

Hawaii Statewide Transportation Plan



Hawaii's Multi-Modal and Inter-Modal Network



Volume 1: Making Connections



2011

HAWAII STATEWIDE TRANSPORTATION PLAN: HAWAII'S MULTI-MODAL AND INTER-MODAL NETWORK

Prepared for
**STATE OF HAWAII DEPARTMENT OF TRANSPORTATION
STATEWIDE TRANSPORTATION PLANNING OFFICE**

2011

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Governor's Message

Aloha,

Transportation is our lifeline. From the earliest times when Polynesians were voyaging across the seas in canoes, transportation has provided the means for moving people and provisions for discovery and for trade. There is an excitement that accompanies travel, the anticipation of new places, new relationships, and new opportunities. We move forward. *Holo hele.*

Our transportation facilities are in constant use. Whether airports, harbors, or highways, there is never a moment when facilities are idle. Our administration is committed to keeping our state facilities in the best operating condition for efficiency and comfort. Equally as important are safety, security, and expansion for current and future needs. The people of Hawai'i deserve to be proud of our public facilities.

The *Hawaii Statewide Transportation Plan: Hawaii's Multi-modal and Inter-modal Network* captures the essence of this work. In the plan we find the Goals and Objectives for the multi-modal and inter-modal systems in the air, over the sea, and across the land. We find guides to the best practices for planning, finance, and management for forward looking transportation systems. The plan theme, "Making Connections," illustrated by the Hawaiian rainbow, honors the importance of cooperation, coordination, and connection in our role as stewards.

This latest *Hawaii Statewide Transportation Plan* is available to the community for future use and reference in making other transportation plans. With everyone's participation, we can reach our vision for a connected multi-modal and inter-modal transportation system.

Imua Hawai'i!

NEIL ABERCROMBIE
Governor, State of Hawai'i



Director's Message

Today's transportation challenges are being faced locally, statewide, nationally, and at the global level. Today's needs and priority concerns require focused examination of such important matters as: multi-modal transportation systems to ensure seamless inter-modal connections within modes and between modes, people movement that encompasses bicycling and pedestrians, preservation of the environment in the creation and operation of transportation facilities, and supporting a sustainable lifestyle in response to forecasted changes. The job now entails—to a greater and greater degree—understanding statewide goals for job development, clean energy, and food self-sufficiency, and tracking the demographics of our population for responses to the growing number of those who must make special or regular arrangements when establishing their personal mobility. Let's look at the myriad of challenges not as problems, but opportunities to build upon.

The three volumes of the *Hawaii Statewide Transportation Plan: Hawaii's Multi-modal and Inter-modal Network* (HSTP), address these transportation issues. The first volume sets the HSTP Goals and Objectives for transportation planners, goals which can be applied to all modes of travel. The second volume comprises ten issue papers that speak to emerging issues such as: our aging population; fuel and energy; and connecting land use and transportation planning. The third volume contains several technical reports, including population and economic forecasts, the results of the public outreach for this plan, a statewide telephone survey, and a report on transportation trends, data, and indicators.

The HSTP provides a starting point by providing the venue and the considerations that are necessary so that together, we can move forward toward a new day in transportation.

Mahalo,

A handwritten signature in black ink, appearing to read "Glenn M. Okimoto". The signature is fluid and cursive.

Glenn M. Okimoto, Ph.D.

Director, State of Hawai'i Department of Transportation

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HAWAII STATEWIDE TRANSPORTATION PLAN: FOREWORD

Making Connections



Where we live...there are rainbows. The physical result of sunlight shining through thousands of raindrops, each forms a prism and brings forth the rainbow. *Anuenue* is the Hawaiian word for rainbow. The rainbow's arched shape forms a bridge spanning land, sky, and ocean. Often the subject of folklore, rainbows represent hope, healing, omens, and good fortune. Transportation, like rainbows, is about making connections. Symbols of rainbows often appear on transportation vehicles such as the University of Hawaii's Rainbow Express. Check out the

Hawaii state license plate.

The population of the United States is forecast to reach four hundred million by 2050. This is an increase of one hundred million more than today. Such an increase will add additional stresses to the environment, the infrastructure, and will affect the ability to house, feed, and employ this number of people. Technological, cultural, and political transformations will accompany this increase in both subtle and abrupt ways. Public policy efforts will reflect the competition for scarce resources and methods for keeping the country competitive, and they will influence how we will live. These issues are complex, and resolution requires that they be connected.

Here in Hawaii, we can look forward to changes which we can hardly begin to imagine today. Or can we? It does not seem so improbable to see Hawaii with its share of a larger population, one with even greater ethnic and generational diversity. An island state some distance from other land masses, Hawaii will become both more dependent on globalism and at the same time more self-sufficient. Hawaii's future depends on the connections it can make between the islands, the continental United States, and the world beyond. The transportation system is a key component for how these connections are made.



Top Photo: Hawaiian Rainbow

***Bottom Photo: Pedestrians Crossing Kalakaua and Kaiulani
Avenues in Waikiki***

Foreword

Hawaii's population alone would not have sustained the transportation systems that we know today. Over the past hundred years, the Hawaii (territory then state) harbors system developed to serve the whaling industry, commerce, to bring in raw supplies and equipment for agriculture, and to export sandalwood, sugar, and pineapple, the crops that helped bring wealth to the community.

The statewide airports system developed following World War II, making possible a booming tourism industry, made more popular once flight time fell to a few hours. The land transportation system came about in the last four decades of the 20th century (as it did in other states) by taking advantage of the federal aid highway program. The military was a great user of all three systems -- air, land, and water -- which enhanced the ability to justify expansion and seek outside funding. Such connections from outside Hawaii supported the residential base.

Hawaii's transportation systems are as central to its future as they have been to its past. That is why this plan is named *Hawaii Statewide Transportation Plan: Hawaii's Multi-Modal and Inter-Modal Network* (HSTP) and its theme is: "Making Connections."

Transportation is a mix of modes and means, of ways and which manner, of uses and choices, of many forms of movement, and types of coming and



going. The balance, diversity, continuity, integration, and linkages from a point of origin to a point of destination are another part about making connections in, between, and among the transportation systems we use.

The HSTP, now in its seventh edition, is a policy document. Its chief focus is the development of an updated set of goals and objectives that can guide system-level plans and master plans of each of the three modes of transportation, including facility and project plans.

While many of the goals are timeless, such as to ensure mobility and safety for the movement of people and goods, the nuances change over the years.

"Mobility for all" places a duty to ensure equal treatment for minorities, disadvantaged, and those who are transportation-challenged, for they too need to make connections in the world.

This HSTP places special attention on inter-modal and multi-modal issues; that is, on making the connections when movement shifts from one mode to another, and to ensuring that there are different choices within each of the modal systems.



Top Photo: Flying above Honolulu
Bottom Photo: Keahole Airport Road, Kona Airport

The HSTP also addresses an updated framework for how transportation planning is to be conducted and connected. While there is considerable guidance at the federal level, especially for land transportation planning, state level guidance is equally important to ensure that planning incorporates that which is unique to Hawaii.

Making connections in the transportation system means identifying, addressing, and incorporating a wide range of societal interests, for example: environmental protection, economic development, quality of life, security, and disaster preparedness. These and similar issues are discussed in this update of the HSTP, both as content and framework for agency cooperation.

Among the most sacred objectives of planning in a democratic society



is the outreach to and meaningful involvement of members of the public, stakeholders, and interested parties affected by that planning. Over the past year, Hawaii's citizens have been invited to attend HSTP seminars, workshops, and meetings. They have been contacted to participate in surveys and to review draft materials that are posted on the HSTP project website. Citizens from all walks of life have been invited to share their thoughts, views, and knowledge to this effort. The HSTP and its theme of "Making Connections" are a reflection of this deliberative collaboration and the community of participants.

The plan in this Volume 1 is organized into the following major parts:

Chapter I: Set common goals and objectives for transportation planning

Chapter II: Keep current with influencers on transportation

Chapter III: Description of the existing systems

Chapter IV: Create a framework to meet the goals of the plan

Chapter V: Identify standards and assessments for performance and develop data systems to support these

Chapter VI: Formulate flexible and creative financial systems

Chapter VII: Involve stakeholders and the public in the planning and decision-making process

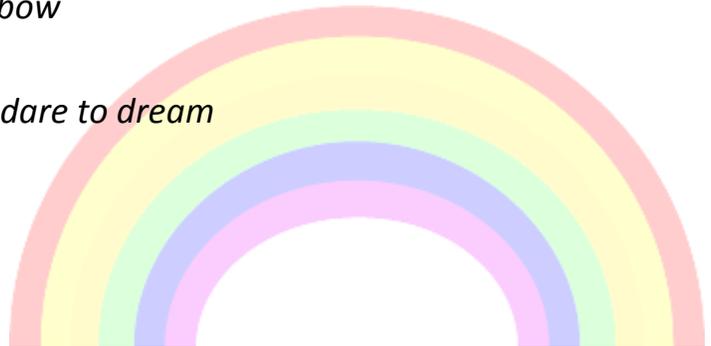
Photo: Kawaihae Harbor

Foreword

The HSTP main report (Volume 1) should be read in concert with two other volumes. Volume 2 contains the ten emerging issues papers. Volume 3 contains nine appendices covering the Data, Trends, and Indicators 2010 Report, the 2035 Socio-Economic Forecast Report, the Results of the HSTP Statewide Telephone Survey and the In-depth Interviews, the 2009 HDOT Public Involvement Policy, and the Summaries from the Stakeholder Workshops and the Countywide Public Informational Meetings.

Like a rainbow across the Hawaiian sky, this plan is meant to create a colorful and hopeful opportunity for making connections and for creating a transportation system that forms the arch.

*Somewhere over the rainbow
Skies are blue
And the dreams that you dare to dream
Really do come true.*



Sung by Judy Garland, “Somewhere Over the Rainbow”, in the movie The Wizard of Oz and remixed with “It’s A Wonderful World” by beloved son of Hawaii, Israel Kamakawiwo’ole.

HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER I GOALS & OBJECTIVES



SET COMMON STANDARDS AND ASSESSMENTS FOR THE TRANSPORTATION SYSTEMS THROUGH A COMMON SET OF GOALS AND OBJECTIVES

There are eight goals in this *Hawaii Statewide Transportation Plan (HSTP)*, covering previous and new areas of importance to transportation planners in Hawaii. The eight goals and their corresponding objectives are shown together in the fold-out page. Following that, each goal and its associated objectives are described as discussed.

- Goal I:** Create and manage an integrated multi-modal transportation system that provides mobility and accessibility for people and goods.
- Goal II:** Enhance the safety of the air, land, and water transportation systems.
- Goal III:** Ensure the secure operation and use of the air, land, and water transportation systems.
- Goal IV:** Protect Hawaii's unique environment and quality of life and mitigate any negative impacts.
- Goal V:** Ensure that the air, land, and water transportation facility systems support Hawaii's economy and future growth objectives.
- Goal VI:** Support the State's energy goal of 70% clean energy, which includes 40% produced by renewable energy and 30% from increased energy efficiency, enhancing the reliability and security of energy sources.
- Goal VII:** Create secure, flexible, and sustainable revenues and funding sources for transportation needs.
- Goal VIII:** Implement a statewide planning process that correlates land use and transportation while supporting decision-making and programming for Hawaii's integrated, comprehensive, multi-modal transportation systems.

Photo: Rainbow over Kona Side of Hawaii Island

Goals & Objectives

Goals and objectives have always been a part of the HSTP. Research and review of the important issues facing the transportation system at this time have led to revisions in the goals and objectives to reflect:

- Emphasis on security requirements as separate from safety needs
- Greater respect for the environment and inclusion of environmental resource and land management agencies in preparation of transportation plans goals and objectives
- Inclusion of sustainability and livability practices
- Adaptation by the transportation system to the effects of climate change and sea level rise
- Inclusion of a goal for clean energy, less dependence on imported oil, more use of renewable sources, and greater energy efficiency
- Identification of flexible and dependable funding sources for transportation projects

The new HSTP Goals and Objectives have been extensively vetted by agency planners, stakeholders, and the public at large. The final wording reflects wide consensus by participants.



*Photo: Safe Routes to School Network Inspects Waiakea School in Hilo, Hawaii
Photo Courtesy of PATH Hawaii*

Goals & Objectives

GOAL I: MOBILITY & ACCESSIBILITY



CREATE AND MANAGE AN INTEGRATED MULTI-MODAL TRANSPORTATION SYSTEM THAT PROVIDES MOBILITY AND ACCESSIBILITY FOR PEOPLE AND GOODS

GOAL I	OBJECTIVES
<p>Create and manage an integrated multi-modal transportation system that provides mobility and accessibility for people and goods.</p>	<p>Objective 1: Preserve and maintain the existing air, water, and land transportation systems, including motorized and non-motorized modes and measures in good condition or better, and give comparable consideration to funding preservation capital projects as is given to expansion projects.</p> <p>Objective 2: Ensure the provision of essential and critical air, land, and water transportation operations and services for all communities throughout the islands.</p> <p>Objective 3: Ensure multi-modal and inter-modal connections for passengers and commodities on the air, land, and water systems; and formulate a program of multi-modal and inter-modal projects, including bicycle and walking options.</p> <p>Objective 4: Address the special needs of Hawaii’s underserved populations, including the elderly, disabled, and Title VI/Environmental Justice (T6/EJ) populations.</p> <p>Objective 5: Reduce congestion in the air, water, and land transportation systems.</p>

Photo: Lihue Airport Approach

DISCUSSION

This first goal for an integrated, multi-modal transportation system has been in every HSTP since 1961, when early structures of systems were first developed for air, water, highway, and interisland travel. This aligns closely with The State of Hawaii Department of Transportation (HDOT) mission statement, “To provide a safe, efficient, accessible, and inter-modal transportation system that ensures the mobility of people and goods, and enhances and/or preserves economic prosperity and the quality of life.” The wording of Goal I has been slightly modified from the last version to include management as well as creation of such systems. Making connections between modes is an important feature of this goal.

The 2035 Socio-Economic Projections and Research used in this HSTP show that Hawaii continues to grow, with an increase of 23% expected in our state population by 2035. Hawaii is already experiencing growth, and this translates to additional vehicle miles traveled along our state’s highways and roadways as shown in Figure 1. The HSTP Statewide Survey questioned 1200 residents

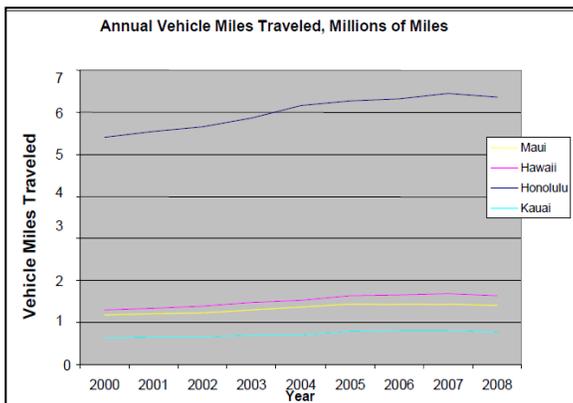
about their perception of travel. As shown in Figure 2, many answered that it has become worse.

Goal I of the HSTP will assist transportation planners with improving the transportation system while balancing the travel needs of people and goods. But, how do we get there?

Potential measures of improvement in the multi-modal transportation system are such items as congestion reduction. This can be achieved by creating multi-modal facilities in high growth areas; promoting consistency between planned growth and economic development by utilizing Smart Growth and Transit Oriented Development; and creating more pedestrian and bicycle improvements for alternative modes of travel. HDOT has begun preparing its first *Statewide Pedestrian Master Plan*.

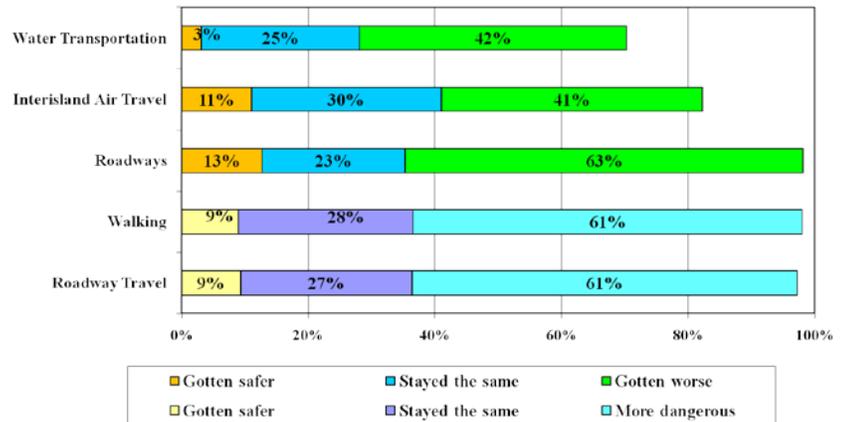
The Airports Modernization Plan, which is a \$2.3 billion program, began in 2006 and is now well under way, improving inter-island air connections and increasing the efficiency of the state’s airport system. The Harbors Modernization Plan began in 2007-08, with improvements slated for harbors around the state, which will enhance the movement of goods and people on each island.

Figure 1: Annual Vehicle Miles Traveled, by County



Data Source: Hawaii State Department of Business, Economic Development & Tourism (DBEDT), Statistics & Data Support Branch, 2009 Databook.

Figure 2: In a statewide telephone survey, people were asked, “Has travel on roadways, inter-island air, and water gotten better, stayed the same or gotten worse?”



Source: HSTP Statewide Survey Report, May 2010

Goals & Objectives

GOAL II: SAFETY



ENHANCE THE SAFETY OF THE AIR, LAND, AND WATER TRANSPORTATION SYSTEMS

GOAL II	OBJECTIVES
Enhance the safety of the air, land, and water transportation systems.	<p>Objective 1: Enhance system and user safety at transportation facilities both motorized and non-motorized, with the use of proper equipment, technology, and physical hazard reduction; and implement priority safety projects for each mode.</p> <p>Objective 2: Support and collaborate with all levels of government to identify transportation routes and protocols for the safe movement of hazardous materials.</p> <p>Objective 3: Continuously conduct assessment, preparedness, and emergency response for natural disasters as part of all planning efforts.</p> <p>Objective 4: Use and consider a full range of transportation design techniques to improve personal safety for all travelers.</p>

Photo: Surveying Earthquake Damage on Hawaii Island

DISCUSSION

In the 2002 HSTP, safety and security were combined into the same goal. To remain consistent with the Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users, otherwise known as SAFETEA-LU, these two goals are now separated. Goal II, Safety, includes four new objectives to recognize current thinking on hazards, natural disasters, and human threats to safety, as well as incorporating assessment and preparedness as part of ongoing planning.

Goal II of the HSTP puts safety as a separate and important priority. Hawaii can strive to lessen transportation fatalities as one measurement of safety. See Figure 3. All modes of transportation, in general, can be made safer.

The *Hawaii Strategic Highway Safety Plan* published in 2007 sets a solid framework for transportation planners of highways, sidewalks, and bikeway facilities. Continued safety

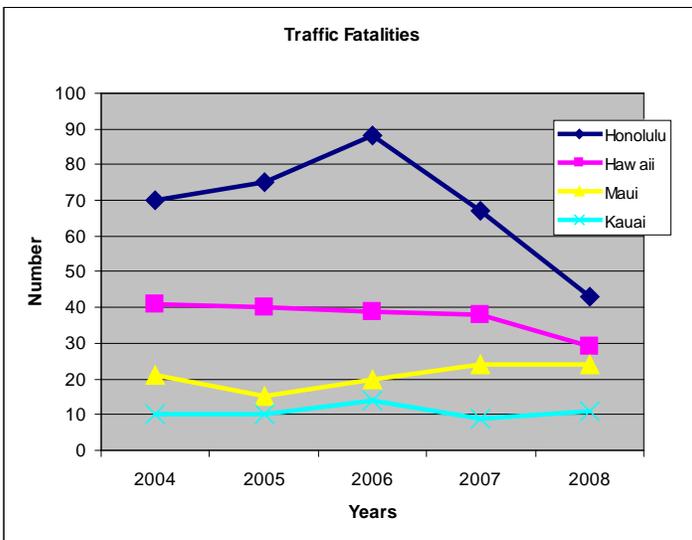
legislation at the state and county levels will also improve safety, including driver education, safety helmets, and traffic laws. Investments in existing infrastructure will also result in improved safety due to construction meeting updated standards and enhanced user perception.

Airports must comply with strict safety standards set by the Federal Aviation Administration. Recommendations to prevent accidents are regularly published by the National Transportation Safety Board.

Potential measures of safety in the HDOT system include reduction in fatalities for all modes of transportation, reduction of injuries at all transportation facilities, and an increased customer perception of safety.

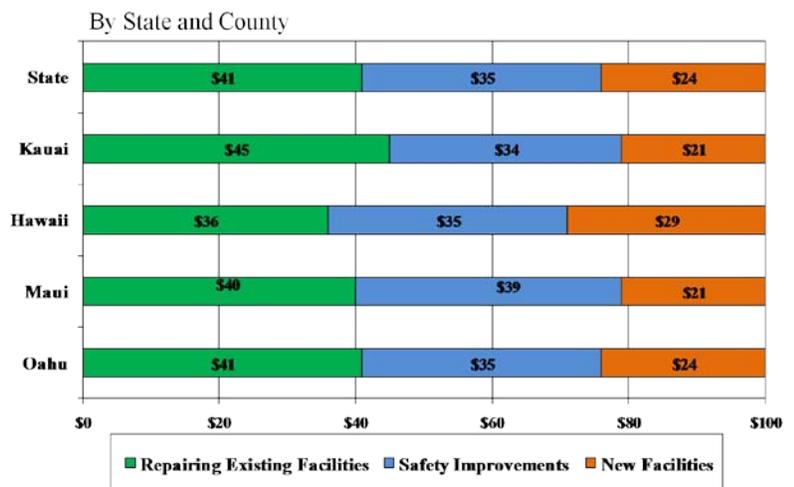
When asked for a list of priorities during the HSTP Statewide Survey, being able to travel safely was the top two priority, second to mobility. When asked to allocate funding between repair, safety, and new facilities, the Survey respondents allocated 35% of the funding for safety improvements, second to repairing existing facilities. See Figure 4.

Figure 3: Traffic Fatalities, by County, 2004-2008



Data Source: National Highway Traffic Safety Administration, Traffic Safety Facts, Hawaii 2004-2008, HDOT, Highways Division, Traffic Safety Section, Records

Figure 4: In a statewide telephone survey, people were asked to allocate funds between repair, safety, and new facilities



Source: HSTP Statewide Survey Report, May 2010

Goals & Objectives

GOAL III: SECURITY



ENSURE THE SECURE OPERATION AND USE OF THE AIR, LAND, AND WATER TRANSPORTATION SYSTEMS

GOAL III:	OBJECTIVES
<p>Ensure the secure operation and use of the air, land, and water transportation systems.</p>	<p>Objective 1: Minimize risks of disruption of transportation to, from, and within Hawaii due to terrorism and other human security threats and events, as well as threats and events from natural causes.</p> <p>Objective 2: Work with Federal, State, and County agencies as well as tenants to conduct vulnerability and risk assessments.</p> <p>Objective 3: Implement security policies and strategies to minimize risks and threats of disruption of or damage to the transportation systems while maintaining the intended function of the system.</p> <p>Objective 4: Provide continuous monitoring of critical infrastructure and communications systems to provide for appropriate emergency response capability.</p> <p>Objective 5: Develop a biosecurity plan and measures to protect against pests and disease.</p>

Photo: Hele-On Bus, County of Hawaii Mass Transit Agency

DISCUSSION

In the 2002 HSTP, safety and security were combined into the same goal. To remain consistent with SAFETEA-LU legislation, these two goals are now separated. Five new objectives reflect current thinking on terrorism and biosecurity, as well as threats to security from natural disasters.

As part of preparation of the HSTP, in-depth interviews of organizations were conducted to reach underserved populations who may not have been adequately represented in the data from the HSTP Statewide Telephone Survey. One issue that came up as a priority was security throughout the entire transit process, between modes, and door-to-door. While para-transit may be provided to someone who needs it, such as an elderly or disabled person, that person still needed to navigate through dark roads to the vehicle, and then if plane travel was needed, moving through the security process and between terminals was challenging. The subjects interviewed wanted to see an increase in security when undertaking

alternative modes of transportation, such as walking. In the same set of interviews, those involved in agriculture wanted to see secure and efficient movement of produce and goods from farm to market, many needing to ship items throughout the island chain.

During Stakeholder Workshops, participants were asked what were the most important security threats to each of the travel modes in the HDOT system. Figure 5 shows a typical response from one of the Workshops, with the group evenly split between natural disasters, terrorism, and invasive species.

For transportation planners to achieve more security in the system, continued inter-agency coordination at all government levels would be helpful. Training and collaboration with the National Disaster Preparedness Training Center at the University of Hawaii could also assist with achieving greater security in the transportation system. Preparation of a Biosecurity Plan for all transportation facilities would not only improve biosecurity, but also help with the economy as more goods could be moved.

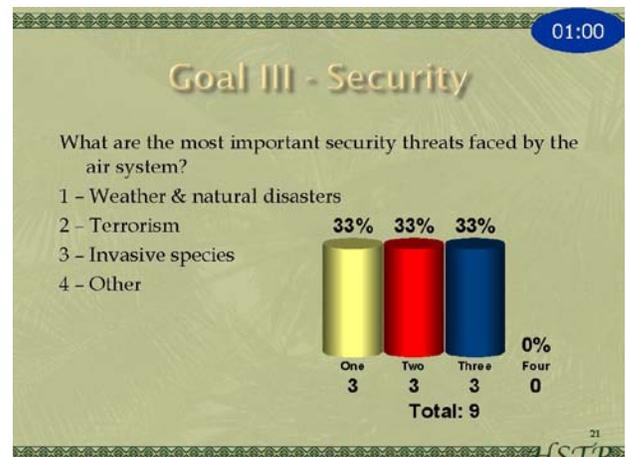


Top Photo:
Agricultural Inspection Station, Honolulu International Airport



Bottom Photo: *Coastal Community Resilience Training*
Photo Courtesy of National Disaster Preparedness Center, UH

Figure 5: Stakeholder Workshop Response to Air System Security Question



Goals & Objectives

GOAL IV: ENVIRONMENT



PROTECT HAWAII'S UNIQUE ENVIRONMENT AND QUALITY OF LIFE AND MITIGATE ANY NEGATIVE IMPACTS

GOAL IV:	OBJECTIVES
<p>Protect Hawaii's unique environment and quality of life and mitigate any negative impacts.</p>	<p>Objective 1: Ensure that the air, land, and water transportation systems respect environmental, natural, cultural, and historic resources; and adopt guidelines to conserve natural resources and alleviate environmental degradation caused by motor vehicles.</p> <p>Objective 2: Implement sustainability and livability practices in existing and new facilities, with "sustainability" defined as: "Respect the culture, character, beauty, and history of our State's island communities; strikes a balance among economic, social, community, and environmental priorities; and meets the needs of the present without compromising the ability of future generations to meet their own needs."</p> <p>Objective 3: Assess sustainability and livability for air, land, and water transportation facilities and operation practices.</p> <p>Objective 4: Support the programs of State and Federal natural resource agencies; as well as support ongoing lines of communication and coordination with these agencies.</p> <p>Objective 5: Encourage transportation systems that improve the quality of life, public health, and welfare of Hawaii's people, and that are consistent with land use plans.</p> <p>Objective 6: Assist with streamlining environmental process by identifying categories of environmental mitigation that include but are not limited to critical habitat, environmentally sensitive areas, noise, and pollution avoidance.</p> <p>Objective 7: Adapt to the effects of climate change and build resilience in the transportation system. Address the effects of a sea level rise and extreme weather events anticipated to occur during and by the end of the 21st Century on Hawaii's air, land, and water transportation facilities, and provide responses to this threat in modal facility plans.</p> <p>Objective 8: Prevent and minimize the transport of invasive species (pests and diseases).</p>

Photo: H-3 Freeway, Kaneohe

Photo Courtesy of FHWA 1998 Excellence in Highway Design Awards

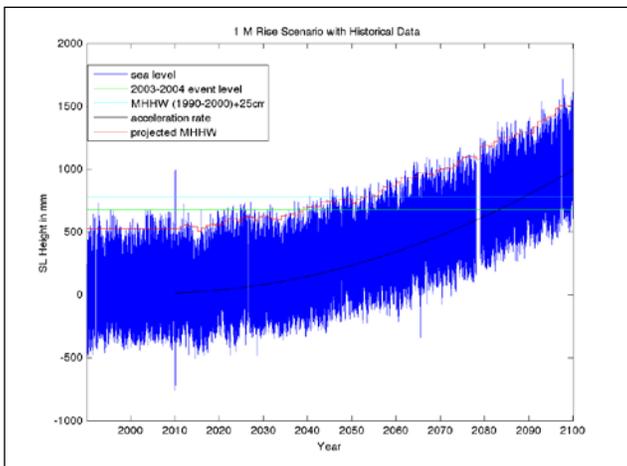
DISCUSSION

Goal IV, to protect the environment, was in the 2002 HSTP. This HSTP adds “mitigation of negative impacts” to the wording in order to acknowledge transportation’s role in building facilities. Seven newly worded objectives have been drafted to replace previous objectives that focused on facilities, programs, and activities. The objectives have also been updated to reflect current emphasis on sustainability and livability, incorporating the *Hawaii 2050 Sustainability Plan* definition of sustainability. Environmental mitigation, adaptation to the effects of global climate change, and preventing and minimizing the transport of invasive species were also included.

University of Hawaii School of Ocean Earth and Science Technology (SOEST) recommends that Hawaii transportation planners plan for a one meter (3-foot) rise in sea level by the year 2100. This gives ample time to implement adaptation strategies for transportation facilities such as hardening, relocation, or elevation as facilities are updated and/or constructed. See Figure 6.

During the preparation of the HSTP, three Stakeholder Workshops were held to involve users of the transportation system; environmental and natural resource agencies and organizations; and

Figure 6: Model of Sea Level in Hawaii Reaching One Meter above Present by 2100



Source: University of Hawaii SOEST

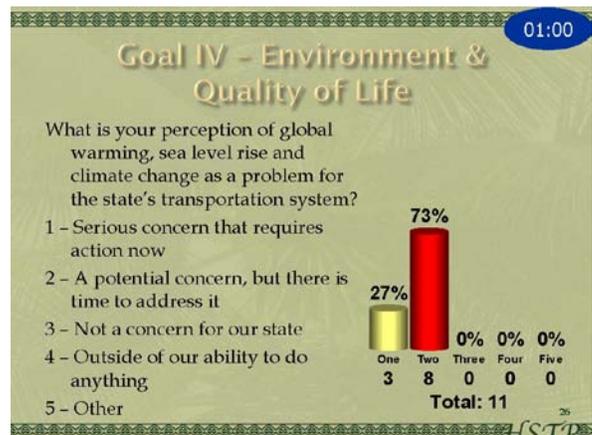
subject area boards and commissions. A handheld voting exercise was conducted on each of the Proposed HSTP Goals. A typical response to the issue of adapting transportation facilities for sea level rise is shown in Figure 7.

In addition to physical construction of facilities, planning to minimize impacts of transportation will help to achieve this goal. Part of this entails consulting early with natural resource and historic preservation agencies as well as conservation, historic, and cultural stakeholders. This also entails incorporating sustainability into everything from construction materials to operations. References to natural resource inventories and historic sites and cultural resources are described in Chapter V of this HSTP document.

Another method transportation planners can use to protect Hawaii’s unique environment is to report annually on the number of Environmental Assessments and Environmental Impact Statements reviewed, while also keeping a database of the mitigations that were required in each. This would naturally form a database of best practices for projects involving transportation in all modes and assist all planners.

Potential measures include number of natural habitats created as part of environmental mitigation, number of island maps prepared for sea level rise mapping, and customer satisfaction with transportation and the environment.

Figure 7: Stakeholder Workshop Response to Global Warming, Sea Level Rise, and Climate Change for the State’s Transportation System



Goals & Objectives

GOAL V: ECONOMY



ENSURE THAT THE AIR, LAND, AND WATER TRANSPORTATION FACILITY SYSTEMS SUPPORT HAWAII'S ECONOMY AND FUTURE GROWTH OBJECTIVES.

