new sidewalks and shared use paths along state highways	1
	Percentage of transportation improvement projects that have been reviewed for consideration of pedestrians	2
b. Encourage pedestrian connectivity across jurisdictions	Adoption of Complete Streets Policy (Same performance measure as Goal 1, Objective a)	1
	Provide training for agency staff and consultants on the Hawaii Pedestrian Toolbox (Same performance measure as Goal 1, Objective b)	1
c. Support programs to encourage more students to walk to and from school	Presence and number of Walk/Bike to School Day programs	2
Goal 4: Promote Environmental Benefits of Walking		
Objective	Performance Measures	Tier
a. Broaden public awareness about the environmental benefits of pedestrian travel	Number of the HDOT bike/pedestrian staff per million people (same performance measure as Goal 2, Objective b)	2
b. Reduce overall vehicle miles traveled through increased pedestrian trips	Pedestrian mode split (same performance measure as Goal 1, Objective a)	2

Objective	Performance Measures	Tier
c. Increase the use of other modes of transportation to reduce the use of fossil fuels.	Percentage increase of bike ridership to work	2
	Percentage increase of annual transit ridership	2
d. Integrate pedestrian facility design with the natural environment to the greatest extent possible	Provide training for agency staff and consultants on the Hawaii Pedestrian Toolbox (same performance measure as Goal 1, Objective b)	1

Goal 5: Encourage Walking to Foster Healthy Lifestyles

Objective	Performance Measures	Tier
a. Broaden public awareness about the health benefits of walking/pedestrian travel	Number of public awareness campaigns related to pedestrian safety implemented each year (same performance measure as Goal 2, Objective b)	1
	Dollar amount of pedestrian safety educational programs sponsored or co-sponsored by the HDOT (same performance measure as Goal 2, Objective b)	1
	Number of the HDOT bike/pedestrian staff per million people (same performance measure as Goal 2, Objective b)	2
b. Improve public health through encouragement of walking	Percentage of state centerline miles with sidewalks in urban areas	1
	Percentage of overall population and of youth (ages 10 to 17) who are obese or overweight	2
	Incidences of diabetes or asthma per million people and physical activity levels	2
c. Support community-based events such as fun runs, walks, parades, and other pedestrian-based activities that encourage walking for daily exercise and socialization	Number of community-based events endorsed by the HDOT	2

Goal 6: Enhance Communities and Economic Development By Creating Pedestrian-Oriented Areas and Positive Pedestrian Experiences

Objective	Performance Measures	Tier
a. Encourage priority pedestrian infrastructure investment in communities that are in high-density residential, visitor/tourist locations, and/or that have higher pedestrian-oriented populations (seniors, youth, low-income, or households with no access to vehicles)	Consider the locations of pedestrian-oriented populations and visitor/tourist locations when preparing General Plans, Community Development Plans, or Sustainable Community Plans. Include the need for pedestrian facilities in developments in these areas and high-density residential areas.	1
b. Encourage reference to and use of the Hawaii Pedestrian Toolbox to create pedestrian-friendly settings that provide a positive pedestrian experience and attract high levels of activity	Provide training for agency staff and consultants on the Hawaii Pedestrian Toolbox (same performance measure as Goal 1, Objective b)	1
c. Require development projects to include pedestrian infrastructure, for the appropriate land use and facility	Number and/or percentage of encroachment permits that include pedestrian infrastructure on state facilities	2

Goal 7: Promote and Support Walking as an Important Transportation Mode That Reduces Overall Energy Use

Objective	Performance Measures	Tier
a. Strengthen public awareness about the energy conservation benefits of walking	Number of public awareness campaigns related to pedestrian safety implemented each year (same performance measure as Goal 2, Objective b)	1
	Number of the HDOT bike/pedestrian staff per million people (same performance measure as Goal 2, Objective b)	2
b. Increase the use of other modes of transportation that reduce the use of fossil fuels.	Percentage increase of annual transit ridership (same performance measure as Goal 4, Objective c) Percentage Increase of bike ridership to work (same performance measure as Goal 4, Objective c)	2
c. Reduce resident and visitor motor vehicle fuel demand to help meet 2030 targets for energy efficiency	Air quality levels	2
d. Encourage Smart Growth development with coordinated land use and transportation planning	Implementation of priorities established in transportation planning documents, such as the Statewide and Regional LRLTPs, Bike Plan Hawaii, and Statewide Pedestrian Master Plan	2



Pedestrians enjoy the use of a wide sidewalk on Maui





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