GOAL V:	OBJECTIVES
<p>Ensure that the air, land, and water transportation facility systems support Hawaii's economy and future growth objectives.</p>	<p>Objective 1: Support the multi-modal transportation needs in the military, tourism, agriculture, health, education, energy, and technology sectors of Hawaii's economy; and identify sector needs, current and projected, as they relate to movement of people and goods.</p> <p>Objective 2: Create a commodity flow and freight handling system that is dependable, efficient, economical, secure, and rapid for connecting the ports, land transportation facilities, and industrial/commercial land use and storage areas.</p> <p>Objective 3: Provide reliability, dependability, and redundancy for commerce in the import and export goods movement system including inspection facilities at ports; address actions for security of commerce.</p> <p>Objective 4: Create modern air, land, and water transportation systems that are part of a positive visitor experience.</p>

Photo: Ironman Triathlon, Kona

DISCUSSION

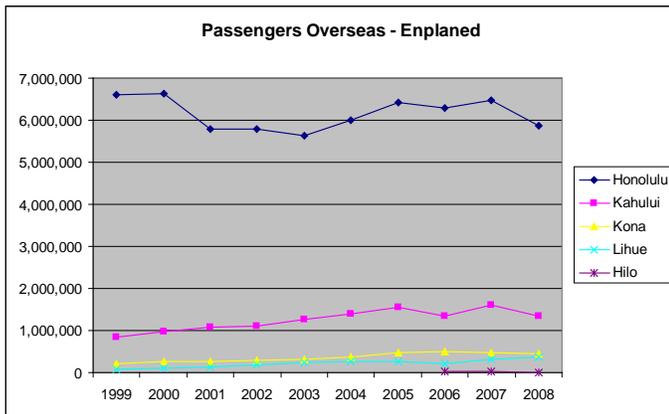
Goal V: Economy has been reworded from the 2002 HSTP in order to support Hawaii's economy and future growth objectives, utilizing wording closer to elements within the purview of the transportation system.

The state's heavy reliance on the visitor industry makes State and County forecasts of visitor arrivals, days, expenditures, and hotel occupancy very important, particularly for airport planning as well as transportation in general. Transportation planning plays an integral part in supporting Hawaii's economy.

Planning for interconnectivity between all modes would also further the achievement of Goal V. Figure 8 shows the volume of overseas passengers enplaned at Hawaii's major airports. Figures 9 and 10 show the volume of waterborne commerce at the major harbors on Oahu, Maui, Hawaii, and Kauai. Figure 11 shows that Stakeholders expect the State of Hawaii will need to expand its harbor facilities.

Performance measures for achieving this goal could include visitor satisfaction surveys and a decrease in delays at all ports.

Figure 8: Overseas Airline Passenger Volumes



Data Source: DBEDT Annual Visitor Research

Figure 9: Waterborne Commerce, Oahu

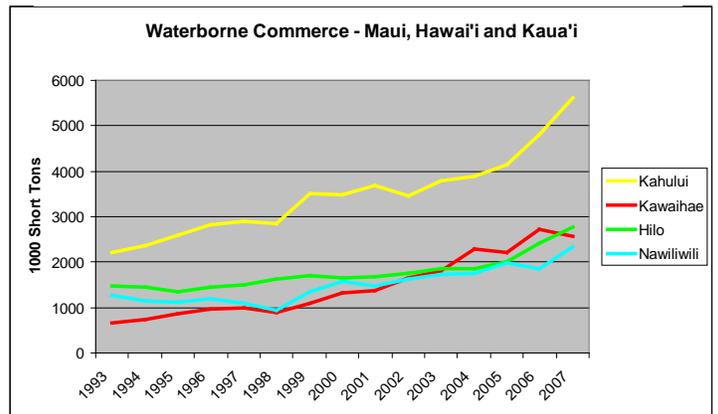


Figure 11: Stakeholder Workshop Expectations for Harbor Expansion by 2035

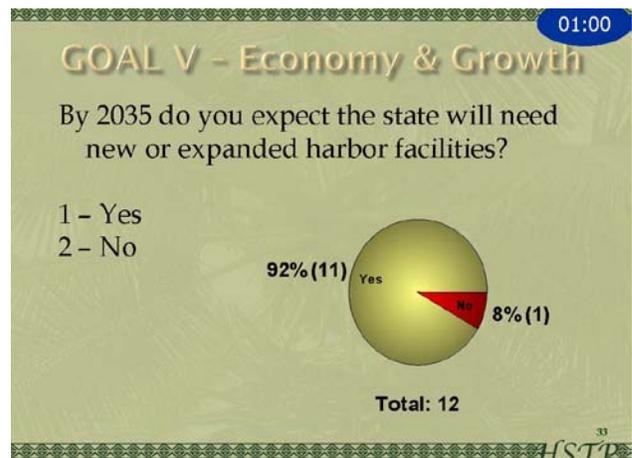
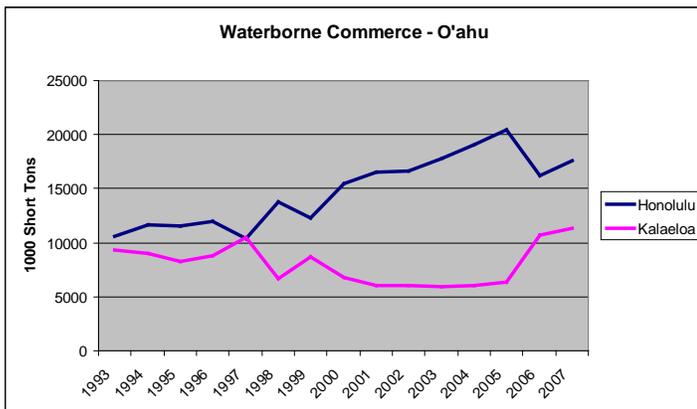


Figure 10: Waterborne Commerce, Maui, Hawaii, and Kauai



Figures 9 & 10 Data Sources: DBEDT, excludes cargo carried by military vessels and cargo in transit.

Goals & Objectives

GOAL VI: ENERGY



SUPPORT THE STATE'S ENERGY GOAL OF 70% CLEAN ENERGY, WHICH INCLUDES 40% PRODUCED BY RENEWABLE ENERGY AND 30% FROM INCREASED ENERGY EFFICIENCY, ENHANCING THE RELIABILITY AND SECURITY OF ENERGY SOURCES.

GOAL VI:	OBJECTIVES
<p>Support the State's energy goal of 70% clean energy, which includes 40% produced by renewable energy and 30% from increased energy efficiency, enhancing the reliability and security of energy sources.</p>	<p>Objective 1: Support the national goal to reduce transportation-related greenhouse gas (GHG) emissions and reliance on foreign oil.</p> <p>Objective 2: Actively pursue actions in transportation which help to achieve the State Clean Energy Goal of 40% renewable energy by 2030; and use integrated action plans from DBEDT's Lead by Example Energy Initiatives with priority transportation actions that would support the Hawaii Clean Energy Initiative (HCEI).</p> <p>Objective 3: Identify ways to increase energy efficiency by 30% at transportation facilities; and identify projects and programs for increased efficiency of energy in support of the Hawaii Clean Energy Initiative (HCEI), Leadership in Energy & Environmental Design (LEED), and other green initiatives for more efficient use of energy.</p> <p>Objective 4: Expand the use of alternative fuel and electric vehicles; provide electric recharging at transportation facilities.</p> <p>Objective 5: Use opportunities where and when practicable and available, to use solar (heating and photovoltaic), wind, geothermal, and ocean resources to supply power to create electricity for transportation facilities.</p>

*Photo: Kahaewa Wind Farm
Photo Courtesy of South Maui Sustainability*

DISCUSSION

Goal VI: Energy is a new goal. This goal directly links to the State of Hawaii Clean Energy Initiative (HCEI), and it applies to all modes. The HSTP goal includes reduced dependency on oil imports while encouraging conservation of energy.

Figure 12 illustrates how Hawaii’s liquid fuel is used for aviation, diesel, and gasoline, charted over a nearly 50 year period. While a small decrease can be attributed to a fall in tourism post-9/11, the overall story is that as the state’s population grows, so does the demand for fuel. This makes attainment of the HCEI goals challenging.

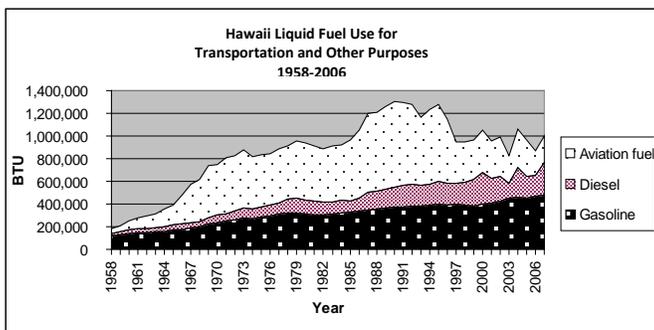
Some people are already changing their behaviors. As shown in Figure 13, the HSTP Survey found that 61% of the respondents used their vehicle less in response to rising gas prices while 58% are still practicing that behavior as gas prices have lowered. The Survey also found that 77% of the respondents statewide support research into new fuel options.

The transportation industry uses a large portion of all fossil fuels in Hawaii. Electrical energy is used for transportation facilities; energy is used for construction of roadways and facilities; and fuel is used in fleet vehicles. Reducing Hawaii’s dependence on fossil fuels will address the energy goal and have a positive effect on the environment by reducing Greenhouse Gases (GHG).

The Energy Goal can be achieved in a variety of ways. Implementing the State’s Lead by Example (LBE) initiative to change the way HDOT uses energy in its operations and facilities is a starting point. Conserving energy, using alternative energy to power transportation facilities, and collaborating with other agencies such as the Department of Business Economic Development and Tourism (DBEDT) Energy Office would all help to achieve this goal.

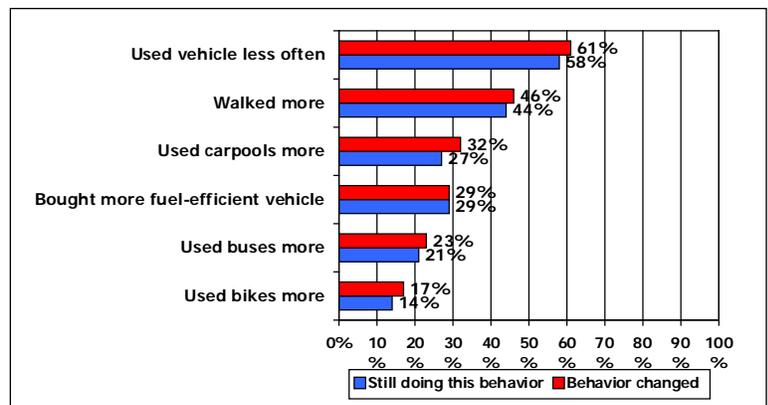
Performance measures for Goal VI could include percentage of fleet vehicles using renewable energy and percent of energy-efficiency at all transportation facilities in all modes.

Figure 12: Hawaii Liquid Fuel Use for Transportation and Other Purposes



Data Source: DBEDT, Tax Research & Planning, “Liquid Fuel Tax Base & Tax Collections,” January 29, 2009

Figure 13: Behavior Resulting from Rising Gas Prices



Source: HSTP Statewide Survey Report, May 2010

Goals & Objectives

GOAL VII: FUNDING



CREATE SECURE, FLEXIBLE, AND SUSTAINABLE REVENUES AND FUNDING SOURCES FOR TRANSPORTATION NEEDS.

GOAL VII:	OBJECTIVES
<p>Create secure, flexible, and sustainable revenues and funding sources for transportation needs.</p>	<p>Objective 1: Develop a statewide framework for long-range financial forecasting; and within this framework, distinguish between system preservation, capacity enhancement, and modernization needs that are funded from user-financing (Harbors and Airports) and user-tax financing (Highways and Transit).</p> <p>Objective 2: Identify sources and develop and secure funding for the sustainable delivery, maintenance, operation, rehabilitation and replacement, and expansion of the state transportation systems.</p> <p>Objective 3: Ensure funding for the safety and security of the state transportation systems.</p> <p>Objective 4: Maximize the use of Federal programs and funding for needed transportation infrastructure; use Federal non-recurring initiatives and funding sources such as American Recovery and Reinvestment Act (ARRA) and report on project and program achievements.</p> <p>Objective 5: Study the reliability and viability of future transportation financing streams and funding and consider scenarios for innovative and non-traditional financing.</p> <p>Objective 6: Achieve project readiness in support of new funding sources as they become available; and report on achievements of project completion.</p>

Photo: Aerial View, Honolulu Harbor

DISCUSSION

Goal VII: Funding is a goal that is new to the HSTP. The six objectives seek to create a framework for forecasting; sustainable finance mechanisms; maximized use of Federal funds; reliable and viable revenue streams; and project readiness for funding opportunities.

Extensive research, interviews, and modeling went in to preparation of the emerging issue paper on finances. While preparing the HSTP, data was gathered on each modal division's operations projections as shown in Figures 14, 15 and 16. These figures show that operating needs will rise in the near future. Challenges that each modal division face include keeping fees and taxes affordable for end users while generating enough revenue to continue operations and capital needs.

Cost controls are one way to achieve savings, and there are other ways to accomplish financial viability for HDOT. Maximizing use of grant opportunities, instituting departmental performance measures, and gathering data can contribute to project readiness for funding opportunities. These functions would also assist HDOT with baseline measures and the kinds of data needed for grant applications.

Potential measures for this goal include percent of funds spent on system preservation projects, percent of funds spent on non-motorized modes, and number of grant applications submitted and funded.

Moving forward, HDOT's Airports and Harbors Modernization Plans and possible work on a Highways Modernization Plan should help with asset management and preservation.

Figure 14: HDOT Airports Operations Projections

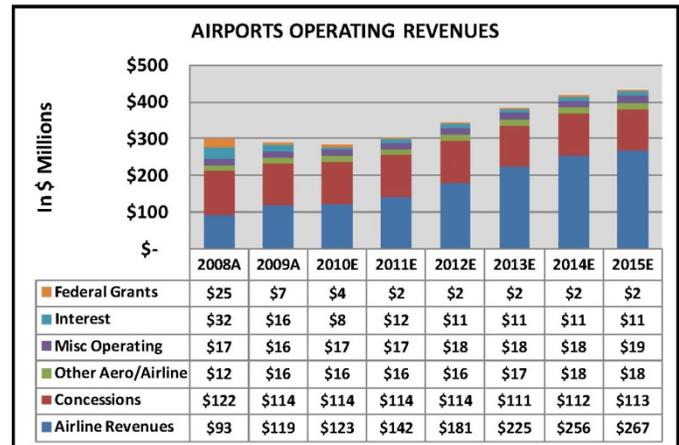


Figure 15: HDOT Highways Operations Projections

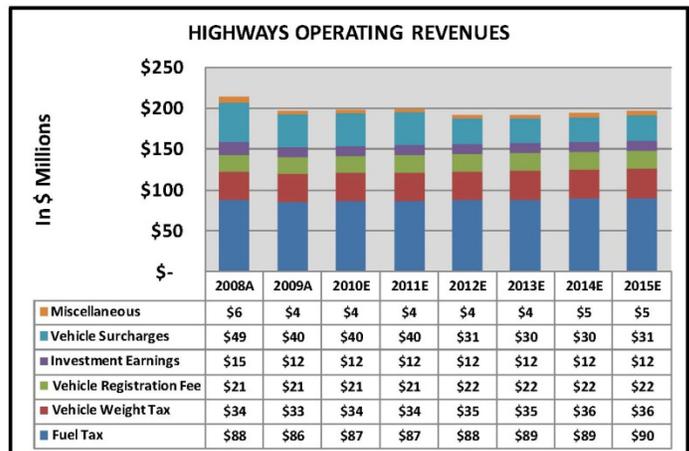
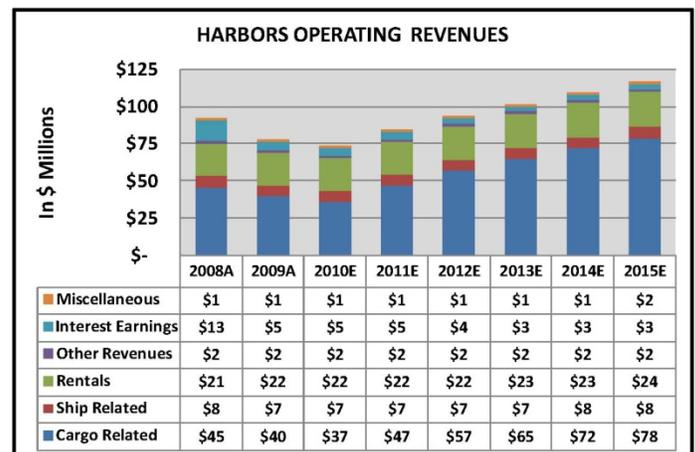


Figure 16: HDOT Harbors Operations Projections



Data Sources: Hawaii Department of Transportation, collected July 2009

Goals & Objectives

GOAL VIII: PLANNING



IMPLEMENT A STATEWIDE PLANNING PROCESS THAT CORRELATES LAND USE AND TRANSPORTATION WHILE SUPPORTING DECISION-MAKING AND PROGRAMMING FOR HAWAII'S INTEGRATED, COMPREHENSIVE, MULTI-MODAL TRANSPORTATION SYSTEMS.

GOAL VIII:	OBJECTIVES
<p>Implement a statewide planning process that correlates land use and transportation while supporting decision-making and programming for Hawaii's integrated, comprehensive, multi-modal transportation systems.</p>	<p>Objective 1: Achieve the Federal requirements for a comprehensive, cooperative, and continuing (3C) transportation planning process; and continue to improve efficient and effective planning.</p> <p>Objective 2: Maintain a dynamic planning process that ensures coordination and cooperation between the State, Federal, counties, private sector, and general public.</p> <p>Objective 3: Incorporate new and evolving methods of public involvement, communication, and social networking to keep others informed of transportation planning efforts, opportunities for participation in decision-making, and programming; continue to regularly update the DOT Public Involvement Policy.</p> <p>Objective 4: Create and implement an Integrated Sub-Regional Area (ISAP) initiative that links strategic planning to project implementation for all modes through a visioning process; and seek funding to begin the ISAP planning for one or more areas of critical State importance.</p> <p>Objective 5: Keep abreast of current and evolving programs and regulations that affect transportation in Hawaii.</p> <p>Objective 6: Seek wider application of geospatial technologies, further develop the land use database development, and integrate visioning in transportation planning.</p> <p>Objective 7: Develop performance measures to manage strategic goals and assets and to assist with better decision-making, communication, transparency, and accountability to stakeholders.</p>

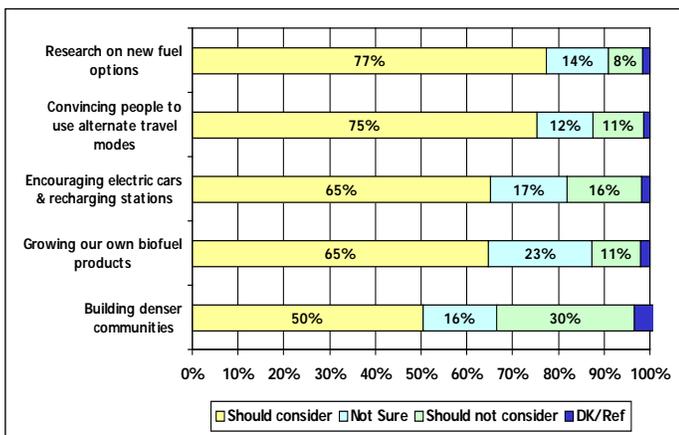
Photo: Pride of America sails from New York to Honolulu

DISCUSSION

Goal VIII: Planning explicitly calls for a planning process linked to decision making and programming, with the intent for the planning process to encompass all modes. The 2002 HSTP called for a comprehensive, cooperative, and continuing (3C) process, which is still included in Objective 1. The 2002 HSTP also called for public and stakeholder involvement to the fullest extent possible. The goal previously reflected wording with a land transportation orientation, whereas the current focus is on multi-modal and inter-modal planning. The objectives also incorporate new and evolving methods of public involvement in order to create more opportunities for participation in decision-making.

Figure 17 shows HSTP Survey results when participants were asked about support for new planning options. A majority of residents statewide supported including new transportation alternatives in future transportation planning. These include alternative energy research and alternative transportation modes. While building denser communities was supported to a lesser extent, involving the public in Smart Growth planning and Transit Oriented Development planning will help to achieve Goal VIII.

Figure 17: Support for Transportation Planning Alternatives



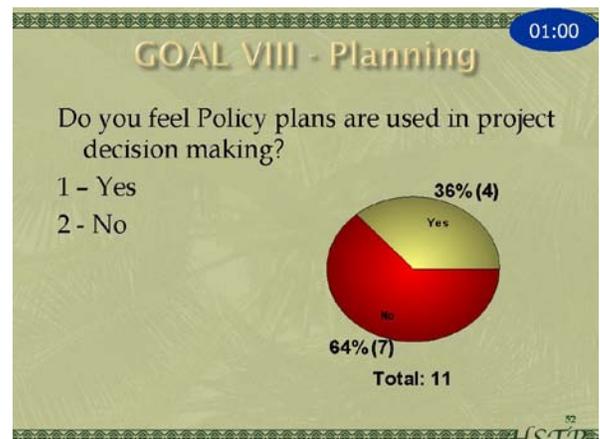
Source: HSTP Statewide Survey Report, May 2010

Objective 4 introduces a new way of planning for HDOT, Integrated Sub-Regional Area Planning (ISAP). This type of planning will ensure that entire areas of an island are looked at and integrated when planning for major transportation improvements. This will entail cooperation and collaboration across modes, across departments, and across jurisdictions. More is written about ISAP in Chapter IV of the HSTP.

Figure 18 shows a typical result from Stakeholder Workshops that were held with participants from transportation industries, boards and commissions, and environmental and natural resource organizations. Achieving Goal VIII means that both stakeholders and the public need to be engaged so that the link between policy plans and project decision making is transparent.

Moving forward, HDOT can implement ISAP, as well as a performance measures system. Potential measures could include number of ISAP underway or completed as well as number of public outreach meetings. A measurement of customer satisfaction with the transportation system, either with stakeholders or with end users, could also be useful to transportation planners as they conduct more community involvement or solicit more input with the planning process.

Figure 18: Stakeholder Attitudes' Towards Policy Plans



Hawaii Statewide Transportation Plan Goals & Objectives

<p>GOAL I:</p> <p>Create and manage an integrated multi-modal transportation system that provides mobility and accessibility for people and goods.</p>	<p>Objective 1: Preserve and maintain the existing air, water, and land transportation systems, including motorized and non-motorized modes and measures in good condition or better, and give comparable consideration to funding preservation capital projects as is given to expansion projects.</p> <p>Objective 2: Ensure the provision of essential and critical air, land, and water transportation operations and services for all communities throughout the islands.</p> <p>Objective 3: Ensure multi-modal and inter-modal connections for passengers and commodities on the air, land, and water systems; and formulate a program of multi-modal and inter-modal projects, including bicycle and walking options.</p> <p>Objective 4: Address the special needs of Hawaii's underserved populations, including the elderly, disabled, and Title VI/Environmental Justice (T6/EJ) populations.</p> <p>Objective 5: Reduce congestion in the air, water, and land transportation systems.</p>	<p>GOAL II:</p> <p>Enhance the safety of the air, land, and water transportation systems.</p>	<p>Objective 1: Enhance system and user safety at transportation facilities both motorized and non-motorized, with the use of proper equipment, technology, and physical hazard reduction; and implement priority safety projects for each mode.</p> <p>Objective 2: Support and collaborate with all levels of government to identify transportation routes and protocols for the safe movement of hazardous materials.</p> <p>Objective 3: Continuously conduct assessment, preparedness, and emergency response for natural disasters as part of all planning efforts.</p> <p>Objective 4: Use and consider a full range of transportation design techniques to improve personal safety for all travelers.</p>	<p>GOAL III:</p> <p>Ensure the secure operation and use of the air, land, and water transportation systems.</p>	<p>Objective 1: Minimize risks of disruption of transportation to, from, and within Hawaii due to terrorism and other human security threats and events, as well as threats and events from natural causes.</p> <p>Objective 2: Work with Federal, State, and County agencies as well as tenants to conduct vulnerability and risk assessments.</p> <p>Objective 3: Implement security policies and strategies to minimize risks and threats of disruption of or damage to the transportation systems while maintaining the intended function of the system.</p> <p>Objective 4: Provide continuous monitoring of critical infrastructure and communications systems to provide for appropriate emergency response capability.</p> <p>Objective 5: Develop a biosecurity plan and measures to protect against pests and disease.</p>	<p>GOAL IV:</p> <p>Protect Hawaii's unique environment and quality of life and mitigate any negative impacts.</p>	<p>Objective 1: Ensure that the air, land, and water transportation systems respect environmental, natural, cultural, and historic resources; and adopt guidelines to conserve natural resources and alleviate environmental degradation caused by motor vehicles.</p> <p>Objective 2: Implement sustainability and livability practices in existing and new facilities, with "sustainability" defined as: "Respect the culture, character, beauty, and history of our State's island communities; strike a balance among economic, social and community, and environmental priorities; and meet the needs of the present without compromising the ability of future generations to meet their own needs."</p> <p>Objective 3: Assess sustainability and livability for air, land, and water transportation facilities and operation practices.</p> <p>Objective 4: Support the programs of State and Federal natural resource agencies; as well as support ongoing lines of communication and coordination with these agencies.</p> <p>Objective 5: Encourage transportation systems that improve the quality of life, public health, and welfare of Hawaii's people, and that are consistent with land use plans.</p> <p>Objective 6: Assist with streamlining environmental process by identifying categories of environmental mitigation that include but are not limited to critical habitat, environmentally sensitive areas, noise, and pollution avoidance.</p> <p>Objective 7: Adapt to the effects of climate change and build resilience in the transportation system. Address the effects of a one meter sea level rise and extreme weather events anticipated to occur during and by the end of the 21st Century on Hawaii's air, land, and water transportation facilities and provide responses to this threat in modal facility plans.</p> <p>Objective 8: Prevent and minimize the transport of invasive species (pests and diseases).</p>
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<p>GOAL V:</p> <p>Ensure that the air, land, and water transportation facility systems support Hawaii's economy and future growth objectives.</p>	<p>Objective 1: Support the multi-modal transportation needs in the military, tourism, agriculture, health, education, energy, and technology sectors of Hawaii's economy; and identify sector needs, current and projected, as they relate to movement of people and goods.</p> <p>Objective 2: Create a commodity flow and freight handling system that is dependable, efficient, economical, secure, and rapid for connecting the ports, land transportation facilities, and industrial/commercial land use and storage areas.</p> <p>Objective 3: Provide reliability, dependability, and redundancy for commerce in the import and export goods movement system including inspection facilities at ports; address actions for security of commerce.</p> <p>Objective 4: Create modern air, land, and water transportation systems that are part of a positive visitor experience.</p>	<p>GOAL VI:</p> <p>Support the State's energy goal of 70% clean energy, which includes 40% produced by renewable energy and 30% from increased energy-efficiency, enhancing the reliability and security of energy sources.</p>	<p>Objective 1: Support the national goal to reduce transportation-related greenhouse gas (GHG) emissions and reliance on foreign oil.</p> <p>Objective 2: Actively pursue actions in transportation which help to achieve the State Clean Energy Goal of 40% renewable energy by 2030; 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HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER II TRANSPORTATION INFLUENCERS



KEEP CURRENT WITH VARIABLES THAT INFLUENCE TRANSPORTATION

Transportation in general is an activity conducted to facilitate something else happening in a certain place. For example, a worker must commute from his home to worksite; or a farmer's product is packaged and sent to the docks where it can be shipped to future buyers; or a vacationer flies on an airplane to get to his hotel.

The total sum of what happens in an area is the result of several things. Among the most important are the social and economic characteristics of the region, and the geographic distribution of different types of land use. The classic approach to transportation planning involves comparing the population forecasts and land uses to the existing transportation networks, identifying deficiencies, and preparing a list of projects which would address the deficiencies.

Chapter II of the HSTP looks at the important variables that influence transportation planning: Demographic Forecasts, Land Use, Federal and State Regulations, and Emerging Issues.

Forecasts of social and economic characteristics for Hawaii are projected to the year 2035. These forecasts are done by the State Department of Business Economic Development and Tourism (DBEDT), which produces forecasts periodically. The forecast set being used for the current set of transportation plans with the forecast year 2035 were produced by DBEDT in December 2008. While other forecast series exist, this version was selected so that there would be consistency among transportation plans. When transportation plans are again updated for 2040, it is likely that a new post 2010 census series will be prepared and released by DBEDT. Forecasts are important because they assist transportation planners with projections of transportation facility use in all modes.

Land Use in Hawaii has two layers. At the State level, lands are classified as Conservation, Agriculture, Urban, and Rural. Shifts from one classification to another are done rarely, and only by petition of the landowner to the Land Use Commission (LUC) which conducts lengthy judicial hearings. The four counties have zoning, subdivision, and land use code jurisdiction over urban, rural, and agricultural lands. Each county prepares land use plans, both General Plans and more specific Development Plans which guide the distribution of lands in Agriculture, Rural, and Urban classification as to whether they may contain residential, commercial, institutional, resort or other uses. Conservation lands are under the purview of the State. Each county has zoning, subdivision, and permit programs which regulate uses and activities on the land. The four counties have updated their General and Development Plans over the past decade, and this new set of plans provides insight into the types of movement that might occur between land areas, as well as some preferences for greater modes choice.

Eight Planning Factors The federal surface transportation agencies, Federal Highway Administration (FHWA) and Federal Transit Administration (FTA), have developed rules for addressing eight federal planning factors. The HSTP takes the perspective that as good planning practice, the Eight Planning Factors should apply to all modes, not just surface transportation.

Emerging Issues The classic population/land use/transportation network modeling approach to transportation planning is no longer sufficient to satisfy what is needed from the transportation system. Therefore, in Chapter II we address transportation in the context of multiple emerging issues. Many of these dovetail to important statewide initiatives in Hawaii, for example those in the areas of greater energy independence, sustainability, and protection of natural resources.

Influencers—Forecasts

2035 POPULATION & SOCIO-ECONOMIC FORECASTS

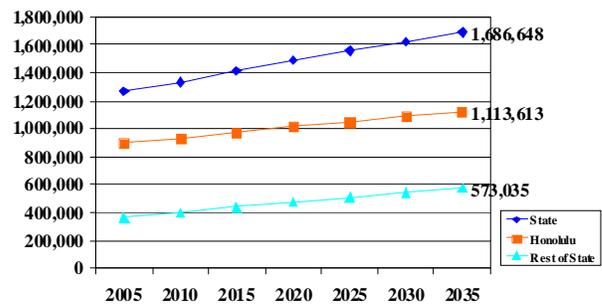
POPULATION

The population of the State of Hawaii was 1,267,826 in 2005, as shown in Figure 19. According to the forecast, the population will grow 27% in the twenty five years between 2010 and 2035, reaching a forecast level of 1,686,648. The majority of that population will continue to reside in the City & County of Honolulu (C&C), with a forecast level of 1,113,613 and the balance of 573,035 people distributed among the neighbor island counties. Population growth rates on the neighbor islands, such as the 51% increase for Hawaii County, are likely to put added strain on that island’s infrastructure and will challenge transportation planners trying to meet needs.

The demographic that bears watching is the aging of Hawaii’s population. Those

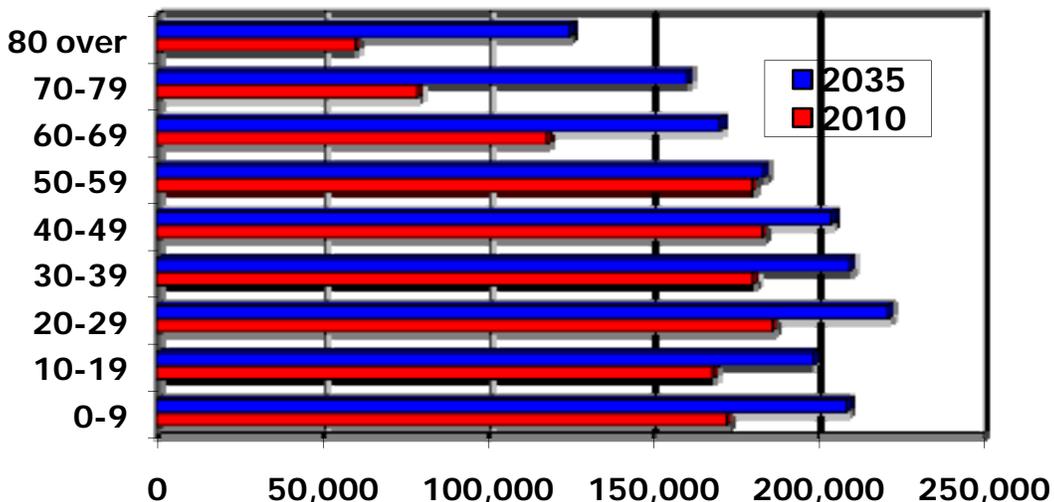
over seventy years of age currently comprise 10.5% of the population, but this is projected to grow to 16.9% by 2035 as seen in Figure 20. This segment of the population has the greatest needs for assisted and specialized transportation, including public transportation. The older population lives disproportionately on neighbor islands and in rural areas where such services are both less available and more costly to provide.

Figure 19: 2035 Population Forecast



Data Source: DBEDT 2008 Forecast

Figure 20: Age Distribution of Population 2010 vs. 2035



Data Source: Department of Business, Economic Development and Tourism, 2008

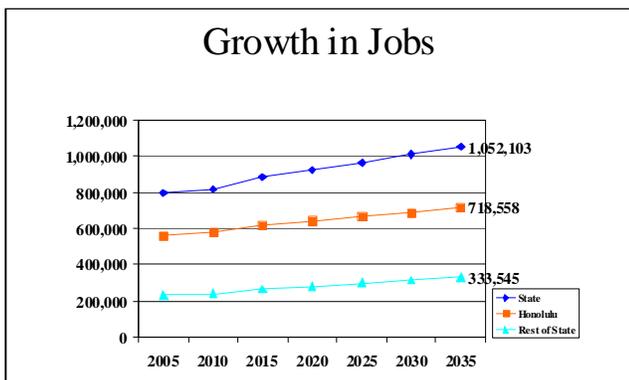
EMPLOYMENT

The number and types of jobs available to the State population will significantly affect transportation planning. Businesses will have to move more goods and services, and that will increase their transportation needs at airports and harbors. The 2008 DBEDT forecast shown in Figure 21 indicates that jobs will increase statewide and will grow at a slower rate on Oahu than in other Counties.

The number and types of jobs available to the State population greatly affect transportation planning. Businesses will have to move more goods and services, and that will increase their transportation needs at airports, harbors, and highways. Jobs forecasts for Hawaii during the same period as shown in Figure 22 indicate a nearly 20% increase in the number of jobs to 1,052,103 with 70% of those on Oahu.

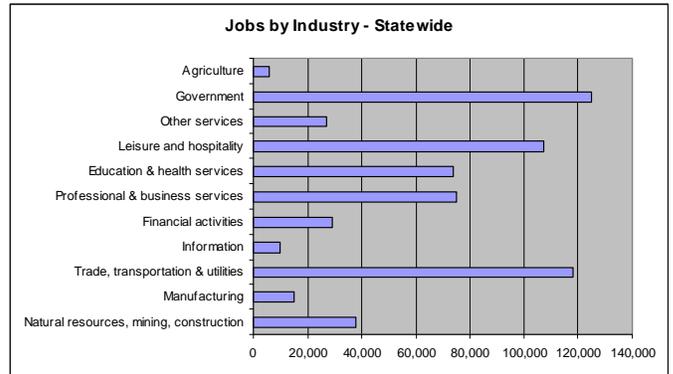
The types of job growth will occur mostly in health services, education, finance, insurance, professional, and other services. The breakout shows less demand for visitor industry, restaurant, and retail jobs.

Figure 21: Expected Job Growth, 2005-2035



Data Source: Department of Business, Economic Development, and Tourism

Figure 22: Jobs by Statewide Industry

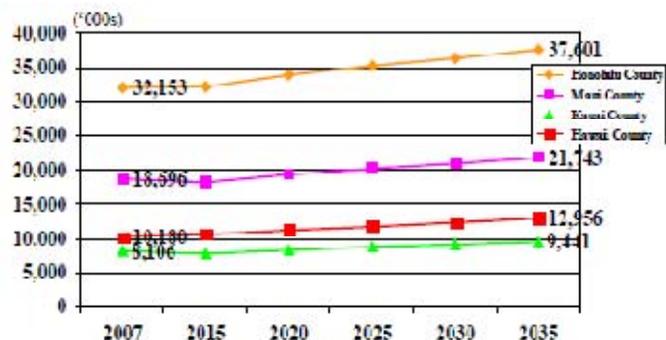


Data Source: Department of Business, Economic Development and Tourism, 2008 Forecast

VISITORS

Visitor projections are another important forecast for Hawaii's economy and for the transportation sector. Visitor arrivals, days, expenditures, and hotel room occupancy are all tracked closely. See Figure 23. The forecast for visitor days by county shows that increases are expected on all islands, with the greatest increase for Oahu, followed by Maui, Hawaii, and Kauai, in that order. This impacts use of airports, rental cars, and travel on each island's roadways.

Figure 23: Visitor Days Forecast



Data Source: Department of Business, Economic Development, and Tourism

Influencers—Forecasts

OTHER DATA

Another source of data for transportation planners is the Census and the American Community Survey (ACS), which both provide data at different geographic levels: nation, state, county, census-designated places, zip codes, census tracts, and block groups.

www.census.gov/acs/www

The ACS also provides useful data on population, household characteristics, families, and housing units. Figure 24 shows how this data can be graphed to be useful to transportation planners.

Additional economic data is available in the July 2009 DBEDT Population and Economic Projections for the State of Hawaii to 2035. It can be accessed on the DBEDT website:

<http://hawaii.gov/dbedt/info/economic>

Data for the Economics of Food, Farming, Natural Resources, and Rural America can be found at the US Department of Agriculture Economic Research Site:

<http://www.ers.usda.gov/Data/>

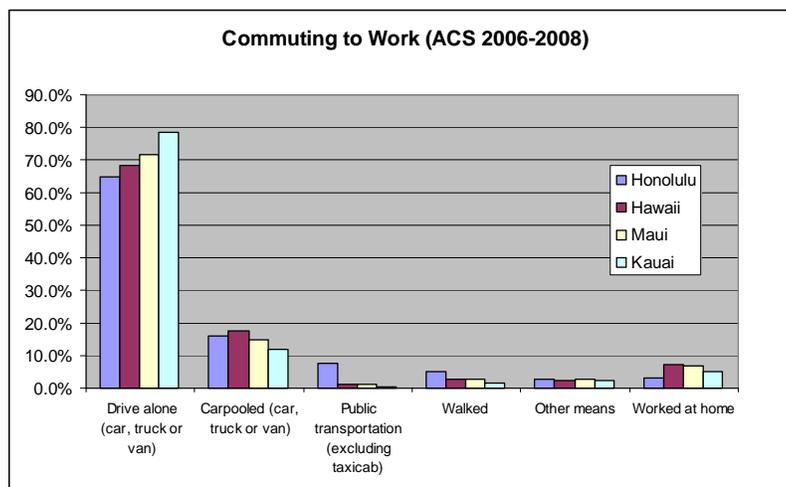
Transportation Planners may need some of this information depending on the issues being analyzed:

State Gross Domestic Product Income – this data is frequently combined with population growth projections to estimate levels of business and personal spending, and to forecast needs for imports and exports capacity in our airports, harbors, and roadways. DBEDT is projecting a moderate GDP growth rate of 1.5% per year until 2035.

Personal income at the state and the county level – notably, even as the number of jobs is forecast to increase, the share of labor income is expected to decrease and the share of transfer payments increases because of the increased retirement incomes of the aging population. Here again this is a reflection of the aging of the population shown earlier in the demographic discussion.

The HSTP Technical Volume 3, Appendix 1 contains a more complete set of tables and charts for the 2035 Population and Socio-Economic Forecasts.

Figure 24: Transportation Mode Used to Commute to Work



Data Source: U.S. Census Bureau, American Community Survey 2006-2008

AGING POPULATION AND TRANSPORTATION

Life expectancy in Hawaii is higher than the US average and has risen to over 80 years for females and just under that for males. Hawaii's elderly population (over age 65) is projected to be nearly 400,000 people by 2035, or 25% of the population. As the population ages, older drivers and pedestrians are faced with declining cognitive skills and with difficulties processing speed.

The senior population has a higher likelihood of injury or a fatality from an accident. See Figure 25. This population needs special attention in the design and function of transportation systems at airports, transit, sidewalks, roadways, and elsewhere.



direction. It calls upon the State and Counties to ensure access and mobility for all users, including bicyclists and pedestrians. An Advisory Group is working with HDOT towards how to best implement Complete Streets and will report to the Legislature in 2011.

The HSTP telephone survey revealed an important related statistic regarding health care availability on the neighbor islands. While 12% of the State's residents travelled off

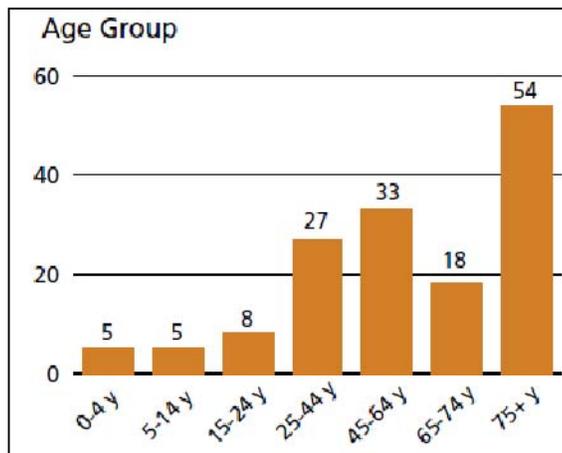
island for health care in the past year, that number rises to 60% on Lanai, 58% on Molokai, 40% on Kauai, 35% on Hawaii, and 26% on Maui. This information has a dramatic impact to the airport system and to the ground connection system of transfers to

get to health care facilities elsewhere.

Hawaii's Complete Streets law adopted in 2009 as Act 54 and codified in Hawaii Revised Statutes (HRS) 286, is a step in the right

Photo: Maui AARP Representatives with SSFM Staff

Figure 25: Pedestrian Deaths, Hawaii Residents, 2000-2004



Source: Hawaii Department of Health Injury Prevention Plan 2005-2010

Influencers—Forecasts

	Major Planning Considerations
•	Address safe access and mobility for all modes, and consider the whole trip from door to door, not just the transportation modes.
•	Transit and pedestrian improvements need to include physical infrastructure, education, and assistance.
•	Use the Complete Streets law to improve facility design and features.
•	Promote shared responsibility of pedestrians and drivers for road safety through publicity and public education, including roads at airports and harbors.
•	Plan for elderly population levels to reach 25% by 2035 and link to Federal, State, and local programs.

LAND USE IN HAWAII

LAND USE PLANNING SYSTEM



Hawaii's land use system has shifted in the fifty plus years since statehood (1959), moving from a state where the dominant land use and economy was plantation agriculture to one that is dominated by the visitor industry and diversified businesses supporting a local population. Rapid growth has forced the counties to develop a highly regulated land use planning and regulatory system. Frequently that growth has come from large acre master planned communities providing housing and multiple levels of price affordability.

The ability to provide infrastructure, including but not only transportation infrastructure, has dominated discussions about planned projects on all islands. Related debates include those over concurrency, meaning to build transportation infrastructure at the same time as a new development, versus after the fact. Another related debate centers around "fair share" financial contributions and impact fees, meaning what is a developer's obligation to pay for transportation infrastructure when more than just those in the development will use that infrastructure.

Recent Land Use Commission (LUC) petitions, for example Hoopili and Koa Ridge on Oahu, have involved the ability of the regional roadway and transit networks to accommodate such large numbers of new homes on already degraded facilities.

The Honolulu Rail Project has been supported by many as a means of adjusting the land use patterns to greater density and mixed uses within walking distance of stations, a concept called Transit Oriented Development (TOD). The neighbor islands also have their share of development proposals and debates.

The Kona side of Hawaii Island has had multiple large scale projects proposed by landowners, giving rise to debates guaranteed to continue many years into the future.

HDOT, of necessity, is brought into the LUC hearings and decision-making. LUC case reviews and the identification of appropriate mitigations remain an important role for the planning structure within the department.

Photo: Aerial View of West Kauai

Influencers—Land Use



There are just over 4 million acres in the State of Hawaii. Of these, nearly half are in the Conservation District, and just under half are in Agriculture. The State of Hawaii owns nearly 1.5 million acres, divided between public lands and lands set aside for State agencies.

STATE AGENCY LAND PLANNING

State agency plans for these lands are varied, and it is important that transportation plans consult on these.

Department of Hawaiian Homelands

The Department of Hawaiian Homelands (DHHL), which has jurisdiction over 203,000 acres, has prepared individual Island Plans and specific development plans for communities on each island.

Office of Hawaiian Affairs (OHA)

The Office of Hawaiian Affairs (OHA) has strategic plans for asset management on a small land base that currently consists of Waimea Falls on Oahu, but OHA is looking to increase its land base.

The Department of Land and Natural Resources (DLNR)

The Department of Land and Natural Resources (DLNR) manages and

regulates the 1,963,631 acres of Conservation lands.

Office of Planning

The Office of Planning does not own or manage any lands, but it plays a key role in land use planning by preparing Special Plans which address State concerns at a regional level, such as the West Hawaii Plan.

The Office of Planning also maintains the GIS Database for layers used by planners and government agencies alike.

COUNTY LAND USE PLANNING

Only 208,533 acres are in Urban or Rural, two of the three categories under the County land use system. This represents just over five percent of all lands, but they are significant because they are the lands where most people live, work, and recreate. A discussion of the latest County plans for these areas follows next. Many of them provide good examples of integrated land use and transportation planning at the county level, advancing principles of clustered growth, higher density, and compact living.

Photo: Kaanapali Coast, Maui

City & County of Honolulu General Plan & Development Plans

The City & County of Honolulu (C&C) General Plan (1977) was last amended in 2002 and is currently in the middle of a review. The General Plan sets the development pattern for the island of Oahu. Since the mid-1900s under the directed growth policy, development has been directed to the Ewa/Kapolei region and to infill within the Primary Urban Center of Honolulu, with moderate growth allowed in Central Oahu. All other areas are meant to have low density, rural, and country character. The C&C has eight Development Plan Areas. The plans for these were completed on a staggered basis starting in 1996, and several are already amidst their five year update, with the North Shore Sustainable Communities Plan approved in May 2011.



County of Maui General Plan & Community Development Plans

The County of Maui General Plan (1991) is currently under review for a forecast year of 2030. The General Plan is actually a bundle of documents

including the Countywide Policy Plan, the Maui Island Plan, the Molokai Community Plan, and the Lanai Community Plan. There are nine Community Development Plans (CDPs) which address goals, objectives, policies, and implementing actions for each district. CDPs are completed for Kihei-Makena, Paia-Haiku, Wailuku-Kahului, Makawao-Pukalani-Kula, Hana, and West Maui as well as for the islands of Lanai, Molokai, and Kahoolawe.



County of Hawaii General Plan & Community Development Plans

The County of Hawaii General Plan was last amended in 2005 and serves as a policy document that directs future growth. It is updated every ten years. There are six Community Development Districts that lay out preferred development patterns and address transportation facilities and linkages to land use. The County Council has already adopted four of the CDP: Kona, North Kohala, South Kohala, and Puna. The remaining two, Kau and Hamakua, are underway.



Left Photo: Downtown Honolulu, Oahu

Right Top Photo: Wailea, Maui

Right Bottom Photo: Hapuna Beach, Hawaii Island

Influencers—Land Use

County of Kauai General Plan & Regional Plans

County of Kauai last updated its General Plan in 2000, establishing a framework for growth which focuses on new growth in Lihue and the existing towns and centers with open space between them and a desire to prevent sprawl between living settlements.



Photo: Condominiums, Princeville, Kauai

Regional plans are available for Kawaihau (Wailua to Anahola), Koloa (Port Allen to Poipu), Lihue, West Kauai (Port Allen to Kekaha), and the North Shore. The sixth regional plan for East Kauai (Lihue to Kapaa) is currently underway.

	Major Planning Considerations
•	Continue to become knowledgeable about and utilize best practices in land use and transportation planning.
•	Implement Integrated Sub-Regional Area Planning (ISAP) for areas of critical concern to integrate transportation with natural resource planning, social planning, and to involve other government agencies and private landowners.
•	Use visioning and scenario planning utilizing geospatial technologies as part of planning work, especially when working with the public.
•	Develop data systems which support integrated planning. Utilize geospatial technology and visioning tools to better envision future land use and transportation scenarios.
•	Understand the relationship between urban form, density, transit and vehicle miles traveled (VMT).
•	Apply smart growth and sustainable development principles such as multi-modal transportation and form based zoning codes.

FEDERAL EIGHT PLANNING FACTORS

Federal transportation law known as the Safe, Accountable, Flexible Efficient Transportation Equity Act (SAFETEA-LU) requires states to consider eight planning factors in the development of their long range transportation plans. The eight planning factors are expected to be integrated through the Continuing, Comprehensive, Coordinated (3C) planning process.

The HSTP treats these eight factors for surface transportation for all modes of transportation. The eight planning factors and the way they are treated in the HSTP Goals & Objectives are shown in Table 1. Issue Paper #1 discussed the Eight Planning Factors in detail.

Table 1: Eight Planning Factors in the HSTP Goals and Objectives

PLANNING FACTOR	HSTP GOAL	HSTP ELEMENT WHERE THIS IS DISCUSSED
Support the economic vitality of the United States, the States, metropolitan areas and non-metropolitan areas, especially by enabling global competitiveness, productivity, and efficiency	Goal V Economy This was one of the more widely supported goals in the Public Informational Meetings and the Stakeholder Workshops	2035 Population and Socio-Economic Projections paper Issue Paper #9 focuses on Financial Scenarios.
Increase the safety of the transportation system for motorized and non-motorized users	Goal II Safety The public and stakeholders felt Hawaii's transportation systems are safe, although more can be done.	Telephone survey Survey of Disadvantaged PIM feedback exercise
Increase the security of the transportation system for motorized and non-motorized users	Goal III Security The public and stakeholders were less certain about the security of facilities, and were interested to know more about it.	Telephone survey Survey of Disadvantaged PIM feedback exercise Issue Paper # 7 on Security discusses needs and requirements.
Increase the accessibility and mobility of people and freight	Goal I Mobility and Accessibility This was one of the most favored goals for the public. Overcrowding in land and air modes is an issue. Goal V Objectives 2 & 3 address freight and commodity flow for commerce.	Telephone survey Survey of Disadvantaged PIM feedback exercise Issue Paper #3 examines the mobility issues important to the Aging Population.

Influencers—Eight Planning Factors

Table 1: Eight Planning Factors in the HSTP Goals and Objectives (Continued)

PLANNING FACTOR	HSTP GOAL	HSTP ELEMENT WHERE THIS IS DISCUSSED
Protect and enhance the environment , promote energy conservation , improve the quality of life , and promote consistency between transportation improvements and State and local planned growth and economic development patterns	<p>Goal IV Environment and Quality of Life</p> <p>This was the most widely supported goal for the public and stakeholders alike.</p> <p>Goal VI Energy</p> <p>This goal tracks the State goal of 70% of needs coming from clean energy, including renewable and energy efficiency.</p>	<p>Issue Paper #10 discusses Environmental Coordination.</p> <p>In addition, Issue Paper #2 addresses Climate Change and Sea Level Rise.</p> <p>Issue Paper #4 discusses State Energy initiatives and provides data for same.</p>
Enhance the integration and connectivity of the transportation system, across and between modes throughout the State, for people and freight	<p>Goal I Mobility and Accessibility</p> <p>Objective 3 of this goal addresses a multi-modal system and the connectivity issues.</p>	<p>Issue Paper # 6 addresses Planning and Design initiatives including context sensitive design, complete streets, smart growth, and transit oriented development. Issue Paper #5 discusses the Land Use and Transportation connection.</p>
Promote efficient system management and operation	<p>Goal VII Objective 1 addresses funding for maintenance, operation, rehabilitation, and replacement.</p>	<p>Issue Paper #8 addresses System Preservation and Asset Management</p>
Emphasize the preservation of the existing transportation system	<p>Goal VII Objective 1 addresses funding for maintenance, operation, rehabilitation and replacement</p>	<p>Issue Paper #8 addresses System Preservation and Asset Management</p>

Major Planning Considerations

- Apply the eight planning factors in Air, Water, and Land modal planning.
- The HSTP ten emerging issue papers provide current guidance and reference materials on many of the eight planning factors; use these for further information.
- Include Stakeholders and the Public in discussions on the eight planning factors.

EMERGING ISSUES

Hawaii's transportation future will be shaped by a wide range of factors, some which are more or less in the State's control (such as how to finance improvements) and others which are outside State control (such as sea level rise), but which require adaptation. The State's transportation planning process must consider the range of factors simultaneously and interactively.

The most direct way these issues are incorporated is in the HSTP Goals & Objectives (see Chapter I). The second way they are incorporated is through the active involvement of State, Federal, and County resource agencies in the transportation planning committees. As performance measures and prioritization methods are put into practice, many of the measures will come from the platforms of the emerging issues. Finally, and importantly, the emerging

issues are widely discussed by stakeholders and the public with anticipation that there are linkages to transportation programs and decision-making.

The ten emerging issues were treated in a series of Issue Papers specifically prepared for the HSTP. Each paper assesses the issue and its relevancy to Hawaii, discusses best practices from other states, and provides reference materials.

Seven of the Issue Papers are discussed in the following pages. The eight planning factors and land use were discussed earlier in this Chapter. The financial Issue Paper is discussed in Chapter VI of the HSTP. All ten Issue Papers can be found in HSTP Volume 2.



Top Left Photo: Roadway Patchwork

Bottom Left Photo: Photovoltaic Cells, Lihue Airport

Top Right Photo: Photovoltaic Cells, Nawiliwili Harbor

Bottom Right Photo: H-1 Viaduct above Nimitz Highway, Oahu

Influencers—Emerging Issues

INTEGRATION OF TRANSPORTATION PLANNING AND DESIGN

Efforts to achieve excellence in moving planning goals and objectives into design follow several themes. One theme is that of “sustainability,” which states that any economic, social or physical activity should improve not harm the environment, using only as many resources as can be replaced for future generations. A second theme is to adopt best practices from other areas of the world, including those that are shifting away from an auto-dominated condition. More compact development, improved streetscapes, and greater use of local materials are some of the concepts explored for transportation. A third theme is connecting these new design concepts to improving safety, a topic of constant concern for transportation planners, especially here in Hawaii.

Designers often use the term “Form follows function.” What this means in transportation is that transportation



Photo: C&C of Honolulu Official Bike Rack, Waikiki



planners need to address human comfort and safety along with mobility and access. Complete

Streets is an excellent example of this. Streets are to be designed so they can be safely and comfortably used by pedestrians, bicyclists, and motorized vehicles as a primary concern, not a by-product. At the county level, considerations for transit oriented development, whether for rail or buses, means more people gain access to transit by walking or bicycling than by being dropped off by a motorist.

The integration of planning and design also has important implications for how planning and design are conducted. Early and regular involvement by the communities being affected is a key principle of Context Sensitive Solutions (CSS). CSS is starting to be practiced in Hawaii by the HDOT, and more is predicted as efforts to incorporate sustainability, safety, environmental protection, health, and welfare are more widely understood by communities.

Current Federal policy emphasizes “transportation safety, livable communities, and place-based development.” Federal programs and funding sources have been retooled to support “Livable Communities,” which links the Departments of Transportation, Environmental Protection, and Housing and Urban Development. Most discretionary funding will come under that label, and the State and Counties are

encouraged to formulate their own initiatives accordingly.

More information on the Livable and Sustainable Communities initiative can be found at the following U.S. DOT Federal Transit Administration link:

http://fta.dot.gov/publications/publications_10935.html

Major Planning Considerations	
•	Consider increased use of international best practices in planning and design now being adopted by other states and the federal government to help change travel behavior.
•	Use smart growth, Transit Oriented Development (TOD), Complete Streets, and other livability programs to shape the level and quality of service of Hawaii’s multi-modal transportation system.
•	Support Hawaii’s Sustainability 2050 Plan goals and benchmark efforts.
•	Coordinate state transportation facility planning when it is near TOD planning districts.
•	Address all modes when determining access to any facility.

Influencers—Emerging Issues



TRANSPORTATION SECURITY

Traditionally, security planning involved preparation for and responses to natural disasters such as hurricanes, tsunamis, and earthquakes. Hawaii disaster planning assumes the state needs to be self-reliant for two or more weeks due to the geographic isolation from supplies. But since the September 11, 2001 terror attacks, security has taken on added meaning, the concern for human generated terrorism.

While preparedness and response includes “guns, gates, and guards,” it also requires extensive training, communication, and collaboration with federal, state, and local agencies to assess vulnerability and risk, to implement new technologies, and to reallocate budgets. Disaster preparedness can be made a routine part of ongoing planning work as it does not require stand-alone efforts to succeed.

Environmentally generated threats are somewhat easier to comprehend; they follow wind, gravity, heat, water, and similar forces with some degree of predictability. Hawaii’s previous experience with hurricanes and tsunamis allows improved evacuation and response actions to reduce loss of life.

Man-caused security threats carry a greater sense of uncertainty and fear because these are among the intents of the perpetrators. Discipline, consistency, intelligence, and investment are the best antidotes to avoiding terrorist incidents. The challenge remains to balance this against traveler convenience and privacy and, in large measure, go beyond what can be treated in the HSTP plan.

The elements of risk management include: Threat Assessment, Vulnerability Assessment, Security Planning, Credentialing, Secure Areas, Critical Infrastructure, Physical Security, Cyber Security, Training, Communication, and Exercises. Transportation planners and officials need to be prepared for security risks in all stages of their work. Hawaii has demonstrated its commitment to maintaining and improving security of travelers at airports, highways, harbors, and on the transit system. This HSTP contains a stand-alone Goal III for Security and associated objectives.

The Federal government plays a significant role in transportation security at airports and harbors.

Major Planning Considerations	
●	Continue with efforts for security risk assessment as part of planning.
●	Continue with training and exercises for security preparedness.
●	Continue collaborative efforts with security partners for 24-7 responsiveness.
●	Provide retrofits of facilities to protect against damage from natural forces.

Photo: Arizona Memorial, Pearl Harbor, Oahu

SYSTEM PRESERVATION AND ASSET MANAGEMENT

Asset management is an integral part of the HSTP as expressed in Goal VII: Funding. Focusing attention on the current condition of system assets relative to their lifecycle can lead to actions that reduce long term costs, which in turn allows a wider range of investment choices.

The need for asset management applies to the Airport, Harbor, and Highway/Transit systems. Each modal division currently practices its own system of asset management.

The Airports Division monitors and reports on conditions of airfield pavement and runways every five years, consistent with Federal Aviation Administration (FAA) Advisory Circular AC 150/5320-17. This is required to remain eligible to receive Airfield Improvement Program funding from FAA. The last report is dated May 2010. The Division also employs an independent consulting engineer for biennial inspection of airport facilities and operations in compliance with bond covenants.

The Harbors Division conducts annual reviews with harbor district managers on each island and inspects facilities every six years. Every two years a consulting engineer assesses the maintenance and related needs for all harbors, to ensure the Division is meeting applicable bond covenants. Underwater inspection of piers is a

high priority needed to make sure the strength and stability of piers remains high for the long term.

The Highways Division monitors the condition of bridges using a software application called Pontis, which is commonly used in other states. The division also monitors the condition of pavement along 2,400 miles of roadways using manual inspection. The Highways Division looks toward advances being made in road maintenance software as well as best practices by the road and pavement industry to keep abreast of new or better ways to monitor the various highway facilities.



Top Photo: Restriping Lanes in Wilson Tunnel, Oahu
Bottom Photo: Bridge Repair on Kauai

Influencers—Emerging Issues

FHWA recommends the following elements of an asset management system:

- Inventory of all assets;
- Condition assessments every three years;
- Cost estimates for improving the condition of assets; and
- Developing Asset Management Practices such as expected condition, defined maintenance schedules, and reporting.

A good asset management system requires an investment in all the above steps to create standards and monitoring for each type of infrastructure. The Airports Modernization Program, the Harbors Modernization Program, and a proposed but as yet unfunded Highways Modernization Program were all designed to address maintenance needs along with safety and congestion priorities.

Major Planning Considerations	
•	Refine the asset management practices to include more benchmarking and more regular public reporting.
•	Establish expected lifecycles and typical maintenance cycles for critical assets.
•	Use a GIS-based data base for asset management so assets can be located, tracked, and monitored.
•	Use least cost planning, life cycle costing and/or opening day costing as part of the asset management systems.

FUEL AND ENERGY SCENARIOS FOR HAWAII

Hawaii's dependence on imported fossil fuels (89% of its energy needs) leaves the State vulnerable to price and availability fluctuations. New public policy has put the islands on a path toward reduced use of fossil fuels, greater energy conservation, and increased use of alternative energy sources. Changing the use of fuel type will require adjustments in supply patterns, storage, and types of vessels.



A new direction is being taken by both the public and private sectors. The State of Hawaii Clean Energy Initiative (HCEI) sets the goal of meeting 70% of Hawaii's energy needs with clean energy by the year 2030. While the State has started addressing its energy goals initially through the electricity system, the challenges for meeting the goals in the transportation system, which comprise 60% of use, remain critical. The answers rely only in part on the HDOT, for example, at their facilities, but to a greater extent use of fuels by transportation providers is the domain of the Federal government and private industry. Strategies include creating higher-efficiency cars and trucks, development of biofuel products, and

Left Photo: Kahaewa Wind Farm, Maui

Right Top Photo: Algae Biofuel

Right Bottom Photo: Maui Ocean Center, Maalaea Harbor

exploration of alternative fuel feed stocks such as algae, which is currently being researched for use by the aviation sector.



The State signed a partnership agreement with the US Department of Energy in 2008, and later the same year with Better Place to bring an electric car network (cars and charging stations) to the state.

The program objectives are:

- 1) Create dependable, efficient, and economical statewide energy systems capable of meeting the needs of the people;
- 2) Increased energy self-sufficiency;
- 3) Greater energy security; and
- 4) Reduction, avoidance, or sequestration of greenhouse gases.

Private plans for photovoltaic and wind farm projects, along with tax and financing incentives, are part of this legacy program. All the roofs at



Influencers—Emerging Issues

seven HDOT Airports have photovoltaic panels. Other HDOT Airport facility energy projects include daylight harvesting ballasts on the perimeter of the interisland parking structure at Honolulu International Airport, energy-efficient air conditioning chiller plants at three concourses, and cell phone waiting areas.

All four counties have incorporated energy conservation and use of alternate fuel vehicles for fleet cars in

their energy and sustainability planning. The counties also have green building codes and recognize that they play a role in food and energy production through their land use and permitting roles, including solar, geothermal, ocean, and waste to energy efforts.

In recognition of the importance of energy issues to transportation in the State of Hawaii, a new Goal VI is added in this plan, one totally devoted to the subject on energy.

Major Planning Considerations	
•	Make the connection between energy, transportation, and land use in future planning efforts.
•	Collect data and monitor changes in the types of energy used in all modes, including public transit and non-motorized modes.
•	Consider vulnerability and risks that may arise from energy disruptions, changes in cost or sources of fuel.
•	Continue programs for energy efficiency and renewable sources at transportation facilities.
•	Partner with agencies, institutions, and industry entities to support important energy and fuel efficiency policies.

ENVIRONMENTAL COORDINATION: LINKING PLANNING AND NEPA

The National Environmental Protection Act (NEPA) has guided environmental protection activities for the past four decades. NEPA defines policy goals, procedures, and methods for appeal. It is one of our nation's strongest and most pervasive laws. It applies to all federal activities and is cross-referenced to many other federal laws.

SAFETEA-LU surface legislation called for three important things to better link transportation and the environment:

- 1) Embrace environmental factors in planning;
- 2) Consider environmental mitigation activities in state and metropolitan long range transportation plans; and
- 3) Consult with resource and land management agencies regarding conservation plans, maps, and resource inventories.

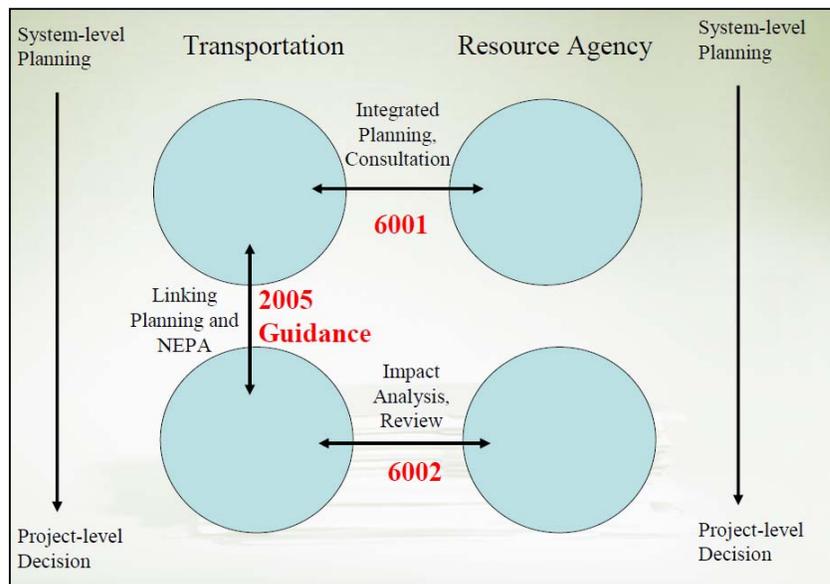
These are important and significant changes. Regulations implementing these changes went into effect in February 2007. Figure 26 depicts the relationship envisioned by the regulations, and it is taken from training materials.

The HSTP takes the perspective that better linkage to environmental factors

is appropriate for Air, Water, and Land transportation planning. At the system level of planning, consultation through integrated planning between transportation and resource agencies is key. This was accomplished through individual agency outreach, as well as through Stakeholder Workshops. The new planning framework looks towards this integration continuing through an Intergovernmental Planning and Policy Forum. Among the possible outcomes is an improved environmental database, use of GIS technology and shared GIS layers, and formulation of more successful environmental mitigations.

HDOT has also partnered with the Hawaii Local Technical Assistance Program (LTAP) for environmental review training, further strengthening environmental coordination.

Figure 26: Linking Planning and NEPA



Source: Michael Culp and John Humeston. FHWA, Office of Environment and Planning. Presentation at 2006 AMPO Annual Conference.

Influencers—Emerging Issues

Federal law and the HSTP also look towards improved impact analyses and reviews at the project level. This is to be achieved, in part, through a process called Linking Planning and NEPA, or LPN. Borrowing from other states that have successfully implemented an LPN type of approach, the American Association of State Highway and Transportation Officials (AASHTO) recommends a strategic approach to environmental assessment which includes:

- Setting system-wide performance goals
- Making modal choices that fit a multi-modal vision, establishing networks that serve a common purpose
- Coordinating Transportation and Land Use plans and involving the public in this coordination
- Defining a role for non-motorized travel
- Establishing a role for tolling or congestion pricing
- Incorporating the adopted broad planning goals as part of the purpose and need statement in a NEPA document

Of course, Hawaii has its own environmental laws and requirements. Some of these parallel federal statutes, but others are tailored to the unique needs of the State. Commitment to the environment remains high, as evidenced by responses to the HSTP Survey and to the HSTP feedback at Countywide Public Informational Meetings. HDOT has also initiated training of its staff and others through the Local Technical Assistance Program (LTAP).

A review of the current environmental review law, HRS Chapter 343, is underway and could affect future activity with regard to triggers, shelf life of an EIS, exclusions, and other aspects of the current law which have been attacked as too cumbersome, too slow, and too unpredictable.

Environmental mitigation opportunities include developing a database for use in identifying sensitive and protected natural resource areas. Federal surface transportation laws and regulations now call upon Statewide transportation plans to provide an inventory of natural resources agencies, their plans, and databases. These are referenced in Chapter V.

	Major Planning Considerations
•	Continue to identify areas of critical environmental concerns and map these for all islands.
•	Continue to identify types and categories of environmental mitigation, especially those that might be wetland, habitat, or airshed based.
•	Continue to conduct environmental training workshops.
•	Alleviate environmental degradation at the system-wide and project levels.
•	Where appropriate, consider programmatic environmental impact statements.
•	Develop methods for centralizing information on population and demographics, land use and growth management plans, and environmentally sensitive areas to assist in determining indirect and cumulative impact analysis.
•	Coordinate transportation, the environment, and land use through Integrated Sub-Regional Area Planning (ISAP).

CLIMATE CHANGE AND SEA LEVEL RISE

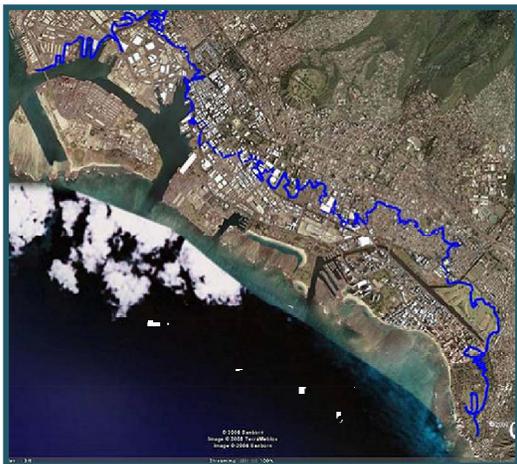
Sea level rise is a concern for Hawaii's transportation facilities. For example, a one meter rise, which is the recommended adaptation parameter, would impact the Honolulu International Airport (HNL) reef runway if storm surge is significant and would also inundate the Hilo Harbor breakwater. The blue line in Figure 27 shows lands makai of the blue line that would be highly vulnerable to coastal hazards once sea level rise reaches one meter.

High waves and storm events will overtop revetments and erode coastal roadways on all islands, conditions already experienced along Kamehameha Highway on Oahu's North Shore as well as along Alii Highway in South Kona. Of equal concern is the impact sea level rise will have on

drainage, especially as water tables rise, come closer to the ground surface, and diminish the ability of the land to absorb water, which in turn leads to increased flooding.

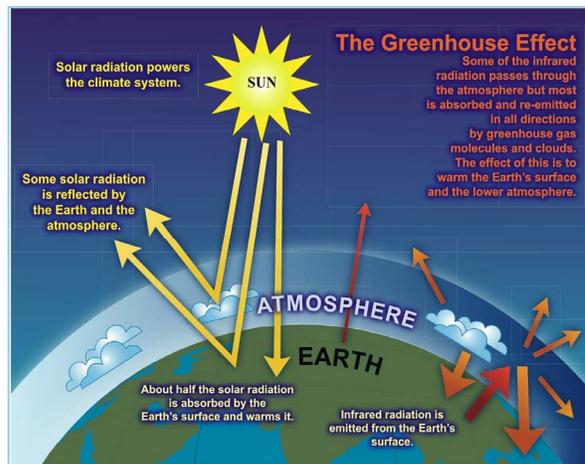
In addition to sea level rise, climate change will dramatically affect the transportation infrastructure throughout the state. Recent climate change has created secondary effects that bring many challenges for transportation systems. A more direct effect is the deformation of the materials used for construction of roadway facilities. Under hotter atmospheric conditions, the chemical and physical makeup of some materials can change, leading to the slow disintegration of roads, airport runways, bridges, and rails. See Figure 28 for the Greenhouse Effect.

Figure 27: Lands Makai of Blue Line Will Be Highly Vulnerable to Coastal Hazards with One Meter Sea Level Rise



Source: UH SOEST

Figure 28: The Greenhouse Effect



Source: Australian Bureau of Meteorology

Influencers—Emerging Issues

Extreme weather events will occur more frequently. Every mode of transportation is vulnerable to the increasing intensity of tropical storms. Scientists have observed an increasing trend in the intensity of precipitation, and higher winds will drive greater wave action associated with tropical storms. Each has a major effect on transportation; surface transportation is affected by increased winds, waves, and precipitation. Coastal roadways are especially in danger because of their close vicinity to the shore. Winds can knock down trees, signs, utility poles, and traffic lights, causing major delays. Heavy precipitation causes heavy flooding, blocked roadways, obstructed evacuation routes, and overflowing sewer systems. Large, strong waves can erode and sometimes completely destroy roadways and bridges.

While climate change is a worldwide concern, it requires local action to make a difference. Act 234 of the 2007 Legislature, now codified as HRS 342B, calls on the State to reduce Greenhouse Gas emissions to 1990 levels, a law similar to one in California. A report by a Greenhouse Gas (GHG) Task Force was submitted to the 2010 Legislature, and currently the Department of Health is finalizing administrative rulemaking to go into effect on January 1, 2012. Other statewide policy initiatives such as Act 20 (2009), now codified as HRS 453, relating to Climate Change Trends are discussed later in this Chapter of the HSTP.

	Major Planning Considerations
●	Plan for a one meter rise in sea level by 2100 and pay attention to transportation assets at risk.
●	Develop a schedule of risk based on model of sea level rise.
●	Plan to retrofit facilities as part of ongoing maintenance and upgrade to adapt for wave overtopping, erosions, and storm runoff.
●	Purchase energy efficient vehicles in fleets to reduce GHG.
●	As they become available, substitute alternate energy or low carbon fuels in vehicles, ships, and airplanes.
●	Encourage alternate transportation in order to lower use of fossil fuels.

STATE POLICY INITIATIVES

The Hawaii State Legislature has been extremely active in seeking solutions for global problems that will affect Hawaii in the 21st century. Their preferred method for doing this is to call for a Study or Plan and assign it to a department or agency, which in turn must form and work with a Task Force to bring forth a product and report back to the Legislature in one to two years.

The assessments, the missions, the values, and the outcomes of the work of these Task Forces bear marked similarity to the kinds of issues important to Hawaii's transportation systems and planning. There is much to be learned from them in the way opportunities are defined, measured, and strategies found for their attainment. HDOT awareness, participation in, and contributions to the efforts of others is an important part of fulfilling transportation planning commitments.



Photo: Hawaii State Capitol

Hawaii 2050 Sustainability Plan

Act 8 (2005) was titled “Hawaii Sustainability Plan for the 21st Century.” It formed a Task Force of 25 members chaired by Senator Russell S. Kokubun with staff assistance coming from the Office of the Legislative Auditor and the UH College of Social Sciences Public Policy Center.

Following preparation of an Issue Book with research on important issues facing the State and a public opinion poll, a Plan was prepared calling for a “triple bottom line—economic, community, environment—to be in balance.”

Figure 29: Hawaii 2050 Sustainability Plan Goals



Influencers—Emerging Issues

The *2050 Sustainability Plan* was adopted by the 2008 Legislature and included these five visions:

1. Living sustainably is part of our daily practice in Hawaii.
2. Our diversified and globally competitive economy enables us to meaningfully live, work, and play in Hawaii.
3. Our natural resources are responsibly and respectfully used, replenished, and preserved for future generations.
4. Our community is strong, healthy, vibrant, and nurturing, providing safety nets for those in need.
5. Our *kanaka maoli* and island cultures and values are thriving and perpetuated.

Nine priority actions were identified and sustainability indicators were called for. In Act 225 (2008) the Legislature called for a review of the Plan, including recommendations to develop data and benchmarks. This review and initial benchmarking was sent to the 2010 Legislature and called the *Hawaii 2050 Update*.

Energy Efficiency in Transportation

Act 254 (2007) called for a Study on Energy Efficient Transportation (SEET). The objective was to identify strategies “to reduce fuel demand in Hawaii’s transportation sector and reduce Hawaii’s dependence on imported fossil fuel.”

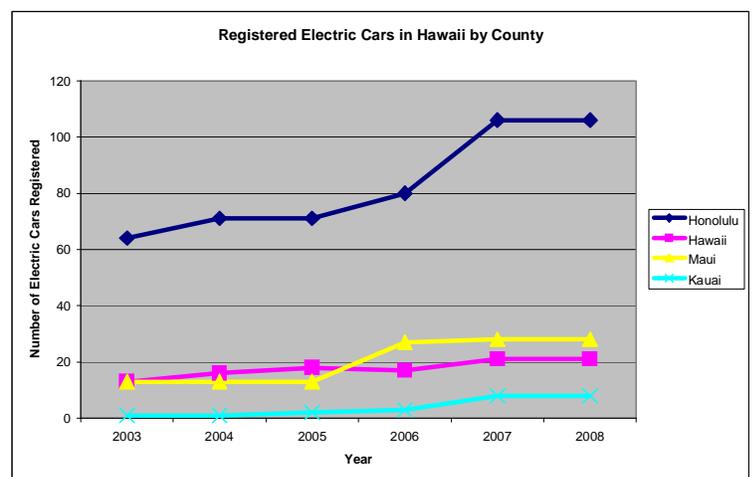
The assignment for the study went to the Hawaii Energy Policy Forum at University of Hawaii, headed by the US Public Policy Center. Funding came from HDOT, FHWA, and from the Hawaii Community Foundation’s Koaniani and Omidyar Funds.

The Forum convened a Working Group which developed the following vision statement:

“An energy-efficient transportation system that integrates effective community input and planning, and offers people of all ages and walks of life flexible options including mass transit, private and public vehicles and self-powered conveyance in alternate combinations that provide mobility at acceptable cost.”

The number of electric cars registered in Hawaii is rising, as shown in Figure 30.

Figure 30: Electric Cars Registered



Data Source: Department of Business, Economic Development, and Tourism

Researchers from UH conducted a telephone and web survey to answer these questions: 1) To what extent did high fuel prices affect travel behavior, and 2) Will future higher fuel prices spur: the purchase of smaller/more fuel efficient cars; greater use of alternate modes; or adjustments in lifestyle and daily travel

behavior. The researchers conducted a second survey on rail transit and Transit Oriented Development to determine attitudes towards high density, mixed land uses, limited parking, and streetscapes that better serve bicycles and pedestrians.

Climate Change Solutions and the Greenhouse Gas Task Force

Act 234 (2007) was titled “Hawaii’s Global Warming Solutions Act,” and it was codified in HRS 342B, sections 71-73. Assignment for tasks in the law went to DBEDT Strategic Industries Division and Department of Health (DOH) Environmental Health Administration, Clean Air Branch. The law called for a ten member Task Force charged to find the most cost effective measures for reaching the goals of reducing emission reduction targets to 1990 levels by January 1, 2020. An inventory of GHG emissions was completed in December 2008, with a work plan presented to the Legislature in 2010. The Department of Health is charged with completing rules and regulations by December 31, 2011 to achieve the emissions reduction goal, and those rules would go into effect on January 1, 2012.

The six GHG in the inventory included carbon dioxide (CO₂), methane, nitrogen oxide (N₂O), hydrofluorocarbons, perfluorocarbons, and sodium



Photo: Hawaii’s Changing Climate Briefing Sheet 2010, UH SOEST

hexafluoride. The inventory showed that aviation, ground, and marine transportation sectors are all heavy contributors to CO₂ and N₂O. Net emissions were up 37% over a similar inventory in 1997. The 2007 inventory includes the military, where the earlier report did not. The Task Force report calls for further research into a carbon tax, voluntary reduction measures, mobile source regulations, and market mechanisms.

Influencers—Emerging Issues

Other Climate Change Task Forces

Act 20 (2009) was titled “Scope and Impacts of Global Climate Change Trends in the State.” Overriding a gubernatorial veto, the Act diverted \$50,000 from the State Tourism Fund to support a Climate Change Task Force. Due to the work of the GHG Task Force and the Ocean Resources Management Working Group, the Climate Change Task Force was considered a duplicative effort. Therefore, the Office of State Planning did not convene the Climate Change Task Force.

The Ocean Resources Management Working Group, under the DBEDT Office of State Planning and Coastal Zone Management and the UH Center for Island Climate Adaptation and Policy, worked together to address: sea level rise, estimating the costs of adverse impacts, recommendations for measures to address adaptation options, shoreline erosions, coastal development, coastal hazards, and the presence of natural and cultural resources. Their initial report was dated November 2009.



In July 2010 the Obama Administration Interagency Climate Change Adaptation Task Force held a public meeting in Hawaii with live webcast to Guam and Commonwealth of the Northern Mariana Islands (CNMI). The meeting was hosted by NOAA and the Department of Interior. The Task Force is charged with developing federal regulations for adaptation and their report is due in the fall of 2010.

Energy Self Sufficiency and Food Security

Act 73 (2010), codified in HRS 243-3.5, called for formation of a Task Force by DBEDT to “facilitate accelerated adoption and completion of renewable energy projects, an energy efficiency program, agriculture infrastructure development and other measures.” The Task Force is expected to look at policy measures, funding, institutional mechanisms, streamlining, and legislation in possible anticipation of an Environmental Response, Energy, and Food Security Tax. The Task Force is required to report to the 2011 Legislative Session with a follow up report to the 2012 Legislative Session.

Photo: Hawaiian Sunshine Nursery, Panaewa Agricultural Park, Hawaii Island

Source: Hawaii Department of Agriculture 2008 Annual Report

HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER III EXISTING SYSTEMS



CURRENT CONDITIONS AND SYSTEMS

Transportation planning has been on-going for a long-time, and therefore the HSTP is written with consideration of the transportation plans written before it. In this chapter, existing conditions and systems are described, including:

- Description of the existing systems of transportation facilities
- State transportation planning laws and regulations
- Federal transportation planning laws and regulations

The full transportation system is a combination of facilities owned by the State, Counties, military, Federal agencies and private parties. All are critical to the islands. The State of Hawaii Department of Transportation (HDOT) is responsible for planning, designing, constructing, operating, and maintaining a large complement of state-owned facilities, including:

- Fifteen airports: five primary airports and ten secondary airports;
- Ten commercial harbors on six major islands; and
- Approximately 2,450 miles of paved roadways on the six major Hawaiian islands.

The Department’s mission is: “To provide a safe, efficient, accessible, and inter-modal transportation system that ensures the mobility of people and goods, and enhances and/or preserves economic prosperity and the quality of life.” HDOT must coordinate with other agencies and programs to fulfill its mission and objectives.



Top Photo: Aerial View, Hana Highway, Maui

*Bottom Photos Left to Right: Honolulu International Airport; Nawiliwili Harbor, Kauai;
and H-3 Tunnels, Kaneohe, Oahu*

Existing Systems

AIRPORT SYSTEM

The Airports System in Hawaii consists of five primary airports and ten secondary airports as listed in Tables 2 and 3. In addition to the State facilities referenced, the military controls six airports, and there is one semi-private airfield on Kauai. There are six semi-private heliports: five on Hawaii and one on Oahu.

Tables 2, 3, and 4 show the basic usage in 2008 of Hawaii's primary and secondary airports. Honolulu International Airport is the dominant hub, serving connections overseas and to the other state airports. Airport planners must be prepared for a large and ever changing mix of airlines and aircraft. At this time, 37 airlines offer passenger and cargo service to, from, and within Hawaii. Recent cessation of Aloha Airlines and ATA (2008) was the latest in major adjustments to hit the airline industry here. Due to the prominence of the visitor industry in Hawaii, Hawaii airports consistently rank among the top forty domestic market "city pairs," according to the Air Transport Association. City pairs are a travel route between two airports, and for these city pairs, one airport is in Hawaii.



Table 2: Primary Airports Air Traffic Statistics

Primary Airports	Year Constructed	2008 Annual Passengers	2008 Cargo (Tons) ¹	2008 Aircraft Operations ²
Honolulu International Airport, Oahu	1927	18,809,103	359,031	286,593
Kahului Airport, Maui	1943	5,463,787	27,089	128,022
Kona International Airport, Hawaii	1949	2,759,547	21,141	127,796
Lihue Airport, Kauai	1950	2,610,035	14,030	113,371
Hilo International Airport, Hawaii	1941	1,352,808	22,223	75,598

¹Excluding Mail
²Total for takeoffs and landings combined.
 Calendar Year 2008 Air Traffic Statistics
 Source: HDOT Airports Division
<http://hawaii.gov/dot/airports/library/publications-and-statistics/cysmallone.pdf>

Top Photo: Lihue Airport, Kauai

Bottom Photo: Lihue Airport Gateway Sign

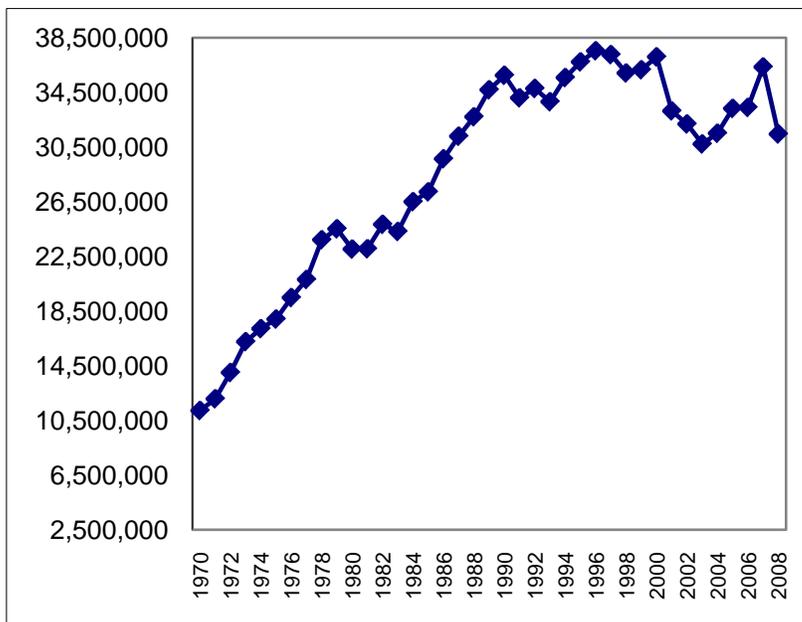
Table 3: Secondary Airports Air Traffic Statistics

Secondary Airports	2008 Annual Passengers	2008 Cargo (Tons) ¹	2008 Aircraft Operations ²
Molokai Airport, Molokai	217,256	934	31,200
Kapalua Airport, Maui	119,563	945	10,552
Lanai Airport, Lanai	113,661	721	7,856
Kalaupapa Airport, Molokai	7,418	194	2,624
Hana Airport, Maui	3,037	4	3,276
Waimea-Kohala Airport, Hawaii	849	0	1,342
Kalaeloa Airport, Oahu	--	--	132,327
Dillingham Airfield, Oahu	--	--	53,220
Port Allen, Kauai	--	--	3,738
Upolu Airport, Hawaii	--	--	0

¹Excluding Mail
²Total for takeoffs and landings combined.
 Calendar Year 2008 Air Traffic Statistics
 Source: HDOT Airports Division
<http://hawaii.gov/dot/airports/library/publications-and-statistics/cysmallone.pdf>

While air travel is extremely sensitive to world events, State Air Traffic Statistics show a steady increase in number of passengers, beginning from 1970 up to 2008 as seen in Figure 31. Figure 32 shows how air cargo to the islands, which does not include mail, also closely tracks world events, for example decreasing in 2001 after the events of September 11, 2001.

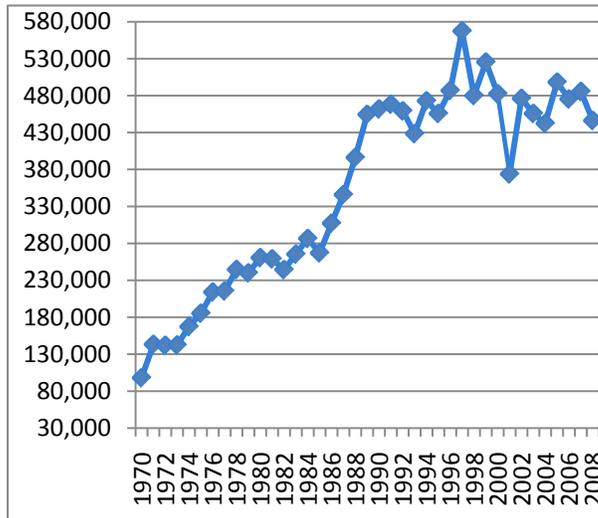
Figure 31: Statewide Airplane Passengers



Data Source: HDOT Airports Division Air Traffic Statistics

Existing Systems

Figure 32: Statewide Air Cargo, in U.S. Tons



Source: HDOT Airports Division Air Traffic Statistics

The *Statewide Airports System Plan (SASP)* was last completed in 1998 and it had a forecast year of 2020. Prepared during a banner year for tourism in Hawaii, and prior to September 11, 2001, the SASP is due for an update. Over the past decade, the Airports Division has dealt with the financial impact of reduced traffic and lowered financial resources. The Airport System Strategic Plan was prepared in 2002. New strategies and goals have been developed for financial systems, airline rates and charges, promotion of air service, and investment consistent with the State’s economic condition. Most recent Airport Master Plans include: Kahului (1993), Lihue (1998), Hilo (2001), Kona (2008), and Honolulu (2010).

Organizationally part of the Engineering Branch of the Airports Division, airport



planners oversee preparation of master plans for each of the state-owned facilities, and preparation and compliance with Noise Compatibility Plans for the areas surrounding the airports.

The Airport Modernization Program (AMP), which started in 2006, is an excellent example of efforts to attract carriers and passengers to Hawaii through strategic capital improvements. This 15-year, \$2.3 billion program focuses on creating a Hawaiian sense of place at airports, improved baggage and passenger screening,

improved efficiency in operations, increased capacity at gates and concourses, and environmental responsibility such as accomplishing energy efficiency and Leadership in Energy and



Environmental Design (LEED) accreditation. The first years of the AMP program have focused on a new parking garage at Honolulu International Airport (HNL), replacement of air conditioning, and addition of photovoltaic panels.

Top Photo: Waiting Area of Kahului Airport

Bottom Photo: Honolulu International Airport

HARBORS SYSTEM

Hawaii imports 80% of its required goods, and 98.6% of these come through the harbor system as their point of entry. HDOT Harbors Division oversees ten commercial harbors on six islands. The major features of the harbors are shown in Table 4.

In addition to the commercial harbors operated by HDOT, there are also ferry facilities in small boat harbors on the islands of Maui, Lanai, and Molokai, and these ferries are run by private operators.

Organizationally located in the Engineering Branch of the Harbors Division, harbor planners oversee preparation of master plans and development plans for each of the harbors. Updated harbor master plans currently include Kalaeloa and Hilo Harbors on Hawaii Island.

The Harbors Modernization Program started in 2007-08 and is being handled by a Special Projects unit within the Engineering Branch. Working together with the Hawaii Harbors Users Group (HHUGS), projects have been identified for each harbor to ease congestion and conflicts in operations while enhancing security and efficiency. The program is funded from the proceeds of bond sales repaid from user fees, including a special tariff approved by the Public Utilities Commission. Among the largest endeavor is the establishment of a new terminal at Kapalama, near Honolulu Harbor.



While Honolulu Harbor is the largest harbor in the system, Kalaeloa Harbor on the west side of Oahu is the second busiest, and plays an important strategic role in the overall state harbor system. A number of specialized cargo handling facilities not found in Honolulu Harbor, such as a coal bulk unloader system and a pneumatic cement pump system, reside here. Kalaeloa Harbor was formerly known as Barber's Point.

Table 5 shows the amount of cargo, measured in short tons, or 2,000 pounds, at each harbor in the HDOT system. From this table we can see how the amount of cargo being handled at each of the facilities has grown over a period of fifteen years, and in some places, such as Kawaihae Harbor on Hawaii Island and Kahului Harbor on Maui, the cargo has more than doubled in this time period.

The State's Harbors also serve as a secondary gateway for tourism in the island state. According to the Hawaii Tourism Authority, approximately 75,000 of the over five million annual visitors to the State of Hawaii in 2009 arrived by ship. This is a marked decrease of 400,000 cruise passengers, or nearly 83%, when compared with year over year, and it is largely attributable to Norwegian Cruise Line America's terminating dedicated cruise activity of two ships in the first few months of 2008.



Top Photo: Kahului Harbor

Bottom Photo: Nawiliwili Harbor

Existing Systems

Table 4: State Commercial Harbors Characteristics

Island and Harbor	Harbor Entrance Depth (feet)	Harbor Basin			Piers (linear feet)	Storage Area (1,000 Square Feet)	
		Depth (feet)	Length (feet)	Width (feet)		Shedded	Open
Hawaii:							
Hilo	35	35	2,300	1,400	2,749	122	906
Kawaihae	40	35	1,500	1,450	1,627	23	680
Maui:							
Kahului	35	35	2,400	2,050	3,319	44	1,401
Hana	varies	23	varies	varies	337	(NA)	(NA)
Molokai:							
Kaunakakai	23	23	1,500	600	691	7.4	125
Lanai:							
Kaumalapau	60	20-60	(NA)	(NA)	400	(NA)	100
Oahu:							
Main Honolulu	45	40	3,300	1,520	29,872	1,298	9,031
Kapalama	45	40	3,400	1,000	incl	incl	incl
Kalaeloa (fka Barber's Point)	42	38	2,100	1,800	2,990	36	1,838
Kauai:							
Nawiliwili	40	35	1,950	1,540	2,216	76	1,372
Port Allen	35	35	1,500	1,200	1,200	35	32

NA: Not Available
varies: Hana Harbor has a Natural Entrance and Basin, so measurements vary
incl: Kapalama Measurements included with Main Honolulu Harbor
Source: HDOT Harbors Division, Records

Table 5: Cargo Handled by Port

Year	Hilo	Kawaihae	Kahului	Barbers Point	Honolulu	Nawiliwili
1993	1,469	655	2,216	9,357	10,595	1,283
1994	1,455	736	2,368	9,022	11,672	1,151
1995	1,354	873	2,586	8,233	11,545	1,130
1996	1,442	969	2,828	8,745	12,010	1,203
1997	1,489	980	2,895	10,513	10,353	1,091
1998	1,630	886	2,851	6,658	13,723	938
1999	1,701	1,090	3,513	8,707	12,259	1,348
2000	1,651	1,310	3,477	6,778	15,501	1,581
2001	1,680	1,378	3,695	6,079	16,562	1,478
2002	1,765	1,645	3,458	5,990	16,636	1,619
2003	1,850	1,801	3,778	5,930	17,836	1,721
2004	1,850	2,277	3,901	6,086	19,085	1,757
2005	1,996	2,217	4,132	6,344	20,394	1,977
2006	2,408	2,728	4,794	10,724	16,224	1,864
2007	2,782	2,558	5,630	11,295	17,582	2,333
2008	2,068	2,063	3,958	10,137	14,006	1,680

Source: U.S. Army Corps of Engineers, Institute for Water Resources, *Waterborne Commerce of the United States Calendar Year 2008, Part 4 Waterways and Harbors Pacific Coast, Alaska and Hawaii, Section 1 Freight Traffic* <<http://www.iwr.usace.army.mil/ndc/wcsc/wcsc.htm>> accessed June 4, 2010.

Note: Measurements are in 1,000 short tons. They exclude cargo carried by Army and Navy vessels and cargo in transit. This data from U.S. Army Corps of Engineers is included in State of Hawai'i Department of Business, Economic Development, and Tourism (DBEDT) Data Book (2009) as Table 18.53

HIGHWAY SYSTEM

The Highways Division manages just over half of all the paved freeways, highways, and roadways in the State. The system has grown only slightly over the past ten years, a mere 146 miles, despite a 20% increase in the number of drivers and a comparable increase in the number of registered motor vehicles. Safety, maintenance, and system expansion must compete for attention, priority, and funding.

Projects are drawn from the Statewide Long Range Land Transportation Plan (SLRLTP), which is prepared by the Planning Branch in the Highways Division. The SLRLTP must serve as a common source for land use/transportation decision making, mobility, and goods movement. The latest adopted plan was in 1998, and an update is currently underway.

The Maui Long Range Transportation Plan was last completed in 1997. At that time, priorities included completion of ongoing projects, strategies for near term relief, and updating policies and conditions to reflect new and changed demands. Other plans for Maui County include the Molokai Long Range Transportation Plan and the Kihei Traffic Master Plan.

The Kauai Long Range Transportation Plan was also completed in 1997,

Photo: Pearl Harbor Interchange



when it documented poor levels of service for roads in Kapaa, Wailua, and Lihue. The preferred approaches were to widen roads and establish traffic demand management. A competition for scarce funds was seen as a large hurdle for making improvements.

The Hawaii Island Long Range Transportation Plan was also completed around 1998 for a forecast year of 2020 and was meant to guide transportation decision-making for growing parts of the island.

Updates of the Regional Long Range Transportation Plans for Maui, Kauai and Hawaii islands are underway in concert with the SLRLTP. They each will have a forecast year of 2035 and will serve as a guide for major surface transportation facilities and priorities.

The Oahu Regional Transportation Plan (ORTP) was updated by the Oahu Metropolitan Planning Organization (OahuMPO) in April 2011, replacing the last adopted ORTP from 2006. Its vision is for an island-wide system of roads and transit, including a new rail transit project of 22 miles. Oahu accommodates over eighty percent of the State's population, and congestion is felt along many of the

Existing Systems

major corridors leading into Honolulu and Waikiki. Increasingly, congestion is found at all hours of the days, not just the commute period, as well as on weekends. The ORTP vision also includes a bikeway system, several

secondary access/emergency roads, and measures to reduce the need for auto travel. The plan reinforces planned population distribution and land use development policies.

COUNTY PUBLIC TRANSIT SYSTEMS

Hawaii is increasingly becoming a multi-modal state for surface transportation. All islands now have a public transit system, something that was not in existence when the last HSTP was prepared. The County transit planning process and its products are effective tools for creating a comprehensive framework for setting priorities. The STP Office oversees preparation of the Coordinated Public Transit – Human Services Transportation Plan (CSP), and an update is currently in progress.

On Maui, a *Public Transportation Plan for Maui* was completed in November 2003. The *County Short Range Transit Plan (SRTP)* was completed in 2005 and



it covers Molokai and Lanai in addition to Maui island. A *County of Maui ADA Paratransit Plan*

has also been completed. A transit division has been created within the Maui Department of Transportation, and fixed route service is planned to phase in over a five year period. Three types of service are envisioned: fixed route,

circular loops in Wailuku and in Kahului; Regional Islander Service using Central Maui as a hub; and Villager Service which provides deviation from fixed routes that do not require regularly scheduled service. A complementary paratransit service will be contracted out to a service provider, but is currently provided by Maui Economic Opportunity (MEO).



On Kauai, transit service has evolved in three phases: starting from a system serving seniors and disabled and run by the Office of Elderly Affairs; the Iniki Express emergency service following the hurricane in 1992; and a single system for residents and visitors with demand response and fixed route service. *The Kauai County Transit Development Plan* (1994) outlined a transition towards

Left Photo: Maui Upcountry Island Bus

Right Photo: Kauai Transportation Agency Bus



creating Line Haul fixed route services operating six days a week for fourteen hours, with routes centered around Lihue as a hub and transfer point. Feeder routes in twelve communities were coordinated with the Line Haul routes. Finally, a demand responsive system with advanced reservations would operate for social service programs and ADA eligible patrons. The system continues to evolve with increased service and passenger amenities.

On Hawaii Island, the Mass Transit Agency (MTA) runs the Hele-On Bus system, a free islandwide service. MTA also operates a door-to-door Shared Ride Taxi Program in urban Hilo. The first plan, *Public Transportation Plan for Hawaii County*, was prepared by HDOT and the County in 1992. Many of the routes serve hotel workers travelling long distances from one side of the island to the other. Some of the routes are intra-urban in Hilo, Kona, and Waimea. And some of the routes allow travel between Hilo and Kona. MTA is currently focused on building a new maintenance facility, park-and-ride facilities, and on establishing fixed bus stop locations with passenger amenities. In 2005, MTA completed a study to develop door to door paratransit service in Puna and in Kona.

The most extensive public transportation system can be found on the island of Oahu. The City and County of Honolulu (C&C) provides both fixed route service on *TheBus* and demand responsive curb-to-curb service on *TheHandi-Van*. Conversion to a hub and spoke system and formation of transit centers was completed in 1999-2002, providing new classes of service and increasing ridership in Leeward and Central Oahu, two areas with the greatest population growth. The C&C has made several attempts to add a fixed rail main line component to its system. Known as the Honolulu High Capacity Transit Corridor, the City is currently poised to begin construction of the first segment of an elevated line. The entire length of the system is scheduled for completion in 2019. The City & County of Honolulu prepared a *Bus Service Improvement Plan (BSIP)* in 2006, further restructuring the network. Goals of the BSIP were to improve service reliability, to improve service productivity by reallocating less productive service, and revenue enhancement. An updated *Paratransit Service Study* and *Short Range Transit Operations Plan* were developed in 2010.



Top Photo: Honolulu's TheBus on Hotel Street Transit Mall in Chinatown
Bottom Photo: Hawaii County Hele-On Double Decker Bus Scheduled to Go into Service in 2011

Existing Systems

NON-MOTORIZED TRANSPORTATION

The *State of Hawaii Bike Plan* was last updated in 2003 by HDOT Highways Division Planning Branch. Currently, a Statewide Pedestrian Master Plan is in preparation as a companion to the Bike Plan. In addition, the Counties have been active in seeking additional miles of bike lanes, including shared shoulders, and the vision remains for a network of pedestrian oriented roadways, greenways, trails, and bikeways as part of their efforts towards smart growth and human scale development. For example, Kauai has over 25 miles of paved bikeways completed or under construction, and a 16-mile coastal bike and pedestrian



Photo: Ironman Training in Kona, Hawaii

trail from Nawiliwili to Anahola is included in the Master Plan. Like Kauai and Maui, Hawaii County seeks to make more “bike friendly” miles in all parts of the island, along with multi-use pathway projects. On Oahu, the *Oahu Bike Plan* (1999) calls for a network of 572 new miles of bikeways connecting employment centers, commercial destinations, residential areas, and universities. Rural paths can be found, notably the popular North Shore multi-use path.



Photo: Hawaii Kai Dog Walk
Photo Courtesy of East Oahu Sun



Photo: Bike Education Safety Program, Hilo

STATE AND FEDERAL LAWS & REGULATIONS

HAWAII STATE LAWS FOR TRANSPORTATION PLANNING

The State of Hawaii has two primary laws that give authority and duties for transportation planning. These are Hawaii Revised Statutes (HRS) Chapter 279A, (Act 179 Session Laws of Hawaii 1975) and Chapter 226 (Act 100, Session Laws of Hawaii 1978).

The purpose of HRS Chapter 279A is to establish a “comprehensive, multi-modal statewide transportation planning process.” The law seeks to involve “all levels of government in a cooperative process to develop coordinated plans.” Components of the transportation system are to include but not be limited to: 1) national system of interstate and defense highways and highways within the state highway system; 2) Airports; 3) Harbors and water-borne transit; 4) Surface mass transit; and 5) Major county roads. HDOT is responsible for paying “...particular attention to the interfacing of the various modes of transportation.”

HRS Chapter 226, the Hawaii State Planning Act, defines a planning process which would increase the effectiveness of public and private actions, to improve coordination, to provide for the wise use of resources, and to guide the future development of the State. The Hawaii State Plan calls for an “integrated multi-modal transportation system that services

statewide needs and promotes the efficient, economical, safe and convenient movement of people and goods”.and a system that is

“consistent with and will accommodate planned growth objectives throughout the State.”

Specific polices named in HRS Chapter 226 are even more specific in their focus on a multi-modal and inter-modal system:

1. A system in conformance with desired growth and physical development.
2. Coordination of state, county, federal, and private transportation activities and programs.
3. Reasonable distribution of financial responsibilities for transportation among participating parties.
4. Improved accessibility to shipping, docking, and storage facilities.
5. Reasonable level and variety of mass transportation services that meet state and community needs.
6. Serve to accommodate present and future development needs of communities.
7. A variety of carriers to offer increased opportunities and advantages to



Photo: Kalanianaʻole Highway, Oahu

Existing Systems—State and Federal Laws and Regulations

interisland movement of people and goods.

8. Increase capacities of airport and harbor facilities to effectively accommodate transshipment and storage needs.
9. Development of systems which assist statewide economic growth and diversification.
10. Sensitivity to the needs of affected communities and the quality of the natural environment.
11. Convenient use of low-cost, energy-efficient, non-polluting means of transportation.
12. Coordinate intergovernmental land use and transportation planning to ensure timely delivery of supporting transportation infrastructure to accommodate planned growth objectives.
13. Diversification of transportation modes and promote alternate fuels and energy efficiency.

There are subtle but important differences between HRS Chapters 279A and 226. HRS Chapter 279A calls for a process that involves all levels of government in creating transportation infrastructure that meets statewide social, economic, and environmental objectives and that produces an integrated system of air, harbor, and road facilities. Under HRS Chapter 279A the HSTP and process are the responsibility of HDOT as represented by the Statewide Transportation Planning Office. HRS Chapter 226 addresses an

outcome, which is meant to be an integrated multi-modal system that accommodates planned growth. The multi-modal system requires integration with the counties. Chapter IV of this HSTP includes a proposal for enhancing organization of the advisory structure for statewide transportation planning.

In reading these policies, one is struck by the number of times they mention the need to provide diversification, variety, and competition for multiple modes. We also see multiple references to serving the present and future growth needs of the state and communities. Another policy thread is the expectation for coordination among public and private sectors as well as with multiple levels of government.

State law continues to provide more detailed definition and guidance, especially with regard to addressing multiple modes and inter-modal connections. HRS Chapter 279G establishes a statewide policy for the State to “encourage commuting to and from work by means other than a motor vehicle occupied by one person.” Act 54 SLH 2009, now part of HRS Chapter 264, enacted a “Complete Streets” policy calling for design standards and guidance to “reasonably accommodate access and mobility for all users including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities.” Thus the multi-modal and inter-modal framework for HSTP and transportation planning is derived from and supported by a robust body of Hawaii State law.

FEDERAL TRANSPORTATION PLANNING LAWS & REGULATIONS

Hawaii's transportation planning framework is meant to address State goals, objectives, and priorities, and also to meet Federal planning requirements. Federal laws pertaining to transportation planning are most extensive for surface transportation, highways, and public transit. However, they exist albeit to a lesser degree for airports and for harbor planning.

Marine

The Federal interest in ports and harbors is diverse. It is not concentrated in a single federal agency equivalent to the FAA, FHWA, or FTA for airports, highways, and transit respectively. This requires State harbor planners to maintain close coordination with federal programs of agencies such as the Maritime Administration (MARAD), US Army Corps of Engineers, US Coast Guard, National Oceanic and Atmospheric Administration (NOAA), EPA, and the Department of Homeland Security. Broad areas of federal authority include: 1) Safe navigation such as vessel traffic management, charting, marine safety, search and rescue, salvage, weather, and oceanographic information; 2) Waterway maintenance, including dredging of harbors and channels; 3) Environmental Protection, including oil and hazardous waste spill prevention and response, wetland and habitat protection, historic



preservation, and air pollution; 4) Security; and 5) Customs.

Hawaii's port planners must plan several years ahead to make sure that the required dredging for their facilities and for expansion is funded and conducted in a timely fashion. The State is responsible for landside facilities including terminals, piers, berths, and docks to conduct loading and unloading. These are designed to handle specific types of cargo, such as containers, autos, dry bulk, or liquid bulk.

Hawaii's harbors have extensive storage space and pipelines and they serve as transfer locations for inter-modal connections. Containerization and the de-regulated environment that exploded since the 1970s and early 1980s have revolutionized how cargo is handled as well as the inter-dependencies between ports. Most cargo destined for Hawaii departs from one of three harbors on the west coast (Los Angeles, Oakland, and Seattle) and events such as strikes or tax surcharges have an immediate effect on Hawaii.

Existing Systems—State and Federal Laws and Regulations

Air

The Federal government has interest in the aviation industry for both military and civilian purposes. Their interest is first to promote technological and commercial development and second to ensure a consistently high level of safety and service. The Federal Aviation Administration (FAA) consolidates responsibility for air traffic control, navigation aids, and safety regulations into a single Federal agency. Airport planning is guided by the Federal Aviation Administration (FAA) Airport Improvement Program under Chapter 471 of Title 49 USC. The broad objective of the FAA Airport Improvement Program (AIP) is to “assist in the development of a nationwide system of public-use airports adequate to meet current needs and projected growth in civil aviation.” As part of its mission, FAA offers federal aid to airports for investments such as durable runways, modern towers, and larger terminal facilities capable of handling large jet airliners. The AIP provides funding for airport planning and development projects included in the National Plan of Integrated Airport Systems (NPIAS).

Hawaii’s airport planners must adhere to strict federal criteria for design and operations, and they must limit fees charged to airlines and other users while following certain revenue spending restrictions. The Airports must also comply with airport certification, obstruction marking and lighting regulations.

FAA Advisory Circulars provide guidance and information for compliance with Federal Aviation Regulations (FAR). The



150 series of FAA Advisory Circulars is relevant to the planning, design, construction, and maintenance of airports, and their satisfaction is an obligation made part of all grant assurances. Some of the Advisory Circulars available include:

- AC 150/5070-6B Airport Master Plans
- AC 150/5300-13 Airport Design Standards
- AC 150/5340-1K: Standards for Airport Markings
- AC 150/5340-30D: Design and Installation Details for Airport Visual Aids
- AC 150/5340-18E: Standards for Airport Sign Systems

In addition, Hawaii’s airport planners must comply with the Aviation Safety and Noise Abatement Act (ASNA) and satisfy noise compatibility regulations, including preparation of noise exposure maps and noise compatibility programs. Towards this end, the airport needs to be an active participant in the land use planning of counties and provide the planning agencies with current noise exposure maps to assure compatible land use.

- FAR Part 150: Airport Noise Compatibility Planning
- FAR Part 161: Notice and Approval of Airport Noise and Access Restrictions
- FAR Part 139: Certification and Operations

Photo: Aerial View, Honolulu International Airport Reef Runway



Other sections and regulations regard environmental impacts and implementation of NEPA, and regulations pertaining to airport layout. Compliance with Title 49 is mandatory for all airports using federal funds.

A further area of responsibility for Hawaii's airport planners is security. Department of Homeland Security-Transportation Security Administration (TSA) checks and regulates arriving passengers and cargo on international flights through Customs, Immigration, Public Health, and Agriculture. Passenger baggage going out of state is required to be inspected by the US Department of Agriculture.

Airport access is an important cross-modal issue. Highway exits and intersections, rail system stations, inter-modal freight stations, and other connections are examples of the inter-modal network that are a fundamental part of the new HSTP framework.

Surface Transportation

The Surface transportation planning responsibilities required by Federal law are shared by metropolitan planning organizations (in Hawaii, the OahuMPO) and states (in Hawaii the Hawaii Department of Transportation). Since the landmark Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) was enacted, Hawaii and the other states have moved into the "Post-interstate" era with an emphasis on addressing an ever wider list of social and environmental parameters, improving inter-modal connections, and expanding the set of partners involved in decision-making about transportation. A long range plan is required with a twenty year horizon to foster mobility and accessibility, efficiency of system performance, and good quality of life. A Statewide Transportation Improvement Program (STIP) based on the long range plan must be developed for capital programming from fiscal resources that can be "reasonably expected." Finally, States are required to consult with non-metropolitan areas and to involve the public in each step of the transportation planning process.

Photo: Aircraft Handstands at HNL for Additional Aircraft Parking

Existing Systems—State and Federal Laws and Regulations

The Transportation Equity Act of 1998 (TEA-21) provided a set of planning factors that need to be addressed in transportation plans and for the first time mandated that transit operators and freight suppliers be given an opportunity to comment on plans and programs. Stakeholder participation was to specifically include minority and low income populations.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users of 2005 (SAFETEA-LU) continued the principles, programs, and requirements of earlier legislation, refining it to address accelerated project delivery and greater flexibility in how objectives were to be achieved. Congestion management was given priority over expansion, and environmental mitigation was flagged for priority attention. A Strategic Highway Safety Plan (SHSP) became a requirement.

Although the authorization for SAFETEA-LU expired in 2009, it continues in effect through a series of continuing resolutions passed by Congress. New authorizing legislation is anticipated to have added federal policy emphasis, but the exact elements are still being debated, and legislative timing for a new bill is still pending.

Hawaii has completed several rounds of plans under the post-series of requirements just described. The 2002 HSTP and the 1998 *Statewide Long Range Surface Transportation Plan* addressed the

requirements of TEA-21. Update of the Statewide LRLTP was underway in 2010. The OahuMPO Regional Transportation Plan (ORTP) completed its five year update in April 2011. The Hawaii SHSP was completed in 2007.

Federal transportation policy favors public transportation and provides financial capital and operating assistance for both large urban systems and for rural and small urban areas. While significant, federal assistance is small in comparison to the overall funding need. Hawaii received \$535 million in FY 2009 under the FTA Section 5311 formula grant programs for rural public transportation. This is equally shared by the three neighbor island systems. In addition, Hawaii benefits from discretionary funding, typically assigned to purchase new buses for expanded routes and service frequency, or for passenger amenities. The SAFETEA-LU Section 5317 New Freedom Program provides transportation services for persons with disabilities. This formula based program is in addition to the core formula program under Section 5311.



Photo: Historic Hanalei Bridge on Kauai

Transit planners are required to prepare a *Coordinated Service Plan (CSP)* to demonstrate how their efforts are working with the regional social service and health agencies. In metropolitan areas, transit planners also prepare Short Term (5-year) Improvement Plans, Bus Replacement Plans, and other tasks pertinent to the safe and efficient operation of their systems. Requirements for New Starts, typically rail systems as in the case of the C&C of Honolulu, have extensive alternatives analysis, planning, financial, and management reports required to satisfy stringent and rigorous federal performance requirements.

The laws and regulations just described frame the work of Hawaii DOT planners. Oversight and comments from federal officials further shape and refine the order and priority of their work. As resources are cut back, increasingly, tradeoffs have to be made in favor of activities that either help to generate revenue or which are essential to prevent the loss of federal funds. The need for coordination and integration remain.

A list of the existing transportation plans and their year of adoption is contained in HSTP Volume 3, Appendix 2.



Left Photo: MEO Transportation on Maui
Right Photo: Nimitz Highway on Oahu





HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER IV UPDATED FRAMEWORK FOR PLANNING



UPDATE THE FRAMEWORK FOR MEETING THE GOALS

The socio-economic system of old Hawaii involved generosity, reciprocity, hospitality, cooperation, and aloha. These elements are equally important to our social framework today, but we have to look for them or sometimes re-create them. The Hawaiian word *laulima* means many hands working together. In order to produce a considerable variety of goods, tasks were divided among members of an *ohana* or family. *Laulima* involves cooperation and coordination, a type of group rhythm. *Laulima* requires each person working on his or her task so that together the results bring about common good for all members.

The concept of *kokua*, or helpfulness and willingness to assist, can be combined with *laulima* to mean something similar to “teamwork.” Each unit does a clearly defined assignment. When all the units collaborate, subordinating personal glory to reach the goals of the group, they are acting in *lokahi*, or unity. Acting in *lokahi* involves communication, respect, and leadership.

The framework for creating something, in our case the formation of a relevant planning process that leads to a set of usable and relevant planning documents, requires a set of values including cooperation, unity, synchronization, in Hawaiian, *laulima*, *kokua*, and *lokahi*.



Top Photo: Hawaii Island Road

**Bottom Left and Right Photos: International Vaa Federation
2004 World Sprints, Hilo**

Updated Framework for Planning



A NEW FRAMEWORK

The vision for the HSTP is to create a framework for transportation systems that emphasizes multi-modal and inter-modal connections. In Hawaii, air and ocean travel systems cover long distances connecting Hawaii to mainland and international destinations. They also provide travel between the islands, making connections that would occur on the interstate highway system for the contiguous United States. Therefore, roadway and transit land connections are as critical as the airports and harbors.

These critical connections are sometimes taken for granted on a day to day basis, but during times of natural disaster, such as a direct hit hurricane, we see first-hand the critical part played by our harbors and airports. Hawaii needs at least a two week supply of goods to be self sufficient until outside supplies can replenish the population's need. During times of economic and political chaos, such as the shutdown of the air system for five days following the September 11, 2001, terrorist attacks, we learned how integral our airports are for tourism, and ultimately in Hawaii's economy.

The framework of the HSTP is to conduct multi-modal and inter-modal planning at the systems, facility, and project level. The

following tools are part of the new multi-modal and inter-modal framework.

- The Goals and Objectives of the HSTP have been updated to reflect an emphasis on multi-modal and inter-modal planning. See Chapter I.
- The framework calls for applying the eight federal planning factors discussed in Chapter II to all modes of travel.
- Chapter III reviews Federal and State regulations for all modes and connects them to broader environmental, sustainability, and energy priorities of the State and nation.
- The ten emerging issues papers were developed to inform planners on important issues affecting Hawaii's transportation systems and to identify best practices used in other states, as well as to provide reference sources. See HSTP Volume 2 and also see Chapter II.
- Data and trends for each mode and for inter-modal issues have been researched and methods identified for keeping them up to date. See Chapter V.
- Stakeholder lists have been updated to include those involved in each of the modes, and public involvement techniques have been created to address all modes and the connections between them. See Chapter V.

Photo: Highway 130, Keaau-Pahoa Road, Hawaii Island

This Chapter IV of the HSTP describes the current organizational structure for accomplishing transportation planning, and it identifies changes and new alignments in the organizational structure that will increase the likelihood of being multi-modal. The new enhanced organizational structure is designed to increase interactions with entities involved with energy, environmental, and social issues whose programs intersect with multi-modal transportation. The enhanced organizational structure is designed for maximum interface on the emerging issues among all levels of government, stakeholders, and the public.

The enhanced organizational structure will require both new resources and a realignment of existing resources devoted to transportation planning. It will take time to put these changes into place. Identification of the new structure, the roles of each unit, the objectives, and the desired output are described here in the HSTP. The HSTP can help guide implementation between now and the next HSTP update.

The State of Hawaii has a rich history of previous statewide transportation plans for guiding decision making. It has long been an objective of those plans to make sure that the Air, Land, and Water transportation systems are planned to facilitate the orderly formation of a linked system of facilities. The basic



There are five primary and ten secondary airports in the State, seven major harbors for cargo movement, and modern major arterial and connector highways on all islands.

The job for transportation planners shifts from creation of a system to preservation of the elements, and then a broadening of objectives to meet societal, economic, and environmental needs of the 21st century.

Today's needs and priority concerns require focused examination of inter-modal connections; people movement that encompasses bicyclists and pedestrians; preserving the environment when building and operating transportation facilities; and supporting a sustainable lifestyle in response to forecasted changes. The job now entails to a greater degree understanding statewide goals for job development, for energy self-sufficiency, for food security, and in tracking population demographics to assist those who must make special arrangements when establishing their personal mobility. Today's transportation challenges described above are being faced locally, statewide, nationally, and at the global level.

Photo: Kona International Airport at Keahole Passenger Waiting Area

Updated Framework for Planning

THE TRANSPORTATION PLANNING FUNCTIONAL PROCESS

The transportation planning process identifies activity steps, required documents, and feedback loops that start with visions and goals and transition towards programs, project development, and system operations. This is shown in Figure 33, which comes from an FHWA and FTA Briefing Book on the Transportation Planning Process.

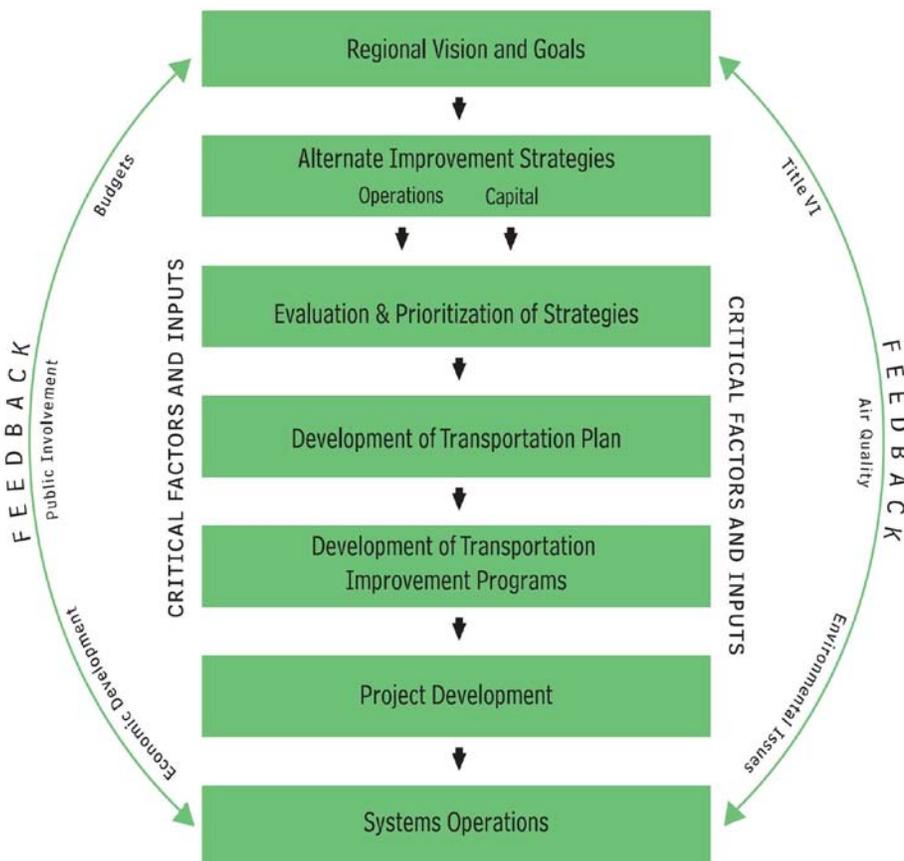
Figure 33 is a graphic depiction of the steps in transportation planning incorporating the perspective of several important federal initiatives such as critical planning factors, environmental justice, and the

central role of plan development.

To accomplish the process shown in Figure 33, transportation planners must be engaged in several technical data gathering and analysis steps including:

- 1) Identify goals and objectives;
- 2) Identify and monitor existing conditions;
- 3) Forecast future population and employment at the state and county level;
- 4) Identify land uses and future changes in regional growth patterns;

Figure 33: Transportation Planning Process



Source: Federal Highway Administration and Federal Transit Administration, 2007. *Transportation Planning Process Key Issues: A Briefing Book for Transportation Decision Makers, Officials, and Staff.*

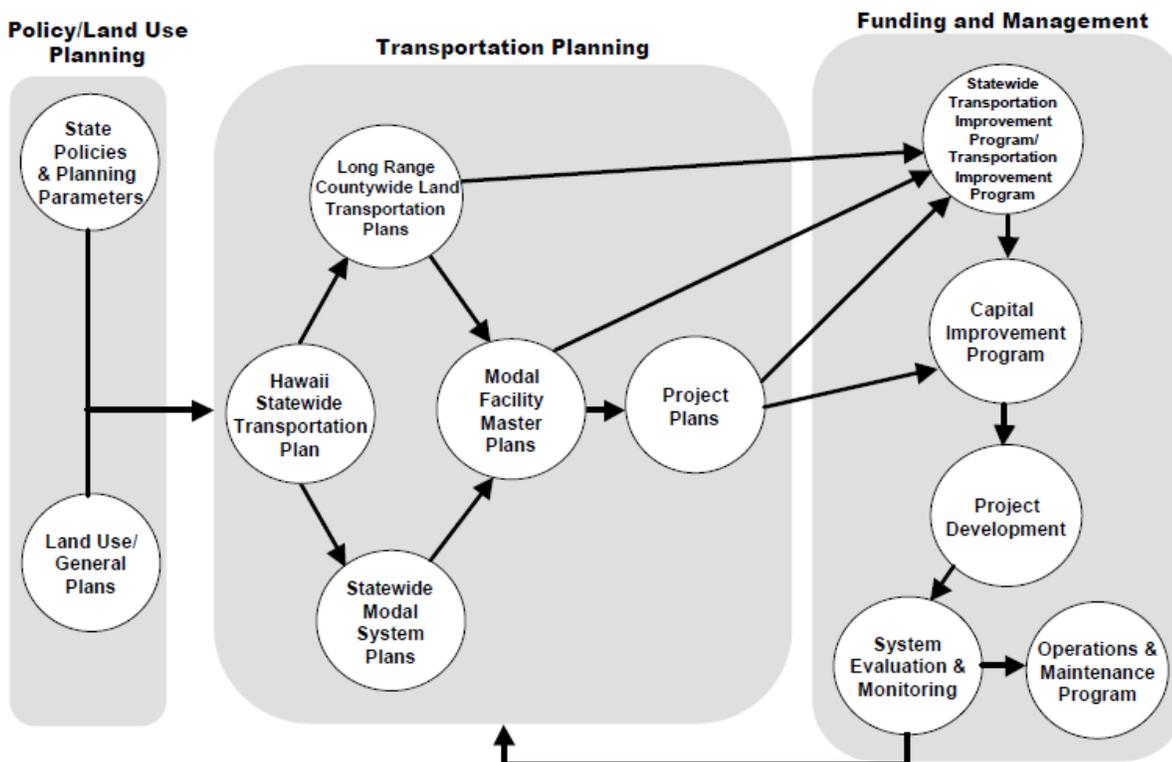
- 5) Identify and analyze needs and strategies for addressing those needs;
- 6) Develop long range plans over 20-25 years for addressing needs;
- 7) Develop short range plans for capital improvements and operational strategies;
- 8) Review the potential impacts of future improvements or the failure to make improvements;
- 9) Develop financial and implementation plans;
- 10) Involve the community, stakeholders, agencies, and interested parties throughout the process; and
- 11) Develop performance measures and feedback mechanisms.

The generalized planning process schematic in Figure 33 has been used to develop an activity chart for the State of Hawaii, which is shown in Figure 34.

The Integrated Transportation Planning Process for the HDOT is shown in Figure 34, which is comparable to the Integrated Transportation Planning Process shown in Figure 33. There are three phases of planning represented in Figure 34:

- Planning
- Program Development
- Project Management

Figure 34: Integrated Transportation Activity Chart



Source: 2002 Hawaii Statewide Transportation Plan, Page 58, Hawaii Department of Transportation.

Updated Framework for Planning

The interrelationships and flow of activities and products associated with the integrated planning process are shown by the bidirectional arrows in each phase. The conduct and procedures established within the various planning processes (statewide, metropolitan, and non-metropolitan) provide the means for the logical, integrated, and methodical development of these activities and products resulting in an effective and efficient transportation system. Each of the activities and products must be taken through the planning processes for this to occur.

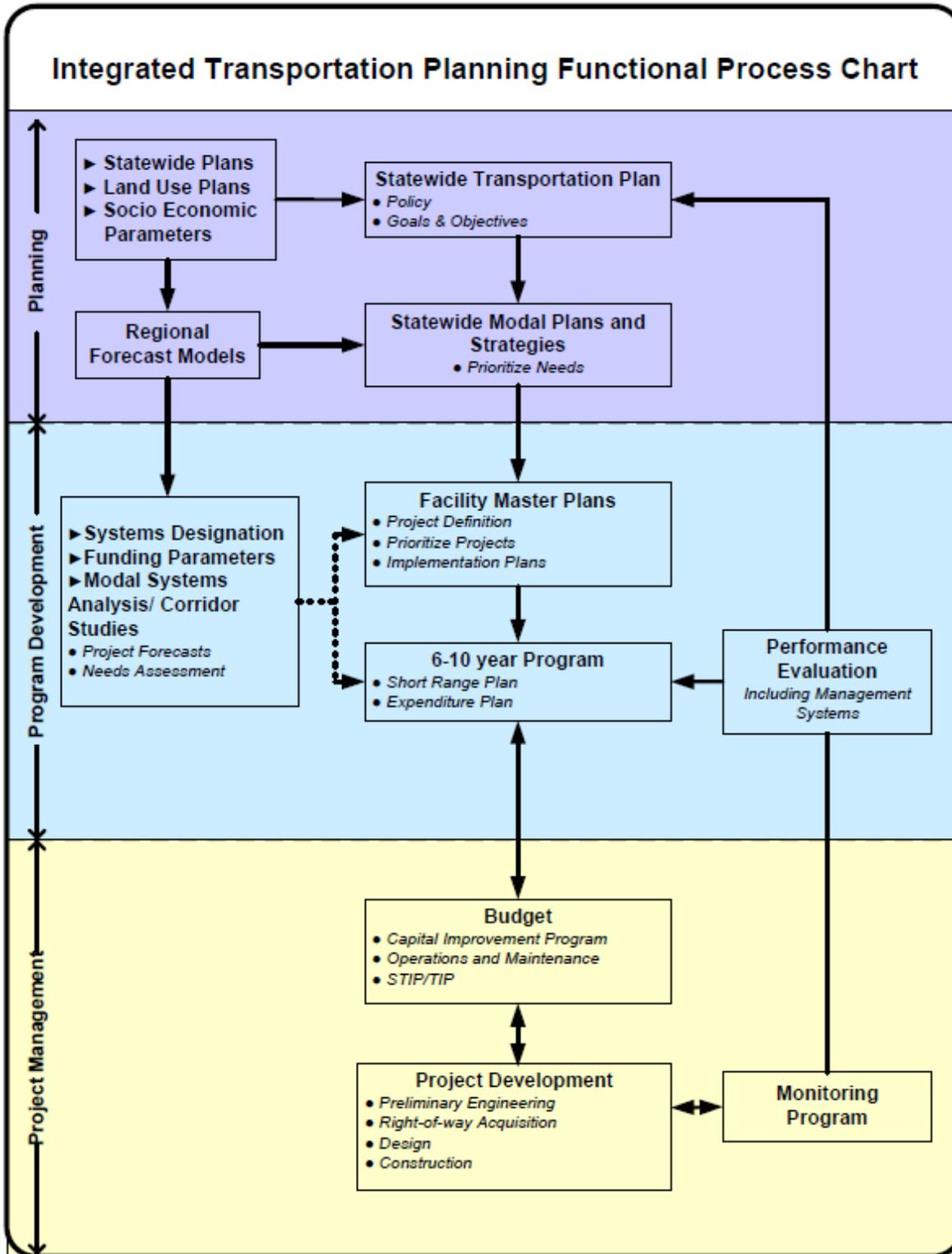
In Hawaii, land use plans of the State and of the Counties are as critical an input as the demographic and social planning parameters. With the transportation planning frame, the HSTP creates overall policy directions which help guide the statewide airport, harbor land transportation plans. Facility Master Plans

identify actions and needs for meeting the goals over a near or far term. The frame on the right side lists and prioritizes projects identified from Master Plans and creates the STIP (for Federal funding) and CIP (for State funding).

The activities shown in Figure 34 are shown as a functional process chart in Figure 35 called “The Integrated Transportation Planning Functional Process Chart.” The content and functional relationships shown in Figures 34 and 35 have been in previous HSTP plans and remain unchanged. This HSTP Update adds color and minor rewording to bring clarity and understanding.

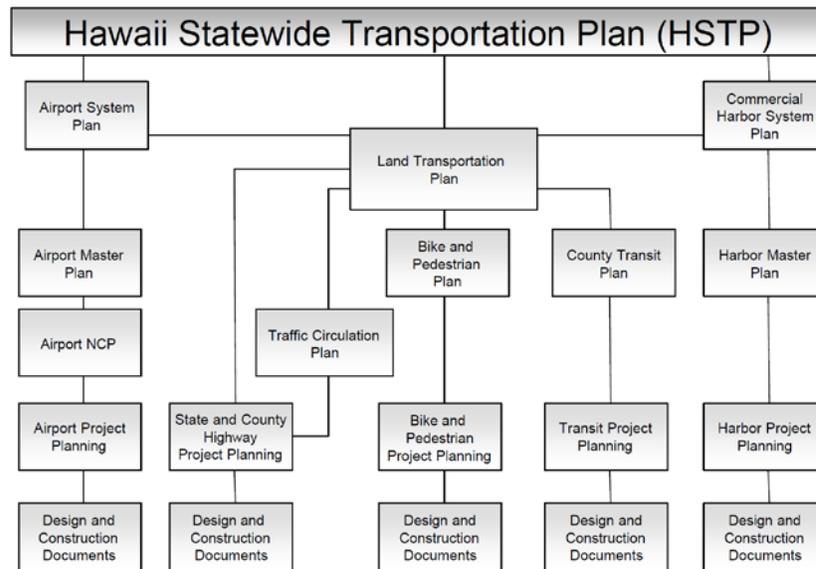
On the following pages, the two-dimensional format of the functional process chart as shown in Figure 36 from the 2002 HSTP has been re-done in this HSTP Update as Figure 37 to reflect the dynamic relationships among plans.

Figure 35: Integrated Transportation Planning Functional Process Chart



Updated Framework for Planning

Figure 36: Layers of HDOT Plans

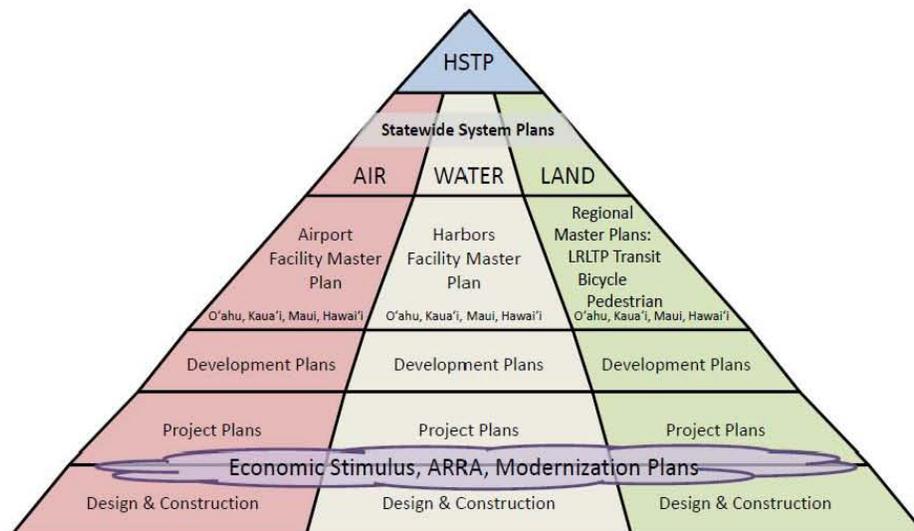


Source: 2002 Hawaii Statewide Transportation Plan, Page 93, Hawaii Department of Transportation.

Figure 36 as seen above from the 2002 HSTP has been updated to Figure 37 in a pyramid formation. The pyramid allows one to see plans and planning activity up and down the figure from general policy to master plan to development plan, and then project plans, leading to design and construction.

The pyramid can also be read both laterally and cross-diagonally, across modes and different modal levels, and to compare and coordinate activities between transportation modes.

Figure 37: Layers of HDOT Plans in Pyramid



In Figure 37, a new layer has emerged that floats between the traditional layers. The modal modernization programs formulated by the HDOT and enacted by the State Legislature (except for Highways) fits in this floating layer because it uses the results of work from long term master plans, mid-term development plans, and project plans and fits them into a short and mid-term prioritized program with a dedicated user funding source. Also in this floating layer are specific grants and proposals applied for under economic stimulus, American Recovery and Investment Act of 2009 (ARRA) and Transportation Investment Generating Economic Recovery (TIGER) grant programs of the Federal government. These funds are meant for projects that will serve multiple federal

objectives such as job creation, economic stimulus, sustainability, and energy independence. The pyramid of plans allows access to potential projects along with the data necessary to justify them in a competitive environment.

The pyramid is also three dimensional, and can be seen in an even larger context as part of a sphere of planning.

The sphere of planning is shown in Figure 38. The sphere is made up of a set of pyramid polygons, all centered onto a core, which is the Hawaii State Plan. Other pyramid-polygons include the plans of other State agencies and the various County General and Development Plans as well as individual project plans.

Figure 38: Sphere of Planning



Updated Framework for Transportation Planning

THE TRANSPORTATION PLANNING ORGANIZATION STRUCTURE

Existing Organizational Structure

The functional requirements for transportation planning require a process that is coordinated, comprehensive, and continuing, often referred to as the “3C process.” The current organization structure is shown in Figure 39, which is carried over from the 2002 HSTP.

While this process is what is currently in place, some improvements have been identified to enhance decision making in the non-urbanized areas, and to increase opportunities for broader involvement by non-transportation interests.

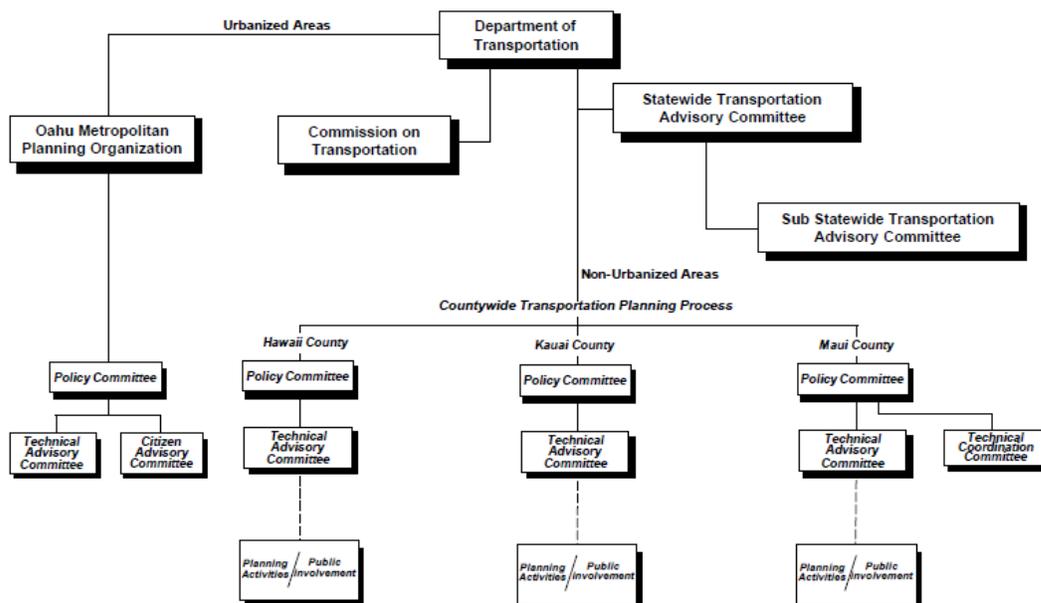
Identification of Desirable Enhancements

Based on discussions, meetings, and consultation with HDOT planners, Sub-Statewide Transportation Advisory Committee (Sub-STAC) members,

County personnel, natural resource agencies, and others, elements of an enhanced process for transportation planning were identified. These new process elements include mechanisms to bring planners in regular contact with the community-at-large as well as with intergovernmental partners at the federal, state, and county levels. The structure defined in this HSTP Update creates an umbrella that can assist with the specialized planning processes for each modal system.

The enhanced organization structure brings greater clarity to the process, better identifies the roles and responsibilities at each level, and brings new parties into the process.

Figure 39: Transportation Planning Process Organization Structure



Source: 2002 Hawaii Statewide Transportation Plan, Page 67, Hawaii Department of Transportation.

Enhanced Organizational Structure

The enhanced organizational structure is shown in Figure 40. There are several critical changes in this enhanced process:

The enhanced process consists of a Statewide Policy Advisory Committee (SPAC) and a Statewide Technical Advisory Committee (STAC). The STAC would also have a standing committee known as the Transit Technical Advisory Committee (TTAC). The SPAC and STAC would determine the most meaningful way to incorporate public involvement in their work. Periodic meetings should be scheduled by the committee. Frequency of the meetings should be determined by committee members.

The **STATEWIDE POLICY ADVISORY COMMITTEE (SPAC)** addresses policy level activities, finance, and new directives, including those under the emerging issues. The SPAC membership includes three (3) Director level appointees of the Mayor of each County, one (1) appointee of each County Council, one each from the State Senate and State House of Representatives, and one representative from each of the modal divisions. Federal Agencies would be ex-officio. The SPAC is chaired by the Hawaii State Director of Transportation or his/her designee.

The **STATEWIDE TECHNICAL ADVISORY COMMITTEE (STAC)** is responsible for reviewing the unified work program, special studies, the ISAP studies, and the modal transportation plans. STAC could be chaired by the STP Office.

STAC membership includes the Division Chief or Branch Chief from the

Transportation or Public Works Departments and the Planning Departments from each of the four counties; and the Chief Planner from each of the modal divisions. In addition, membership would include a representative from the Oahu Metropolitan Planning Organization (OahuMPO).

The **TRANSIT TECHNICAL ADVISORY COMMITTEE (TTAC)** membership includes representatives from each county's mass transit system and from STP. TTAC was formerly called the Rural and Transit Committee. This committee could be chaired by the STP Office.

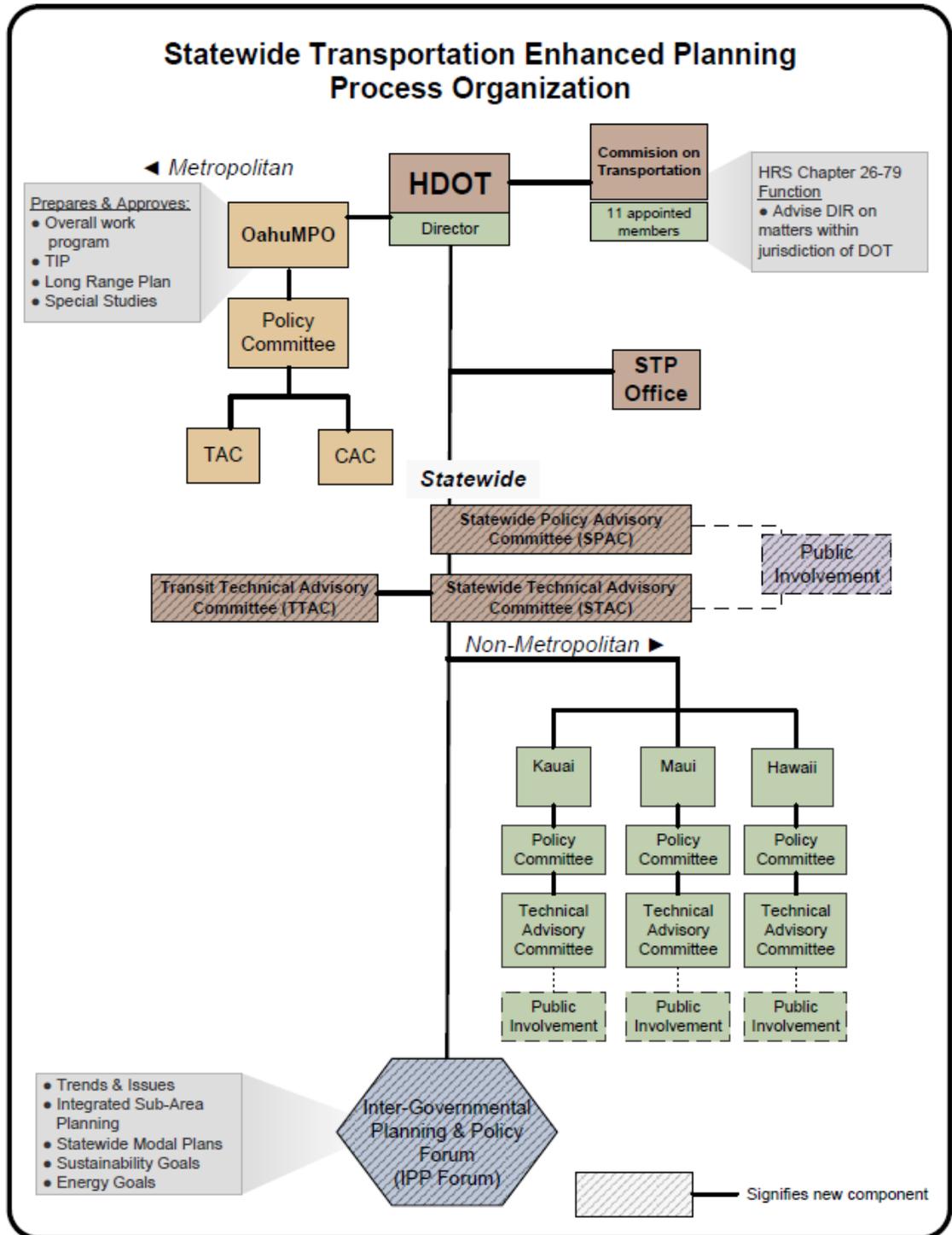
The Countywide Transportation Planning Process (CTPP), which is called the **NON-METROPOLITAN PLANNING PROCESS** in the Federal regulations, consists of three elements, one each for the regions of Kauai, Maui, and Hawaii. Each would have a Policy Committee and a Technical Advisory Committee. Each would determine the best method for incorporating public involvement in their work. The HDOT Non-Metropolitan Planning Process was last updated in February 2011.

Each Policy Committee consists of the Directors of Public Works, Planning, Transportation, and Public Transit along with HDOT representatives from each mode.

Each Technical Advisory Committee consists of working level staff from the County Departments of Public Works, Planning, Transportation, and Mass Transit along with HDOT representatives.

Updated Framework for Transportation Planning

Figure 40: Enhanced Statewide Transportation Planning Process Organization



THE METROPOLITAN PLANNING PROCESS continues as at present under the guidance of the OahuMPO Policy, Technical Advisory and Citizen Advisory Committees. Their duties include preparing an annual work program, a long range plan, and a Transportation Improvement Plan (TIP), as well as compliance with a range of programmatic requirements.

A new **INTER-GOVERNMENTAL PLANNING AND POLICY FORUM** (IPP Forum) is created to bring more parties into the process.

IPP Forum includes membership from both the metropolitan (Oahu) and non-metropolitan (neighbor island) process, which are departmental representatives, and it also include members from the county legislative bodies. The Forum includes members from all the modal divisions. It also includes members from state agencies responsible for Sustainability, Energy, Agriculture, and Social Services, University of Hawaii Public Policy Center. Federal agencies would remain as non-voting members.

IPP Forum Membership is large and diverse. They would be convened at least semi-annually but more frequently depending on the amount of Integrated Sub-Regional Area Planning (ISAP) or master plan work taking place. The Forum is a place where transportation issues can be integrated with larger

societal issues by bringing responsible stakeholders into the Forum together. This is similar to the way Functional Plan Advisory Committees were run in the 1980's.

The Integrated Sub-Regional Area Planning Process would be one of the major focuses for the Forum. The ISAP process is described more fully later in this Chapter.

The Forum would also be a place where the Statewide Modal Master Plans are presented for input and review.

Two internal groups, not part of the organizational structure, would be convened to help with exchange of information and peer review.

- The **HDOT PLANNING COMMITTEE** would **continue**, for the purpose of information, coordination, and technology exchange among the several planning units, and to provide advice to the Director. This committee would continue to be chaired by the STP office.
- A new **AD HOC ADVISORY GROUP ON PUBLIC INVOLVEMENT** is created to advise STP, the Director, and HDOT on public involvement techniques, ways to ensure environmental justice compliances, and to review Public Involvement Plans for HDOT planning activities.

Updated Framework for Transportation Planning

DISCUSSION

This new organizational structure provides several improvements over the previous structure:

- 1) It more closely matches the description and expectations under State Law, HRS Chapters 279A and 226.
- 2) Authority for this revised structure exists in HRS 279A, so no new legislation is required.
- 3) It is simpler than the last process at the county level, while still providing a setting for neighbor island interests, which differ from those on Oahu.
- 4) It creates clear responsibilities for each unit on the organization chart.
- 5) It includes a place for political and appointed leaders as well as members from the civil servant structure.
- 6) It creates a place (the “IPP Forum”) for other agency representatives whose functions directly interface with transportation as anticipated in HRS Chapter 279A.
- 7) It involves federal land management and natural resource agencies to participate in transportation planning as envisioned by 23 CFR 45.214 (i) and (j).
- 8) Federal agencies would retain an ex-officio position in the IPP Forum, CTPP Policy Committee, and the Statewide TAC.

The enhanced process will require additional staff and financial resources. In the past several years, staff reductions have not allowed for all the inter-county contact desired, and priority was given to the department technical staff (currently called Sub-STAC). To enhance the process by providing more frequent contact at the appointee/policy level will require more frequent meetings of the re-named SPAC (formerly STAC). This enhancement will also require participation by the Director/Deputies at HDOT. Agendas and discussions are anticipated to be more interactive and less a conduit for the one way flow of information.

The IPP Forum also requires staffing and resources. Under the Forum, new agencies and stakeholders are brought directly into the transportation planning and decision-making process. The resources needed include staff time to arrange and coordinate the meetings, but more importantly to organize and manage the increased flow of information, data, and external policy variables. The next several sections in this Chapter identify examples of how the enhanced framework and structure could work and the outcomes and benefits expected.

HOW THE NEW FRAMEWORK INTEGRATES WITH COUNTY LAND USE PLANNING

The integration of transportation planning with land use planning is required by 23 CFR 45.208 (a) (4), 210, 212 (g), and 216(c) as well as 23 CFR 771.11. The framework for land use planning and regulation includes both the State of Hawaii and the four counties. For nearly forty-five years since its inception in 1961, the State Land Use Commission has been responsible for the reclassification of large scale lands from Agriculture District into Urban Districts. These conversions have been accompanied by the creation of the statewide transportation infrastructure for airports, harbors, and highways. Over the past three decades, lands have shifted from plantation agriculture use to urban-residential use. This shift has occurred on all islands. Decisions for land use planning and specific land use priorities in the urban areas have progressively shifted to sub-regional and growth nodes which come under the purview of the County Planning Departments, Planning Commissions, and County Councils.

Each County has adopted updated General Plans with objectives and

policies for directed growth. Community Development Plans provide further guidance for retaining character, for addressing housing and economic needs, and for providing infrastructure such as schools, parks, sewer, water, and road capacity. All the counties have incorporated goals for multi-modal transportation, as well as for sustainability and smart growth principles.

With this enhanced planning capacity at the Counties and with increased community building at the citizen level, the transportation advisory structure can be updated for more collaborative and integrated decision-making.

In the new enhanced framework, County Planning Departments participate in:

- 1) The non-metropolitan process;
- 2) The Statewide Policy Advisory Committee;
- 3) The Statewide Technical Advisory Committee; and
- 4) The Intergovernmental Planning & Policy Forum.

Updated Framework for Transportation Planning

HOW THE NEW FRAMEWORK INTEGRATES WITH NATURAL RESOURCE AGENCIES AND ACHIEVES ENVIRONMENTAL COORDINATION

The SAFETEA-LU regulations, 23 CFR 45.214 (i) and (j), call for early and regular contact during the planning process with natural resource and land management agencies. Through this contact important information can be gathered, such as the identification of natural resources, environmental constraints, critical habitat, land management areas, and conformity with plans prepared by natural resource and land management agencies. Coordination should breed better cross appreciation and understanding, which is expected to carry forth from planning into project conceptualization and delivery. Mapping these areas helps to show them in relation to transportation facilities.

As part of preparation of the HSTP, Federal, State, and non-profit agencies whose role it is to protect and steward the land in Hawaii were contacted. Some agencies that are prominent in mainland states, like The Bureau of Land Management, are not present in Hawaii. The agencies and organizations were asked to share their knowledge and resources of important natural resource information. Tables 6-9 in Chapter V provide a list of the important plans and data bases available from the natural resource and land management agencies. This list should be considered dynamic, as more information and material is likely to come forward.

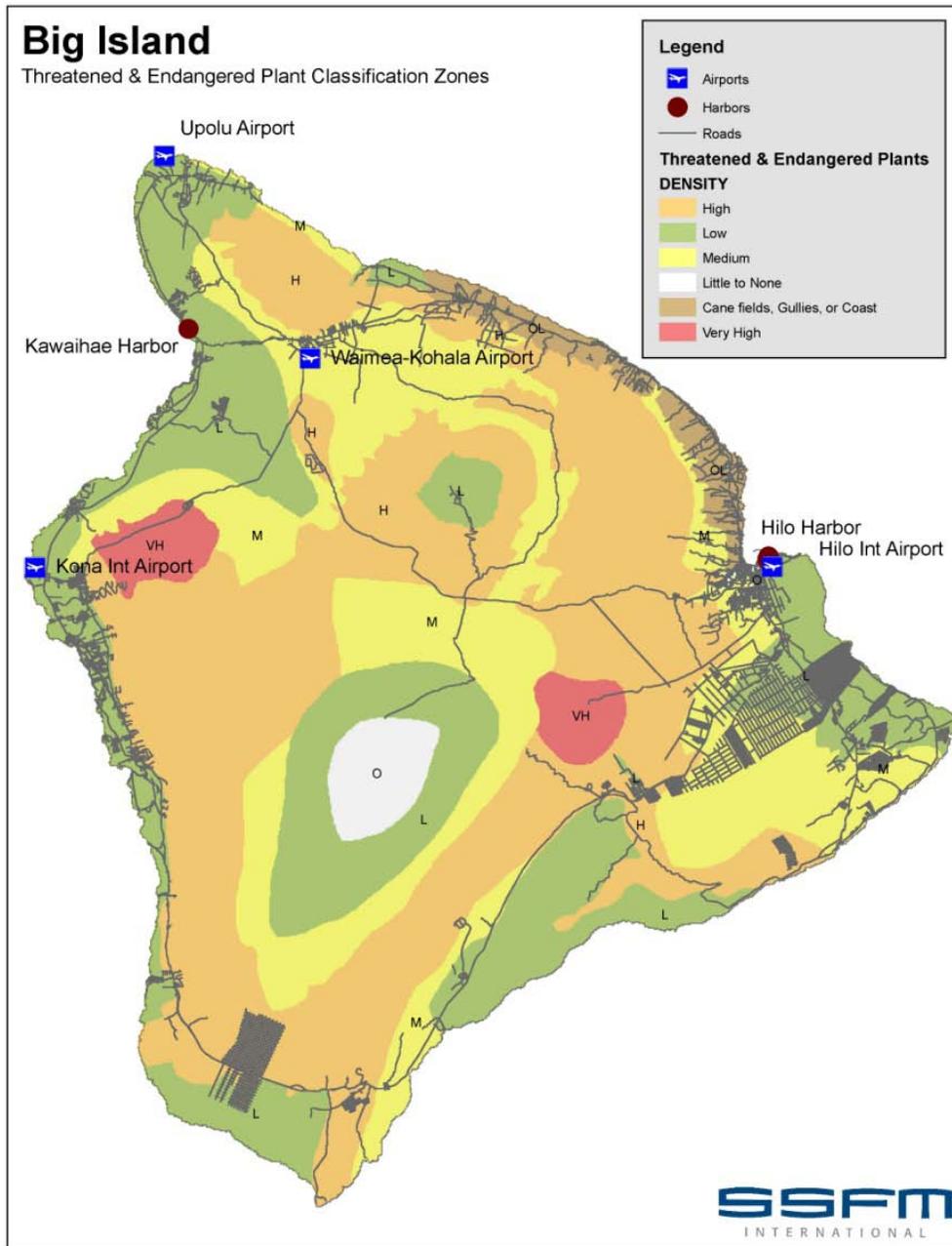
Mapping of critical areas was done by using GIS data as shown in Figure 41. The types of mitigation found in transportation programs and projects in Hawaii to avoid, mitigate, and minimize adverse impacts is diverse.

One example includes the creation of habitat for *Ewa hinahina* and *akoko*, both endangered plant species, when Kalaeloa Harbor was built and expanded. The same habitat will be used if needed for the Honolulu rail project when it traverses near the area. Wetland preservation is required of all projects and is administered through the Army Corps of Engineers 404 permit process and addressed in NEPA and HRS Chapter 343 environmental review documents. Coral loss mitigation from dredging has become a critical issue for harbors which is addressed through a coral mitigation plan that may include artificial reefs, replanting, compensation, and other mitigations.



Photo: Akoko at Kalaeloa Harbor

Figure 41: Threatened & Endangered Plant Classification Zones



Updated Framework for Transportation Planning

Also as part of the preparation of the HSTP update, federal, state, and non-profit agencies were invited to participate in a Stakeholder Workshop on September 8, 2010. The workshop had these parts:

- **Familiarization:** Explanation of transportation laws affecting natural resource agencies; HSTP Update; Resources available from natural resource agencies; Methods for participation
- **Goals & Objectives:** Updates; Strategies for Attainment; Performance Measures
- **Finance and Planning Structure:** Sources of funds; Annual dollars spent in Hawaii;

Two-way participation in the planning process; Limitations

Results and findings from the Stakeholder Workshops are contained in HSTP Volume 3, Appendix 7.

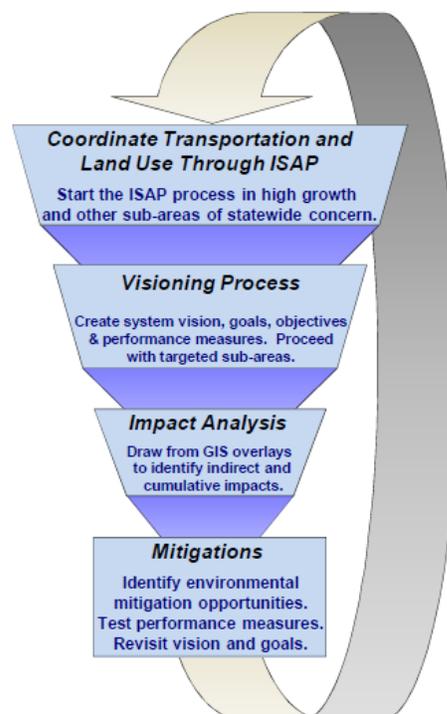
Under the new enhanced planning framework, environmental and natural resource agencies would directly participate in the 1) non-metropolitan process for each County; and 2) Intergovernmental Planning and Policy Forum.

INTEGRATED SUB-REGIONAL AREA PLANNING (ISAP)

There is a method to bring together all the natural resources, county, and state agencies that share concerns and that have programs that intersect. It is labeled here as Integrated Sub-Regional Area Planning (ISAP).

The concept behind Integrated Sub-Regional Area Planning (ISAP) is to focus on areas of statewide interest or concern, such as environmentally sensitive areas or high growth areas with a confluence of transportation issues, as well as joint State and County interest.

Figure 42: Integrated Sub-Regional Area Planning Generic Steps



The ISAP process would bring together a wide array of stakeholders. Similar to Context Sensitive Solutions (CSS), ISAP would be a process to share information and perspectives which result in forward looking options. The best candidate locations for ISAP are those that have multiple transportation issues and modes involved and which also have other state and/or county interests and activities. Hawaii has taken this planning approach to focus on statewide areas of concern before for economic development objectives, for example in response to the loss of the sugar industry along the Hamakua Coast.

The generic steps involved in ISAP are demonstrated in Figure 42. They include:

- Identify the critical geographic areas and initiate the first effort. Identify all efforts currently underway or likely to be underway within 3-5 years.
- Undertake a visioning process to support goals, objectives, and performance measures for the end result.
- Conduct Impact Area Analyses. Identify direct and indirect effects and impacts to sensitive environments. Map these using GIS overlays.
- Identify institutional, regulatory, and programmatic opportunities for addressing and mitigating impacts.
- Identify “cumulative effects” from multiple efforts taking place by county, state agencies and private landowners and other stakeholders.
- Prepare a report.

The Integrated Sub-Regional Area Planning locations should focus on areas of statewide interest or concern, such as high growth areas with a confluence of transportation issues, as well as focus on areas that have a joint State and County interest, candidate locations for Integrated Sub-Regional Area Planning in the State of Hawaii include:

Lihue Area on Kauai, encompassing Lihue Airport, Nawiliwili Harbor, and Kapule Highway.

West Oahu, including Kalaeloa Airport, Kalaeloa Harbor, and H-1.

Kahului on Maui, encompassing Kahului Airport, Kahului Harbor, and Hana Highway.

Kona Area on the Big Island of Hawaii, including Kona International Airport at Keahole, Kawaihae Harbor, and Queen Kaahumanu Highway.

Hilo Area on the Big Island of Hawaii, including Hilo International Airport, Hilo Harbor, and Bayfront Highway.

Honolulu Airport and Honolulu Harbor on Oahu, including Sand Island Access Road, from along Nimitz Highway through Ala Moana Boulevard, and ending at Ward Avenue.

Updated Framework for Transportation Planning

Figure 43 below shows the Kona Area ISAP, with flight tracks at Kona International Airport at Keahole, planned future developments, and all HDOT facilities in the area.

Figures 44-47 on the following pages include maps of candidate locations throughout the state of Hawaii.

Figure 43 Kona Area ISAP Map

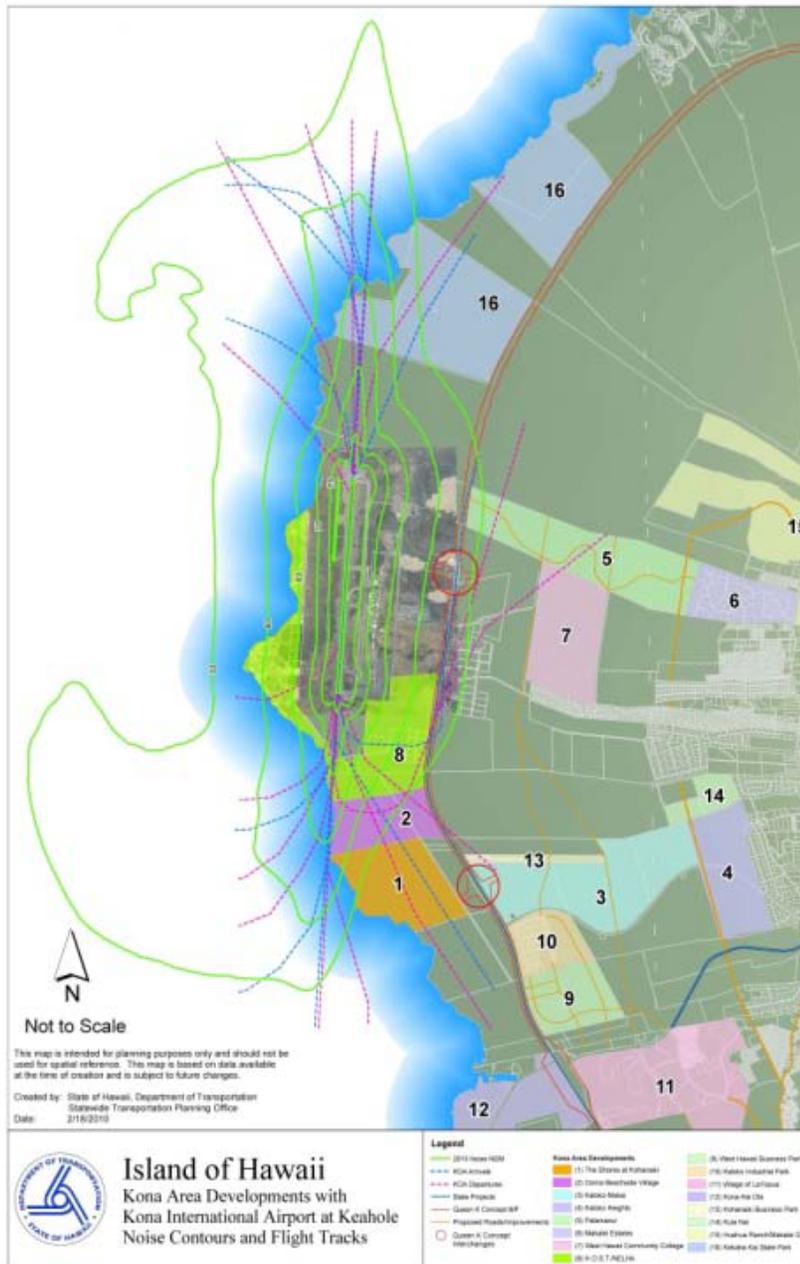


Figure 44: Island of Kauai, Candidate Locations for ISAP

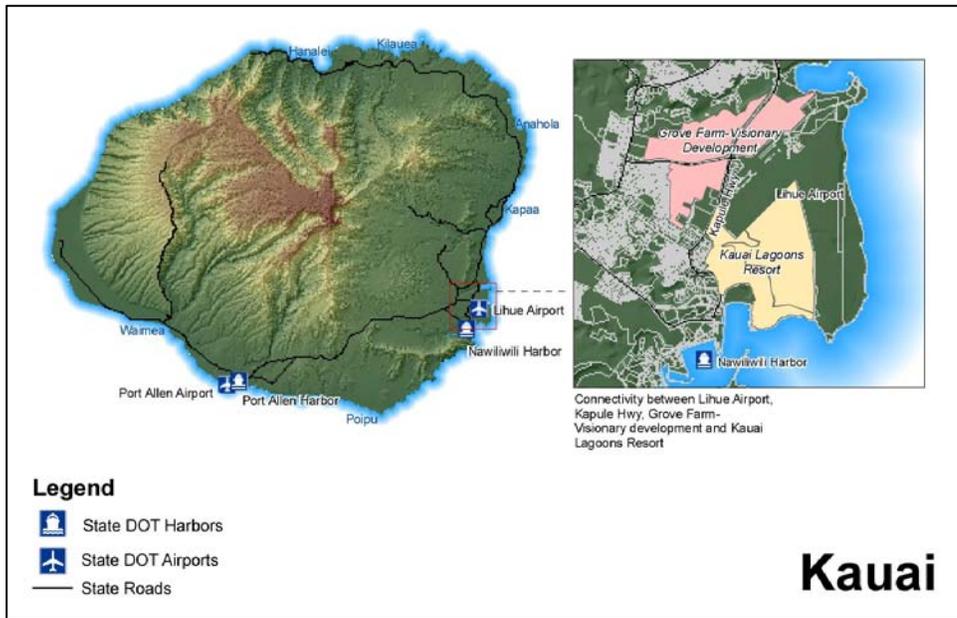


Figure 45: Island of Oahu, Candidate Locations for ISAP

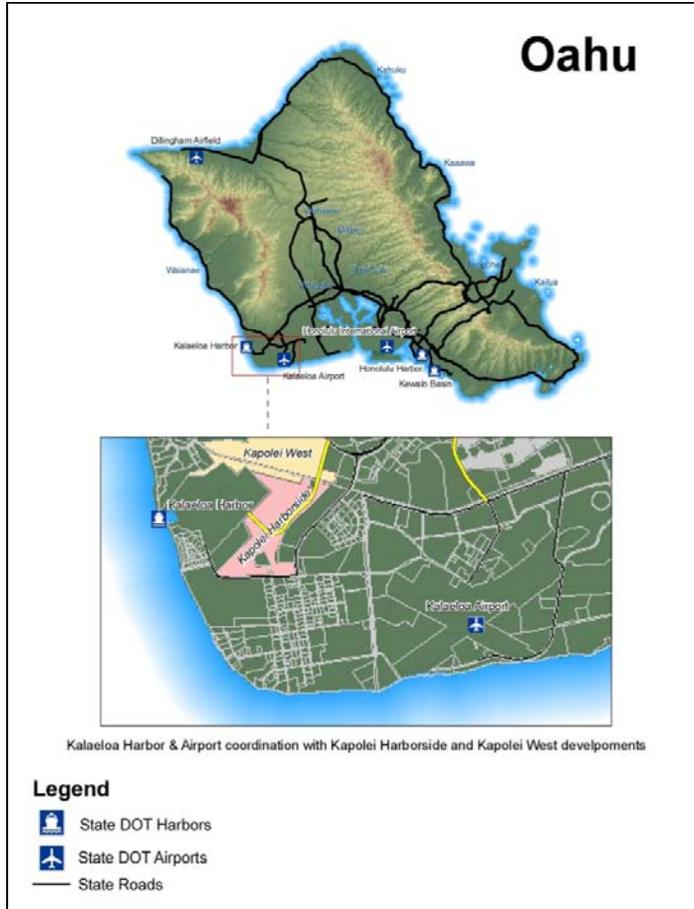
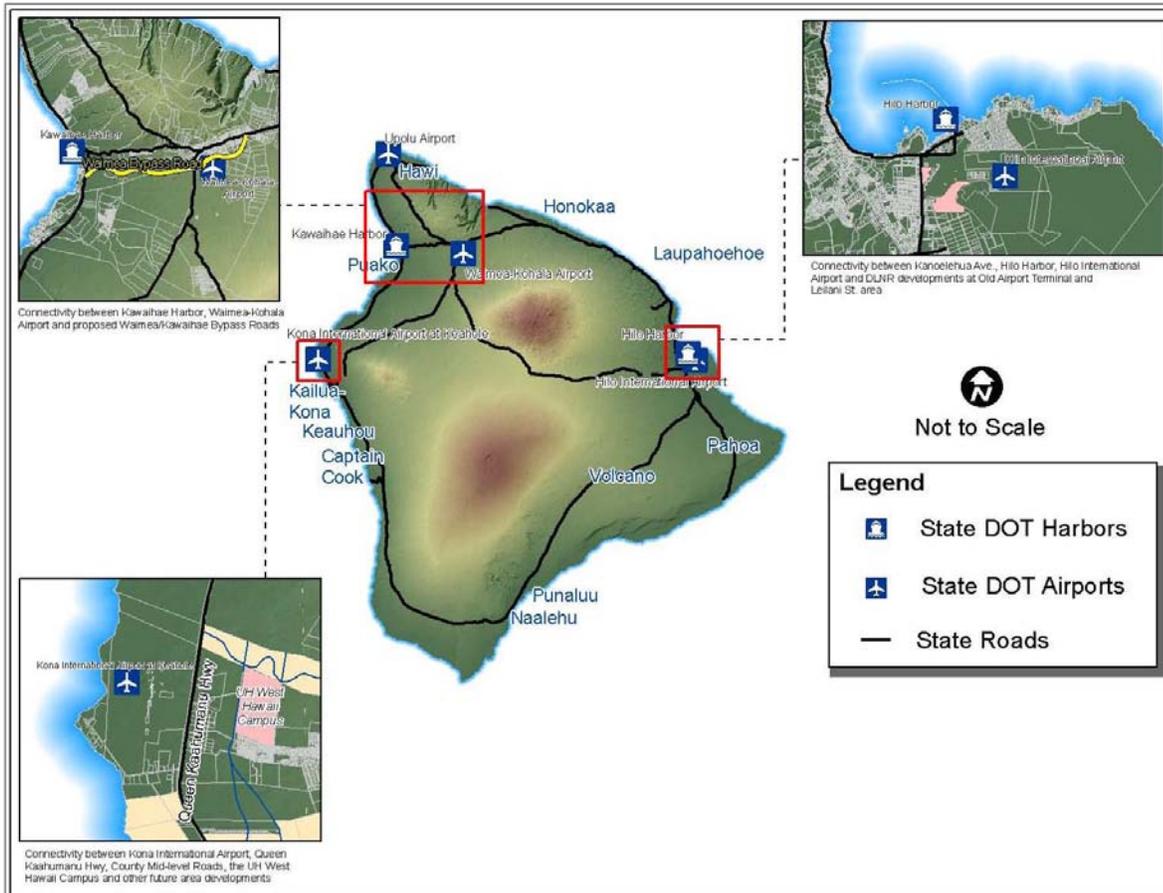


Figure 47: Island of Hawaii, Candidate Locations for ISAP



Updated Framework for Transportation Planning

RELATIONSHIP OF THE NEW ENHANCED STATEWIDE TRANSPORTATION PLANNING STRUCTURE TO SPECIALIZED MODAL PLANNING SYSTEMS

As demonstrated by Figure 35, the HSTP is at the top of a pyramid of planning that also includes the modal system plans, facility master plans, facility development plans, and individual project plans, design, and construction. As one moves from top to bottom, the plans shift from general expressions of policy and need to increasingly more detailed actions and programs to implement the policies and to address needs.

Because the HSTP defines goals and objectives common to all the modes, subsequent system plans, master plans,

and project plans may use those goals and objectives for project definition and justification. They may add more goals and objectives, but this is not necessary or required. The planning efforts should make use of the IPP Forum, the CTPP advisory structure (Policy, Technical, and Stakeholder/Public) as part of their agency coordination and public involvement activities. They may wish to supplement these groups with additional stakeholder agencies or interested parties unique to a particular mode or facility.



Photo: Countywide Public Informational Meeting, Kona, September 2010

ORGANIZATION OF TRANSPORTATION PLANNING WITHIN THE HAWAII DEPARTMENT OF TRANSPORTATION

The HDOT conducts planning through the Statewide Transportation Planning Office (STP) and with units in its three modal divisions, one each for Air, Water, and Land. Detailed

responsibilities are contained in the functional statements, which are found in the Departmental Staff Manual. In brief:

- Statewide Transportation Planning Office is responsible for the Hawaii Statewide Transportation Plan (HSTP) and for the Countywide Transportation Planning Process (CTPP), which will be discussed in a later section of this report.
- The STP Office also manages the Public Transit Grant Program for non-urban public transit systems, including preparation of the Coordinated Services Plan (CSP) for human services.
- The Airports Division planners are part of the engineering group, and they are responsible for facility master plans, for air/land use compatibility studies, and they prepare the Hawaii Statewide Airports System Plan (SASP).
- The Harbors Division planning section within the engineering branch is responsible for master plans and development plans at each of the state's harbors.
- The Highway Planning Branch is responsible for the Long Range Statewide Land Transportation Plan and for the Long Range Land Transportation Plans for Maui, Kauai, and Hawaii counties. The Planning Branch also prepares the Hawaii Bike Plan and the Statewide Pedestrian Master Plan.

The Oahu Metropolitan Planning Organization (OahuMPO) prepares the Regional Transportation Plan for the island of Oahu (ORTP). The C&C Department of Transportation Services, Public Transit

Division prepares the CSP for Oahu, as well as the Short Range Transit Plan, Service and Rate Planning, and similar studies to improve operation.

Internal coordination for planning occurs through the HDOT Planning Committee, made up of representatives of each modal division plus STP. An example of the type of issues they coordinate are the selection of a future forecast year for transportation plans. For the current series of updates, the forecast year of 2035 was selected. This allows consistency among plans and the use of uniform land use, population, jobs, and other demographic data, which is typically prepared by the Department of Business, Economic Development, and Tourism.

EXTERNAL AGREEMENTS

Federal and state requirements and good planning practice require the HDOT to coordinate with agencies under NEPA and with others regarding their involvement. In the case of the Counties, which are responsible for land use planning, this agreement is formalized in a signed Comprehensive Agreement. It is recommended that the Comprehensive Agreements for each county be updated to reflect current requirements and that they be signed by current holders of the offices involved.

Updated Framework for Transportation Planning

ROLES FOR THE STP OFFICE

The process recommended here involves organizing meetings, motivating participants, and achieving direction and consensus at six different groups of participants meeting as:

- Commission on Transportation;
- Inter-Governmental Planning and Policy Forum;
- Statewide Policy Committee;
- Statewide STAC;
- Statewide Transit Advisory Committee; and
- Policy and Technical Advisory Committees for the regions of Kauai, Maui, and Hawaii.

Under the updated planning process, STP could have the following duties and roles, subject to necessary and adequate staffing:

- 1) Prepare the Hawaii Statewide Transportation Plan;
- 2) Convene and manage the statewide structure for planning, the non-metropolitan structures on each island, the Intergovernmental Planning and Policy Forum.
- 3) Prepare the Statewide Coordinated Service Plan for transit;
- 4) Prepare and publish a common baseline of forecasts relevant to key performance measures;
- 5) Annual consolidated report of plans and planning studies prepared under the auspices of the department as well as their connection to planning in other State departments;
- 6) Prepare and publish the Annual Data, Trends, and Indicators Report;

- 7) Prepare a baseline, or benchmark report on condition and use of airport, harbor, and highway facilities and services;
- 8) Assessment of federal and/or state legislation passed or pending that is relevant to transportation planning; and
- 9) Prepare an Annual Report on EA and EIS prepared by the department and/or reviewed by the department. Describe Categories of mitigation involved in decision-making.

As discussed earlier, STP will require additional resources to achieve the full benefits from the enhanced planning structure. Fortunately, this can be implemented in steps, as resources allow.



Photo: Stakeholder Workshop, September 2010

HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER V DATA SYSTEMS



DEVELOP INFORMATION AND DATA SYSTEMS TO SUPPORT THE PLAN

Transportation planning is informed by data that serve as indicators on how the systems are being used. Typically, more than one indicator is needed, and data needs to be collected over various time periods, so that changes can be isolated and problems identified. Some systems are already in a stage of readiness, such as the Congestion Management system used by the Highways Division and also reported to a national database.

Engineers and planners are trained how to sort through data in order to see patterns, relationships, and in order to formulate concepts for changes. The HSTP calls for continuation of a systematic data collection program from all modes, published annually as a Transportation Data, Trends, and Indicators Report. This would be a rich and convenient source of ready data for use in preparing briefing memo, in grant applications, and in planning documents. The first such report is contained in HSTP Volume 3, Appendix 10.

While a major effort was made to identify the data that is now collected and available, it is certain that there may be other indicators that would also prove beneficial and meaningful. Thus, each edition of the Transportation Data, Trends, and Indicators Report is expected to evolve and to have new data added in the future.

The data system envisioned has the following elements:

- Data on trends and indicator measures
- GIS database of natural resource features
- Land use GIS layers
- Performance measures

*Photo: H-3 Freeway driving from Kaneohe.
Courtesy, Jeff Royston, AARoads Interstate Guide*

2010 TRANSPORTATION DATA, TRENDS, AND INDICATORS REPORT



Four types of data were included in the first report. Where possible, and in order to identify trends, data was reviewed from 1998 or to the earliest year available.

- A. General Data and Trends – includes Resident Population, De Facto Population, Visitor Days, Visitor Spending, Jobs, and Jobs by Industry
- B. Highway Data and Trends – includes Licensed Drivers, Registered Motor Vehicles, Miles of Roadway by Type, Fuel Used, Annual Miles Travelled, Commute Time
- C. Safety of Land Transportation – Traffic Fatalities; Fatalities of Motorists, Bicyclists and Pedestrians; Pedestrian Fatalities
- D. Alternate Modes of Transportation – Mode used to commute to work, Transit Ridership, Electric Cars
- E. Harbor Data and Trends – Cargo Volume, Cruise Ship Passengers
- F. Airport Data and Trends – Passenger Volumes, Cargo Volume, Aircraft Operations

All the data came from existing sources that are collected on an ongoing basis. This allows the Report to be readily updated by

gathering and publishing the latest updated numbers. Sources included the US Census Bureau and the American Community Survey; Hawaii

Tourism Authority; Department of Business, Economic Development & Tourism, Research and Economic Analysis Division and the State Databook; Hawaii State Department of Labor and Industrial Relations; Hawaii State Department of Transportation Motor Vehicle Safety Office, Highways Division, Airports Division and Harbors Division; State of Hawaii Department of Health, Injury Prevention and Control Division; City & County of Honolulu, Public Transit Division; Kauai Department of Transportation; Hawaii County Mass Transportation Agency; and Maui Department of Transportation.

For the data listed in the *Transportation Data, Trends, and Indicators Report*, effort was made to describe the importance of the indicator to transportation planning in general or to the HSTP Goals and Objectives in particular. Every effort was made to provide reliable data that would be helpful and could be carried forward in future work. Note that this data is not intended to provide forecasts or projections. That would be done in modal system-wide and facility plans.

Photo of Barge Being Towed into Honolulu Harbor. Photo credit, Young Brothers

NATURAL RESOURCE AGENCIES AND DATABASES FOR HAWAII

Federal surface transportation laws and regulations now call upon statewide transportation plans to provide an inventory of natural resources agencies, their plans, and databases. The HSTP database includes Federal Agencies, State Agencies, County Agencies, and non-profit organizations in Hawaii who keep references and databases.

Federal natural resource agencies typically provide mapping, resource databases, and in some cases, plans within their subject area of interest and jurisdiction.

Table 6 shows the agencies, resources available, and informational websites.

Table 6: Inventory of Federal Natural Resource Agencies

Federal Agencies with Jurisdiction over Natural Resources		
Agency Name	Resource	Where to Find It
US Department of Agriculture (USDA)	<ul style="list-style-type: none"> USDA 2008 Performance and Accountability Report USDA Strategic Plan 	http://www.ocfo.usda.gov/usdarpt/pdf/par2008.pdf http://www.ocfo.usda.gov/usdasp/sp2005/sp2005.pdf
USDA Natural Resources Conservation Service (NCRS)	<ul style="list-style-type: none"> NCRS Pacific Islands Area Technical Resources Hawaii Water Quality Management Plans Pest Management Plans Hawaii Stream Assessment Protocol NCRS Strategic Plan 	http://www.pia.nrcs.usda.gov/technical/http://www.pia.nrcs.usda.gov/technical/water_quality.html http://www.nrcs.usda.gov/about/strategicplan/
US Department of Defense (DOD)	<ul style="list-style-type: none"> DOD US Transportation Command, also known as USTRANSCOM 	http://www.transcom.mil/
Army Corps of Engineers	<ul style="list-style-type: none"> Issues Corps Permits for construction in navigable waters, including Pacific Ocean and any other water bodies influenced by tides. 	www.poh.asace.army.mil/EC-R/EC-R.htm Before any work is done in streams, the ocean or wetlands, contact the Honolulu District's Regulatory Branch at: cepoh-ec-r@usace.army.mil

Table 6: Inventory of Federal Natural Resource Agencies (Continued)

<p>Environmental Protection Agency (EPA)</p>	<ul style="list-style-type: none"> Federal EIS Database, searchable by State, includes Notice of Issuances and Enforcements by Regions. 	<p>http://www.epa.gov/compliance/nepa/eisdata.html</p> <p>Note: EPA Agent for enforcement is Dept. of Health Environmental Management Division at 808-586-4304.</p>
<p>National Oceanic and Atmospheric Administration (NOAA)</p>	<ul style="list-style-type: none"> NOAA Pacific Islands Region site includes mapping examples for boundaries, Marine National Monuments of the Pacific, as well as Oahu shoreline access and runoff analysis. Essential Fish Habitat Maps Protected Species Conservation Information National Weather Service Forecast Office for Hawaii NOAA Digital Coast Survey 	<p>http://www.fpir.noaa.gov/HCD/hcd_mapping.html http://www.wpcouncil.org/maps.htm</p> <p>http://www.wpcouncil.org/protected/index.html http://www.prh.noaa.gov/hnl/ www.cs.noaa.gov/digitalcoast/index.html</p>
<p>National Transportation Safety Board (NTSB)</p>	<p>Transportation Safety Statistics for:</p> <ul style="list-style-type: none"> Aviation Highway Marine Railroad <p>Resource for extensive recommendations on safety issues relating to all transportation modes.</p>	<p>www.nts.gov</p>
<p>US Department of Transportation (USDOT)</p>	<ul style="list-style-type: none"> Federal Highways (FHWA) Airports (FAA) Harbors (MARAD) Federal Transit Administration (FTA) USDOT-Federal Aviation Administration Planning Data and Noise Compatibility Program Status FAA Best Practices for EIS Management Hawaii Harbors Infrastructure Expansion Program, partnership with Maritime Administration Federal Highways environmental state practices database and environmental review toolkit 	<p>http://www.faa.gov/airports/environmental/airport_noise/part_150/states/?state=Hawaii</p> <p>http://www.faa.gov/airports/environmental/eis_best_practices/</p> <p>http://www.marad.dot.gov/ports_landing_page/infra_dev_congestion_mitigation/port_term_infra_dev/pt_infra_dev_hawaii/hawaii.htm</p> <p>http://environment.fhwa.dot.gov/strmlng/searchresults.asp?keyword=&StateSelect=Hawaii&CategorySelect=all&startrow=1&ResultsSelect=10</p> <p>http://environment.fhwa.dot.gov/index.asp</p>

Table 6: Inventory of Federal Natural Resource Agencies (Continued)

<p>US Department of the Interior, US Geological Survey (USGS)</p>	<ul style="list-style-type: none"> • US Seismic Design Maps Web Application • Climate and Land Use Change Program Links. • USGS site: Maps, Imagery, and Publications interactive map of recent earthquake at Hawaii Volcano Observatory at USGS. 	<p>http://earthquake.usgs.gov/ http://www.usgs.gov/climate_landuse/ http://www.usgs.gov/pubprod/ http://tux.wr.usgs.gov/</p>
<p>US Department of the Interior, National Parks Service</p>	<ul style="list-style-type: none"> • Database of National Parks in Hawaii includes historic lighthouses, national historic register listings and national historic landmarks. • National Resource Information Portal includes Geospatial One-Stop, and other pertinent materials. • National Scenic Byways Program includes Other Scenic Byways in Hawaii, including maps, and is a joint program with FHWA. 	<p>www.nps.gov/state/HI/ http://science.nature.nps.gov/nrdata http://www.byways.org/explore/states/HI/</p>
<p>US Department of the Interior, Fish and Wildlife Service</p>	<ul style="list-style-type: none"> • Endangered water birds • Forested areas, critical habitat • Endangered species • Hawaii Biodiversity Mapping Program • National Wetland Inventory 	<p>http://hbmp.hawaii.edu/hbmp. http://www.fws.gov/wetlands/</p>
<p>US Department of Homeland Security, Federal Emergency Management Agency (FEMA)</p>	<p>Consults with Region IX Offices for:</p> <ul style="list-style-type: none"> • USFWS • NOAA • Advisory Council for Historic Preservation, ACOE, USDA-NCRS • Hawaii DOH. • Works with DLNR, including floodplain management • Works with OHA. 	<p>http://www.fema.gov/plans/ehp/regionix/hawaii.shtml</p>
<p>Livable and Sustainable Communities</p>	<ul style="list-style-type: none"> • Partnership for Sustainable Communities with USDOT, EPA, and the Department of Housing and Urban Development (HUD). • Provides grant funding opportunities to communities to provide access to affordable housing, more transportation options, while protecting the environment. 	<p>http://fta.dot.gov/publications/publications_10935.html</p>

Table 7: Inventory of State Natural Resource Agencies

State of Hawaii Agencies with Jurisdiction over Natural Resources		
Name	Resource	Where to Find It
Department of Account and General Services (DAGS)—State Archives	<ul style="list-style-type: none"> Provides Land Research Services Online Archives Collection 	http://archives1.dags.hawaii.gov:8000/cgi-bin/koha/opac-main.pl
Department of Agriculture	<ul style="list-style-type: none"> Important Agricultural Lands Agricultural parks Non-agricultural park lands Irrigations systems Provides inspection facilities Department of Agriculture Overall Strategic Plan (2006) <p>Note: GIS layers for NRCS Soil Survey Land Study Bureau Overall Productivity Ratings (LSB), Agricultural Lands of Importance to the State of Hawaii (ALISH), and State Irrigation Systems are available through the State GIS Program.</p>	http://hawaii.gov/hdoa http://hawaii.gov/dbedt/gis/links.htm
Department of Business, Economic Development, and Tourism (DBEDT)	<ul style="list-style-type: none"> DBEDT Data Book Economic Data and Hawaii Census Data DBEDT Land Use Commission Land Use Maps, District Boundary Amendments, Special Permits, and Declaratory Rulings DBEDT Office of State Planning, Coastal Zone Management Coastal Zone Management documents, initiatives, and other ocean resources management DBEDT-Office of Planning--Hawaii Statewide GIS Program Major Land Resource areas, Restricted watersheds, threatened and endangered plants, wetlands, and multiple hazard layers DBEDT Energy Office Planning for renewable energy resources, Hawaii energy policy; economic and statistical resources for Hawaii. DBEDT Hawaii Community Development Authority (HCDA: Kakaako / Kalaeloa) Covers the districts of Kakaako and Kalaeloa. 2009 HCDA Annual Report, Reports to the Legislature, and Administrative Rules. 	http://hawaii.gov/dbedt/info/economic/databook http://luc.state.hi.us/lucmaps.htm http://hawaii.gov/dbedt/czm/resource/resource.php http://www.soest.hawaii.edu/asp/coasts/index.asp List of ALL GIS Links Here: http://hawaii.gov/dbedt/gis/links.htm http://hawaii.gov/dbedt/info/energy http://hawaiicleanenergyinitiative.org http://hcdaweb.org/

Table 7: Inventory of State Natural Resource Agencies (Continued)

<p>Department of Health, Environmental Health Administration</p>	<ul style="list-style-type: none"> EPA agent for inspection and enforcement 	<p>http://hawaii.gov/health/about/admin/enviro.html</p>
<p>Department of Health, Office of Environmental Quality Control (OEQC)</p>	<ul style="list-style-type: none"> OEQC online library of EAs and EISs searchable by TITLE or by ISLAND MAP. 	<p>http://hawaii.gov/health/environmental/oeqc/index.html</p>
<p>Department of Land and Natural Resources (DLNR)</p>	<ul style="list-style-type: none"> DLNR Office of Conservation and Coastal Lands Conservation District Use Permits for construction on lands zoned Conservation and also provides highway easements. Manuals and reports include beach management plans and Conservation District Use Applications. DLNR State Historic Preservation Division Statewide Inventory of Historic Properties contains information on more than 38,000 historic sites in Hawaii. DLNR Natural Area Reserves Systems Commission (NARS) Designated critical habitat, such as native eco-systems Wildlife interface such as with birds for airports. DLNR Commission on Water Management (CWRM) Hawaii Water Plan Water Resource Protection Plan State Water Projects Plan. Hawaii Drought Monitor-includes links to USGS, USDA, Farm Service Agency, and National Drought Mitigation Center. Report to Legislature: Identification of Rivers and Streams Worthy of Protection <p>Other DLNR Divisions who may have input to statewide transportation planning, especially if one of their facilities or areas of responsibility is involved in a state transportation project:</p> <ul style="list-style-type: none"> DLNR Division of Aquatic Resources All state waters, both streams and marine waters, may have overlapping jurisdiction. DLNR Division of Boating and Ocean Recreation DLNR State Parks Division DLNR Land Division 	<p>GIS layers at State Office of State Planning GIS Database show where all natural area reserves are located in state.</p> <p>http://hawaii.gov/dbedt/gis/links.htm</p> <p>http://hawaii.gov/dlnr/occl</p> <p>http://hawaii.gov/dlnr/hpd/hpgrtg.htm</p> <p>http://hawaii.gov/dlnr/reports-to-the-legislature/2010/dofaw/FW10-Nars.pdf</p> <p>http://hawaii.gov/dlnr/cwrm/planning_swpp.htm</p> <p>http://hawaii.gov/dlnr/drought/</p> <p>http://hawaii.gov/dlnr/reports-to-the-legislature/2010/cwrm/CW10-IDofRivers.pdf</p> <p>http://hawaii.gov/dlnr/reports-to-the-legislature/</p>
<p>Department of Hawaiian Homelands (DHHL)</p>	<ul style="list-style-type: none"> Land Management for DHHL designated lands Maps of Properties. 	<p>http://hawaii.gov/dhhl/environmental-review http://hawaii.gov/dhhl/maps</p>

Table 8: Inventory of County Natural Resource Agencies

County Agencies with Jurisdiction over Natural Resources		
Name	Resource	Where to Find It
City and County of Honolulu	Department of Planning and Permitting • GIS Interactive Maps	http://honoluluodpp.org/gis/
	Department of Transportation Services • Roads on Oahu impacted by sewer and roadway projects • 2009 Oahu Bike Plan; • TheBus and TheHandi-Van • Honolulu Rail Transit	honolulu.gov/dts www.honolulustransit.org/
	Department of Facility Maintenance	http://honolulu.gov/dfm/
	Board of Water Supply BWS Watershed Partnerships on Oahu--Memorandum of Understandings (MOU) with some agencies to preserve groundwater supplies. County Water Plans for Oahu Watershed Management Plans for Oahu	http://www.hbws.org/cssweb/display.cfm?sid=1096 http://www.hbws.org/cssweb/display.cfm?sid=1406
County of Maui	Planning Department Recently updated General and Community Plans	http://co.maui.hi.us/index.aspx?nid=121
	Department of Public Works Engineering and Inspection services to plan, design and construct highways and roadway structure; Traffic Master Plans.	http://co.maui.hi.us/index.aspx?nid=124
	Department of Transportation Walk Wise Hawaii program, Ferry Service between Maui and Molokai, bus service	http://co.maui.hi.us/index.aspx?nid=125
	Department of Water Supply Maui Watershed Partnerships, Maui Watershed Restoration Partnerships, Water Conservation	http://co.maui.hi.us/index.aspx?nid=126
County of Kauai	Planning Department Kauai General Plan, Comprehensive Zoning Ordinance, Important Agricultural Lands Study	http://www.kauai.gov/planning
	Public Works Department Road maintenance and traffic safety device maintenance Kauai Online Hazard Assessment Tool, with GIS and hosted by NOAA.	http://www.kauai.gov/publicworks http://csc-s-maps-q.csc.noaa.gov/khat/viewer.html
	Transportation Agency Bus and Paratransit services	http://www.kauai.gov/transportation
	Department of Water Water Plan 2020, Water Conservation, Annual Water Quality Report	http://www.kauaiwater.org/
County of Hawaii	Planning Department General Plan, General Plan Annual Report, Infrastructure and Public Facilities' Needs Assessment	http://www.co.hawaii.hi.us/directory/dir_plan.htm
	Department of Public Works Highway maintenance, Traffic engineering and building divisions.	http://www.co.hawaii.hi.us/directory/dir_pubworks.htm
	Mass Transit Agency Bus and Shared Ride Taxi Programs	http://heleonbus.org/
	Department of Water Supply Water Conservation and Restriction Notices, 20 Year Water Plan	http://www.hawaiiidws.org/

Table 9: Inventory of Non-Profit Natural Resource Organizations

Non-Profit Natural Resource Organizations		
Name	Resource	Where to Find It
Historic Hawaii Foundation	<ul style="list-style-type: none"> • Hawaii Register of Historic Places • Places identified as eligible for Hawaii Register • Historic Sites • Historic Register Guide 	http://www.historichawaii.org/Historic_Sites/HistoricPlacesandNews.html http://www.historichawaii.org/HPRC/howto/Registration.html
Nature Conservancy	<ul style="list-style-type: none"> • List of Nature Conservancy Preserves • Work on Climate Change 	http://www.nature.org/wherework/northamerica/states/hawaii/ http://www.nature.org/wherework/northamerica/states/hawaii/
Bishop Museum	<ul style="list-style-type: none"> • Native Hawaiian History • Artifacts • Paper Maps • Maintains a non-circulating library used for research, photographs, maps, and cultural history. 	www.bishopmuseum.org/

GIS LAYERS AND LAND USE MAPS



Using geospatial data from the State Department of Business, Economic Development & Tourism (DBEDT) Geographic Information System (GIS) database, maps of each island were created. Five separate data files were used to produce maps for this report. In the case of each county, an MXD file was created using Environmental Systems Research Institute (ESRI) Arc Map application. All of the geospatial data used to produce the report maps was downloaded from the following DBEDT website, which is the statewide repository for GIS data:

<http://hawaii.gov/dbedt/gis/download.htm>

The GIS layers and land use maps shown in Figures 49-52 are to be used in the ISAP process described in Chapter IV, Updated Framework for Planning. This is just one type of composite that can be built with the GIS system. As seen earlier in this chapter, there are many GIS layers available, including, but not limited to: watersheds, census information, and wind energy resource.

The following five data layers are seen on each of the following maps:

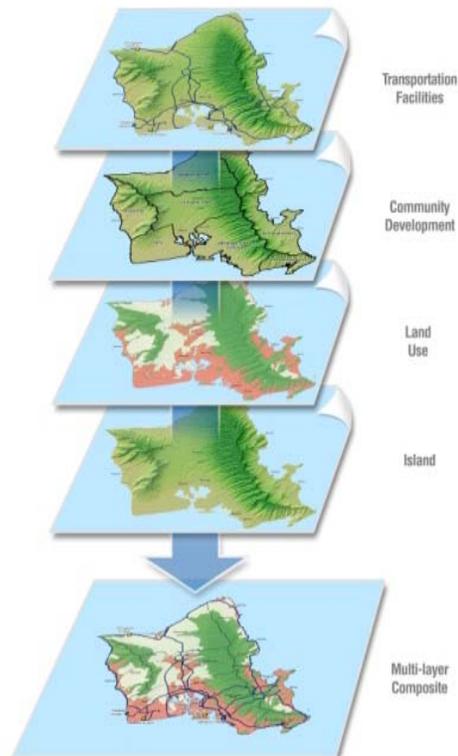
- 1) Color Hillshades, 10 meter JPGs
- 2) State and County routes, from DOT Road Inventory as of March 2010
- 3) State Land Use District Boundaries from the State Land Use Commission. The State Land Use Districts depicted in these files are not official and are

merely representations for presentation purposes only.

- 4) Development Plan Areas from the Islands of Kauai, Oahu, Maui, Molokai, Lanai, Kahoolawe, and Hawaii. These were digitized by the Office of State Planning Staff from County community plan maps.
- 5) Geographic Place Names from the United States Geological Service (USGS) Geographic Names Information System.

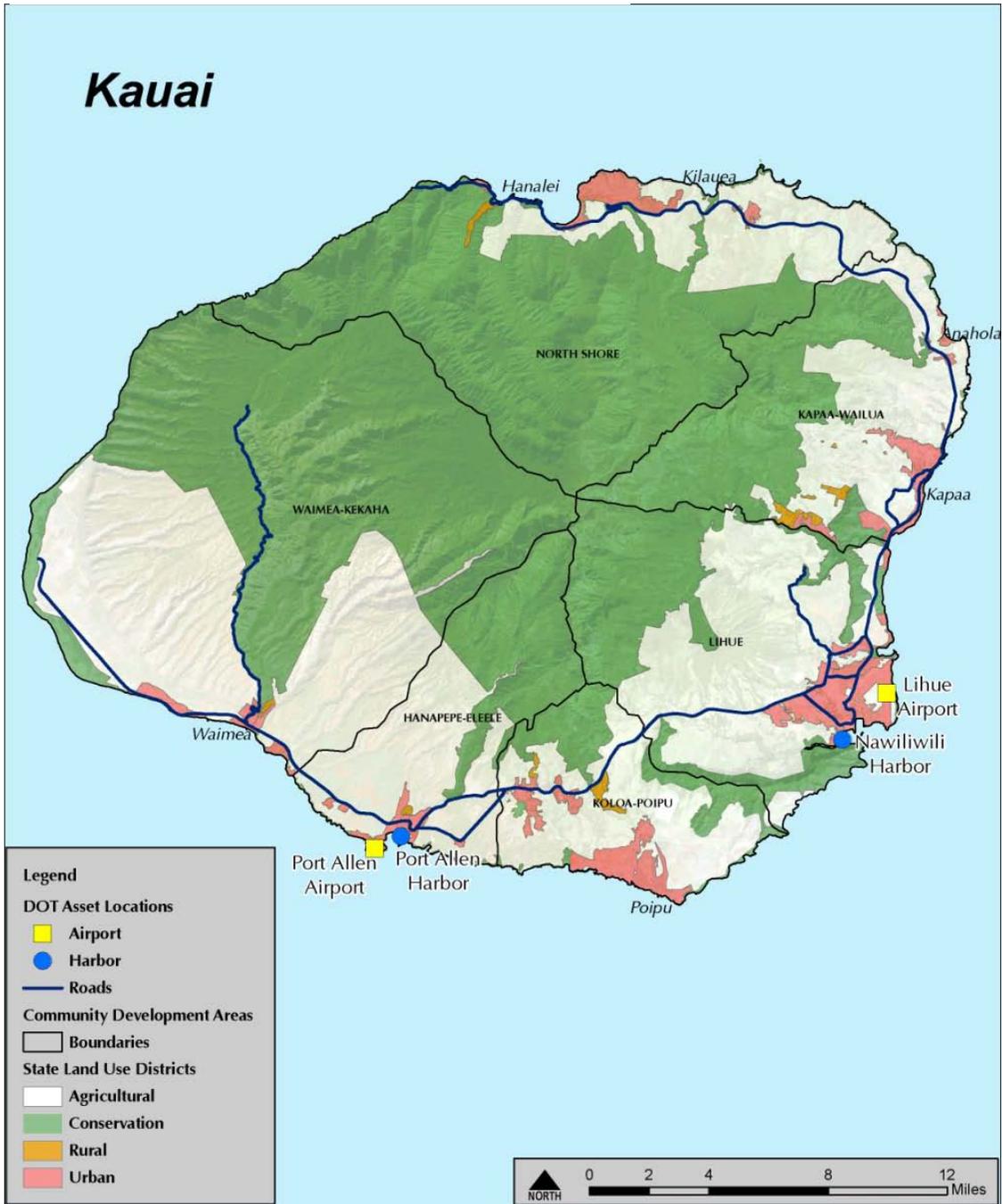
Figure 48 below shows how each of these GIS layers is stacked on top of the island's map in order to form the figures on the following pages.

Figure 48: GIS Layer Stack



Top Photo: Aerial View of Honolulu Harbor

Figure 49: Kauai State Land Use Boundaries, County Development Plan Areas, and State Transportation Facilities



Data Systems

In addition to the commercial harbors shown here operated by HDOT, there are also ferry facilities in small boat harbors managed by the Department of Land and Natural Resources Division of Boating and Ocean Recreation (DLNR-DOBOR). These ferry facilities are located on Maui at

Maalaea and Lahaina, and on Lanai at Manele. On Molokai, by agreement between HDOT and DLNR the ferry activity is located on the commercial wharf side of the pier at Kaunakakai Harbor. The ferry services are run by private operators.

Figure 50: Maui, Molokai, and Lanai State Land Use Boundaries, County Development Plan Areas, and State Transportation Facilities

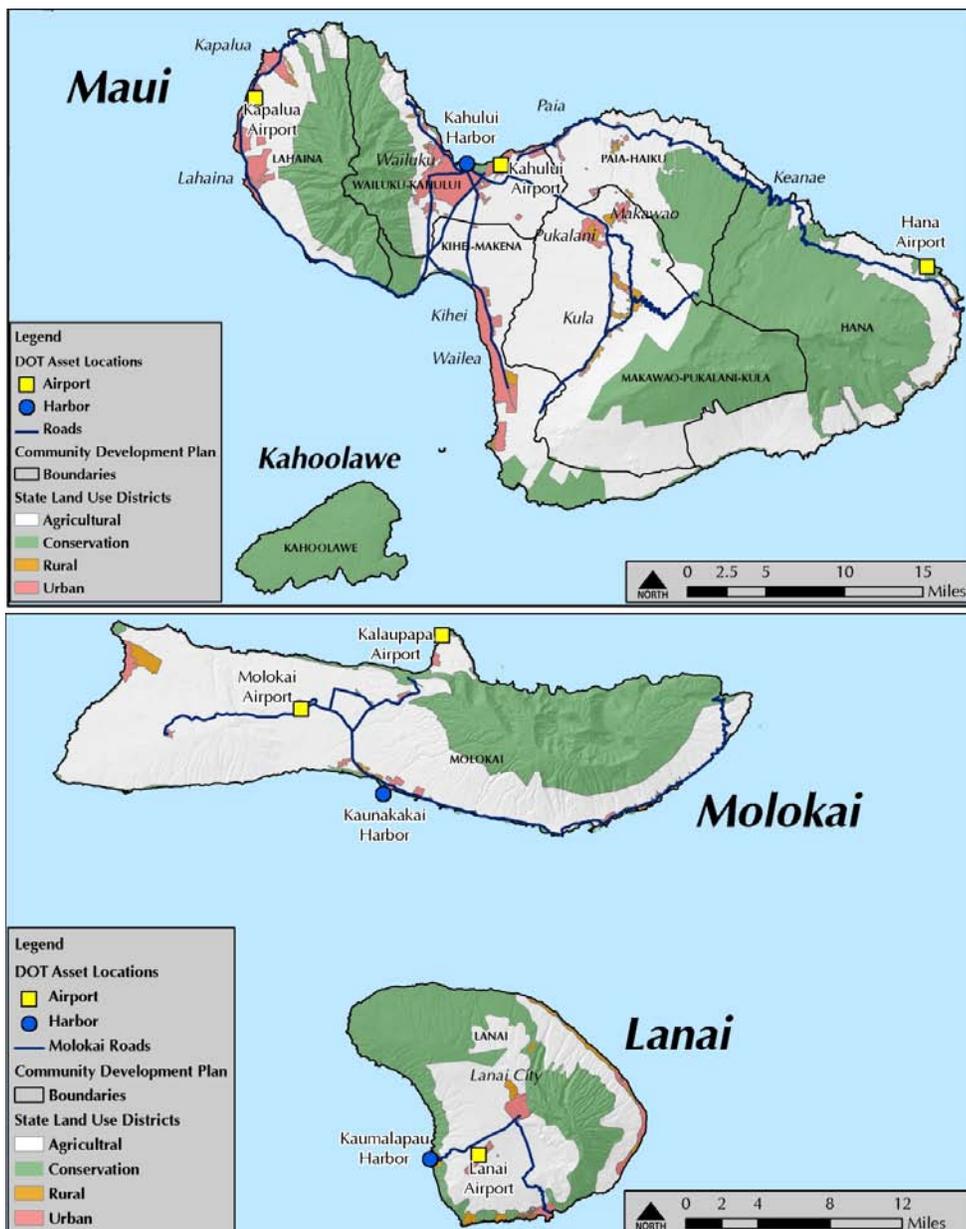
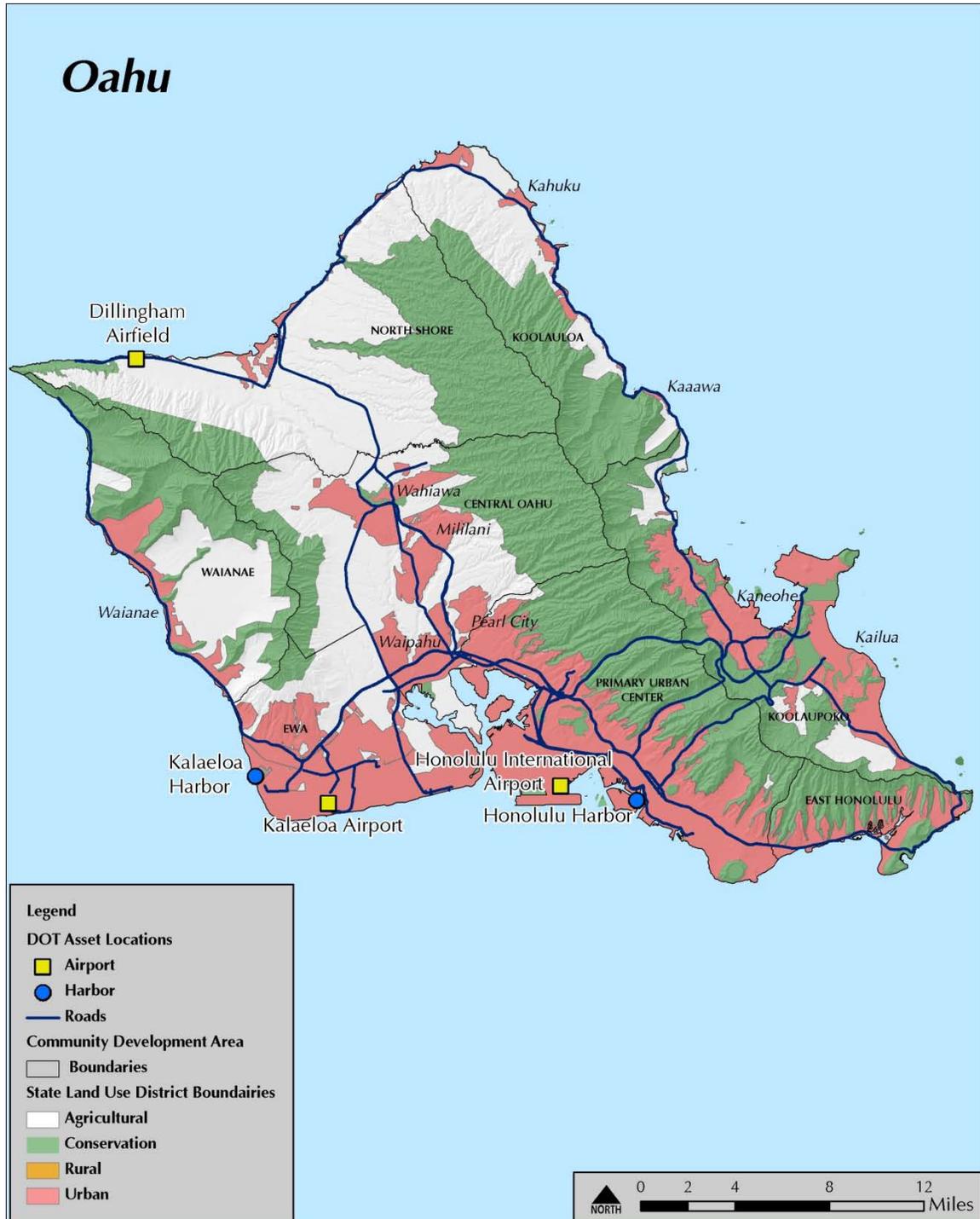
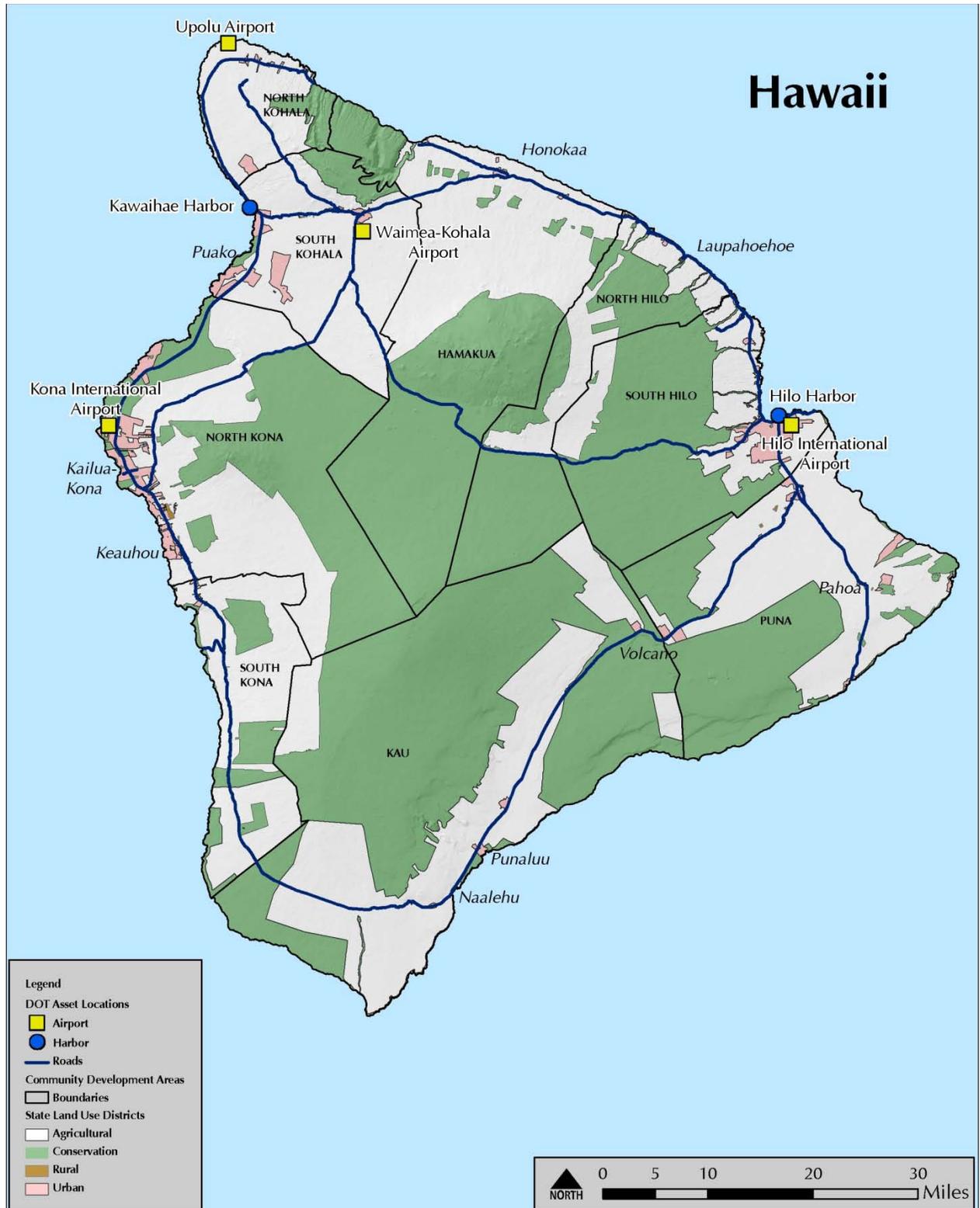


Figure 51: Oahu State Land Use Boundaries, County Development Plan Areas, and State Transportation Facilities



Data Systems

Figure 52: Hawaii Island State Land Use Boundaries, County Development Plan Areas, and State Transportation Facilities



PERFORMANCE MEASURES

Performance measurement is a growing responsibility of Hawaii's transportation planners. The State of Hawaii practiced Performance Based Budgeting (PBB) for a number of years. Nationally, many are calling for Performance Based Planning in transportation. The State of Hawaii has followed Federal mandates in this area, for example, reporting on Congestion and on Pavement Condition for both Highways and Airfields. Urban mass transit systems report on performance of their equipment and their service routes. Additional subject areas are eyed by Congress for performance management requirements, including safety, mobility and access, critical asset management, reductions in emission and energy consumption, and consistency with land use plans.

As no systematic program for performance measurement, management, and reporting is in place at the current time, there is the opportunity to devise an approach to fit the needs of HDOT. When Federal requirements come into being, HDOT would be that much farther ahead, both to participate in the national dialogue and to come into early compliance. That is why Objective 4 of Goal VIII Planning calls for implementation of performance measurement for planning.

Table 10 contains a set of Performance Measures for the HSTP. Two types of measures are included: Output and Outcome. Output measures look at the effort involved to address the goals. Outcome measures look at the results and whether improvements have occurred over time. This set of performance measures came about through a process of deliberation and consensus among the Department's professional planners in each of the divisions plus OahuMPO. In a small number of instances, the appropriate outcome measure was not readily apparent, and it was agreed that further work would help bring about the most useful measure. During deliberations, it was also agreed that the modal divisions would start to develop their own sets of performance measures.

The HSTP Performance Measures were also reviewed by the County planners and other members of the Sub-STAC as well as by the public and stakeholders at a series of open meetings and workshops. Some of the outcome performance measures can be measured using the Data, Trends, and Indicators Report. Others, including all the Output Measures and most of the Customer Satisfaction Measures, require further effort by the HDOT to make the measurements.

Data Systems

Table 10: Potential Performance Measures for the HSTP Goals

	GOAL	OUTPUT MEASURES (Resources Applied)	OUTCOME MEASURES (Results)	HOW TO COLLECT (Data Source)
I	Mobility & Accessibility	Total VMT by mode De-planements and dis-embarkments Volume of cargo handled by mode Number of new multi-modal connections built Number of new bike and pedestrian facilities and programs	Customer satisfaction by the general population and by special group - elderly, disabled and T6/EJ Reduced percentage of travel by single occupant vehicles Increased number of transit riders Reduced amount of travel delay by mode	American Community Survey Transit Agency Reports Visitor Bureau Records HDOT Division Records Customer satisfaction surveys
II	Safety	Number of transportation safety projects	Number of transportation system fatalities and injuries by mode Percent change from previous year	DBEDT Databook Table 18.20 and 18.49 HDOT Division Records
III	Security	Number of training events held Number of vulnerability and risk assessments conducted	Number of incidents from human threats and events responded to and averted Number of emergency responses	HDOT Division Records
IV	Environment	Number of EA/EIS reviewed Number of sea level rise maps prepared. Number of sustainability/livability initiatives underway.	Amount of transportation system emissions by year Number of habitats created or supported Results/completion of transp. mitigations required in EA/EIS Reduction of pollution by autos Customer satisfaction of QOL and transportation facilities	STP Records HDOT Division Records Customer satisfaction survey
V	Economy	Freight movement analyses completed Number of inspection facilities at harbors and airports	Customer satisfaction by visitors Other economic measures to be identified	HDOT Division Records Customer satisfaction survey
VI	Energy	Preparation of HDOT energy action plan Number of electric recharge stations at transportation facilities	Amount of energy consumed by transportation system by mode and by year Percent of vehicles using renewable energy Percent of energy efficiency improved at harbor and airport facilities	State Energy Office HDOT Division Records

VII	Funding	Percent of funds spent on preservation versus modernization by mode Dollars spent on projects Percent of total projects that are for Preservation/total Number of system preservation projects	Number of existing transportation facilities removed from “poor condition” status Percent of facilities in a state of good repair by mode	HDOT Division Records
VIII	Planning Process	Number of ISAP underway Number of public outreach events held Completion and adoption of the HSTP Completion and adoption of modal system-wide plans	Customer satisfaction with HDOT outreach Change in travel time by mode Percent of infrastructure by type in a state of good repair Consistency with land use plans	STP and HDOT Division Records

PRIORITIZATION

At this time, the HSTP performance measurement effort is not meant as a device for setting priorities. All the Goals are equally important and meant to be addressed as a matter of policy. Having said that, the public and stakeholders were invited to identify their top priorities among the goals. Some interesting results emerged.

- In all five Countywide Public Information Meetings (PIM) around the State, and in the three Stakeholder Workshops, every group listed Environment as one of the top two Goals.

- The other goals receiving multiple top two listing were: Economy, Mobility, and Finance.
- No group listed Security as a top goal. It is speculated that it is perhaps the least understood goal and/or its accomplishment is taken for granted.

The modal planning efforts could find a role for performance measurement in making program or project priorities. This is a common use for performance based management.

SUMMARY: IMPROVED DATA COLLECTION, EVALUATION, AND PERFORMANCE MEASUREMENT

There is a need for greater use of performance measures for planning and modal systems evaluation. The Federal government has been moving in this direction for some time. A systematic program for data collection, evaluation, and reporting, in addition to the fundamental identification of key measures that appropriately reflect goals and objectives is required.

The Statewide Transportation Planning Office's (STP) responsibilities could include the following transportation planning process responsibilities for data collection and evaluation:

- Prepare and publish a common baseline of forecasts relevant to key performance measures;
- Annual consolidated report of plans and planning studies prepared under the auspices of the department as well as their connection to planning in other State departments;
- Trends and measurement benchmark report on condition and use of airport, harbor, and highway facilities and services;
- Assessment of federal and/or state legislation passed or pending that is relevant to transportation planning.
 - Annual Report on EA and EIS prepared by the department and/or reviewed, as well as categories of mitigations.

STP serves as the transportation planning data resource unit for the department and the State. With these duties, STP is the integrator of land use, environment, sustainability, and transportation. This is no better exemplified than through Integrated Sub-Regional Area Planning (ISAP) which is described in Chapter IV. In addition, STP manages and has oversight responsibilities for the SPR Part 1 Program.

Through the call for proposals, performance monitoring and reporting, STP can encourage work items and funding that support national priority activities, especially those that are multi-modal.

Performance Measurement will require a cultural shift at HDOT. One area with clear Federal emphasis is Congestion Management and Monitoring (see 23 CFR 500). A performance management effort would involve stakeholders, the public at large, and EJ/Title VI communities. The evaluation and selection of major corridors and their impact on the multi-modal systems is an effort that can be a starting point.

HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER VI FINANCIAL SYSTEMS



FORMULATE FLEXIBLE AND INNOVATIVE FINANCIAL SYSTEMS FOR TRANSPORTATION

Preservation and expansion of transportation systems requires a stable and predictable funding mechanism. In Hawaii, there are three special funds, one each for Airports, Harbors, and Highways. Each has a unique set of revenue sources derived primarily from user fees and charges as well as from Federal funds. Some of the revenue sources are more volatile than others, as they are tied to the strength of the economy and the visitor industry. During such times, it can be difficult to manage needs beyond basic maintenance and operations. At other times, there is a drive to push forward with dedicated levies and to deal with future needs through special programs, such as the original Modernization Programs begun in 2006 for Airports and 2007 for Harbors.

Transit funds are maintained by each of the Counties, and they differ significantly from each other and from other transportation funds. Typically, the revenue sources for transit consist of fares, Federal grants, and large subsidies from the County General Funds.

Fund managers and planners must be constantly aware of whether revenues are rising, falling, or remaining flat. A Financial Scenarios Issue Paper was prepared for the HSTP and is included in HSTP Volume 2 along with the other Issue Papers. In this chapter, a summary of each fund for Airport, Harbors, and Highways is included along with a discussion of the challenges faced by that fund.

Photo: Mokulele Highway, Maui

AIRPORT SPECIAL FUND

Challenges

Over the next 25 years, the airport system will need to generate sufficient revenues and operating income to support existing airport revenue bond debt service, provide for new debt to fund the unfunded portion of the current Airport Modernization Program, and to sustain enough growth to fund subsequent capital improvements in the years beyond.

However, as the Airports Division recognizes, the generation of income through rates and charges must be affordable to airlines and vendors. The current approach is to determine the residual rate for fees to airlines as adjusted to the level of expenditures, after crediting non-airline revenue. The airline committee must approve capital expenditures under this methodology.

Financial pressure on airlines due to fuel costs and a global economic slowdown have resulted in reduced air service capacity that affects all airports, including those in Hawaii.

The situation is further exacerbated by the demise of several carriers serving the Hawaii market, including Aloha Airlines and ATA. This in turn affects the willingness and ability for the airlines to support major improvements and expansions.

Budget planning is difficult with the unpredictable cost of security based on the threat level as designated by TSA in addition



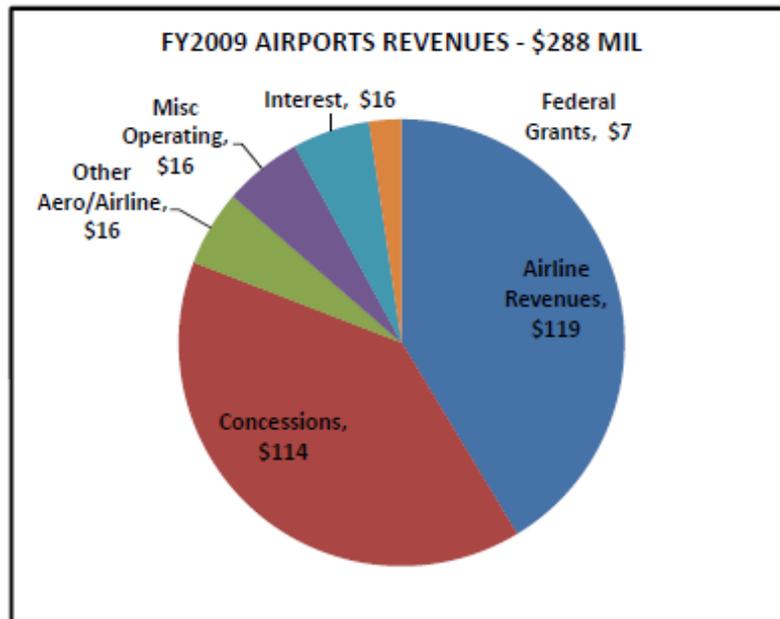
to security needed for large events such as the Asia-Pacific Economic Cooperation (APEC) to be held in Hawaii in November 2011.

Sources of revenue

All sources of revenue are from user fees, and there are no General Funds used to support the Airport Special Revenue Fund. Airport revenues in FY 2009 totaled \$288 Million. The major sources are shown in Figure 50.

Recently, terminal, landing, and airfield charges were raised, which are expected to create an 18% annual increase in FY2010 and a 14% increase in FY2011. The aviation fuel tax remains at two cents per gallon. Concession fees are a minimum monthly guarantee or a percentage of gross receipts, whichever is greater. Landing fees are based on aircraft weight. The rental motor vehicle surcharge is now \$7.50, and general obligation bonds will be floated to build a consolidated rental car facility at the Honolulu International Airport.

Figure 53: Airports Operating Revenues



Source: HDOT Airports Division, as of March 2010

Table 11: Airports Fund Revenues by Source

Airline landing fees, passenger terminal and non-terminal fees, and aviation fuel taxes:	\$119 million, or 41%
Duty free and other concessions	\$114 million, or 39%
Aeronautical and non-signatory airline revenues	\$16 million, or 6%
Miscellaneous	\$16 million or 6%
Interest income	\$16 million or 6%
Federal Grants	\$7 million or 2%

Financial Systems



The aviation fuel tax can be applied as credit for airport landing fees owed. Only a small portion of income is obtained as revenue from general aviation aircraft, which are exempt from paying landing fees.

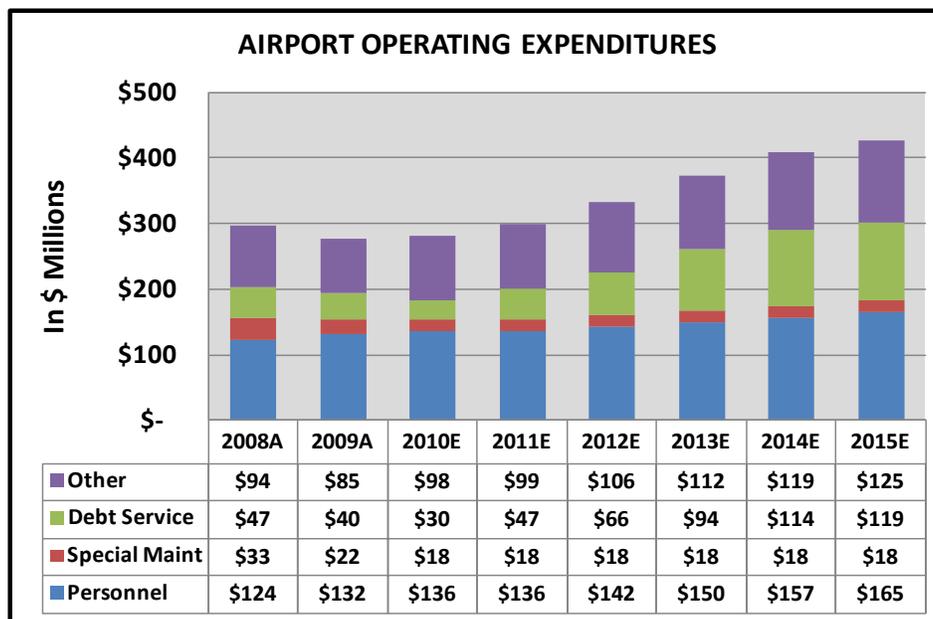
Expenditures

Airport operations and maintenance expenditures were just under \$300 million in 2009. They consist of personnel, debt service, special maintenance program, and normal operations and expenditures. Costs are expected to grow, as can be seen in Figure 51.

The Federal Airport Improvement Program (AIP) provides grants for planning, development, and noise compatibility projects, and may be

spent to address airport safety, capacity, security, and environmental concerns. Operational costs are not an eligible expenditure. In FY 2009, HDOT Airports Division received \$35.6 million in AIP Entitlement funds, which were used for runway lighting, apron rehabilitation, taxiway construction, noise mitigation, rescue and firefighting, and security enhancements at seven airports. In addition, in FY 2009, the Airports Division received \$15 million in ARRA funds, which were used for apron rehabilitation at Kahului Airport in Maui. Additional AIP grants may be available for eligible projects.

Figure 54: Expenditures from Airports Fund



Source: HDOT Airport Division Multi-Year Financial Forecast, as of March 2010

Photo: Kalaeloa Airport, Oahu

The Airports Modernization Program (AMP) originally announced in 2006 includes \$1.3 billion of construction projects that are now underway. The construction includes additional gates and a consolidated car rental facility at Honolulu International Airport, airfield

improvements throughout the statewide airport system, security upgrade projects at the major airports, replacement of passenger information systems at the major airports, and projects to preserve and maintain the facilities statewide.

HARBORS SPECIAL FUND

Challenges

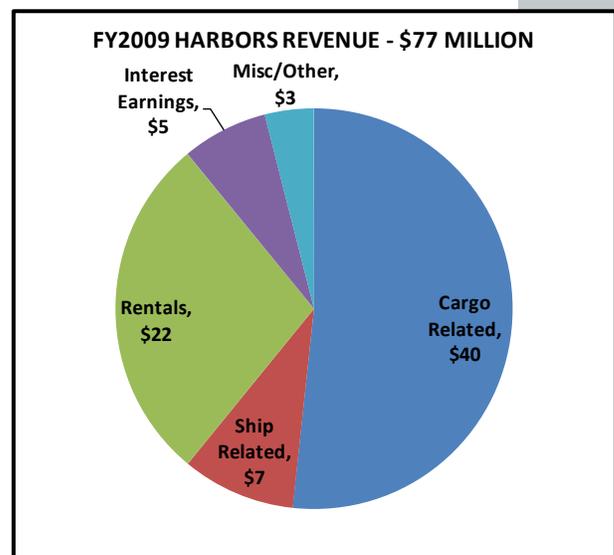
Over the next 25 years, the Harbor Special Revenue Fund will be called upon to finance both expansion and maintenance programs as well as ongoing operations. Given the age of most facilities and that they were built to accommodate a plantation based economy, continued efforts are needed to address current needs for cargo, especially containerization as well as the competitive cruise passenger industry. Environmental issues and adapting to the effects of climate change and sea level rise add to the complication of needs at the harbor facilities.

As with the airline industry, the marine industry is totally dependent on the economy which drives the demand for goods that need to be shipped in to Hawaii. The Harbor Special Revenue Fund is user-financed, and the Harbors Division works closely with harbor users to determine the priority of needed improvements, and their ability to pay for those improvements.



Photo: Gantry Crane Loading at Honolulu Harbor

Figure 55: Harbors Fund Revenues



Source: HDOT Harbors Division Multi-year Financial Forecast, as of July 2009

Financial Systems



Sources of Revenue

All sources of revenue are derived from user fees. There are no General Funds given to Harbors. In FY 2009 revenues totaled \$77 million, which was down \$15 million from the previous year. A further drop is anticipated in FY 2010, and recovery is not seen until at least FY 2011. Major sources of revenue are shown in Figure 52 and Table 12.

In February 2010, the Harbors Division was awarded a \$24.5 Million Transportation Investment Generating Economic Recovery (TIGER) Grant, which was included in the ARRA. It is to be used for reconstruction of Pier 29 at Honolulu Harbor, adding approximately 12 acres of upgraded cargo capacity.

Harbors Division, working with the Hawaii Harbors User Group (HHUGS), developed a system-wide Harbor Modernization Program (HMP), which was approved by the Legislature. The HMP is meant to address infrastructure improvements. HHUG

members supported tariff increases to generate additional revenues to pay debt service on harbor revenue bonds to finance HMP and sustain harbor operation.

Table 12: Harbors Fund Revenues by Source

Cargo-related wharfage tariffs	\$40 million, or 52%
Facility and storage rental fees	\$22 million, or 29%
Interest earnings	\$5 million, or 6%
Ship-related fees (port entry and dockage)	\$7 million, or 9%
Miscellaneous	\$3 million, or 4%

Source: HDOT Harbors Division Multi-year Financial Forecast, as of July 2009

Photo: Aerial View, Kahului Harbor, Maui

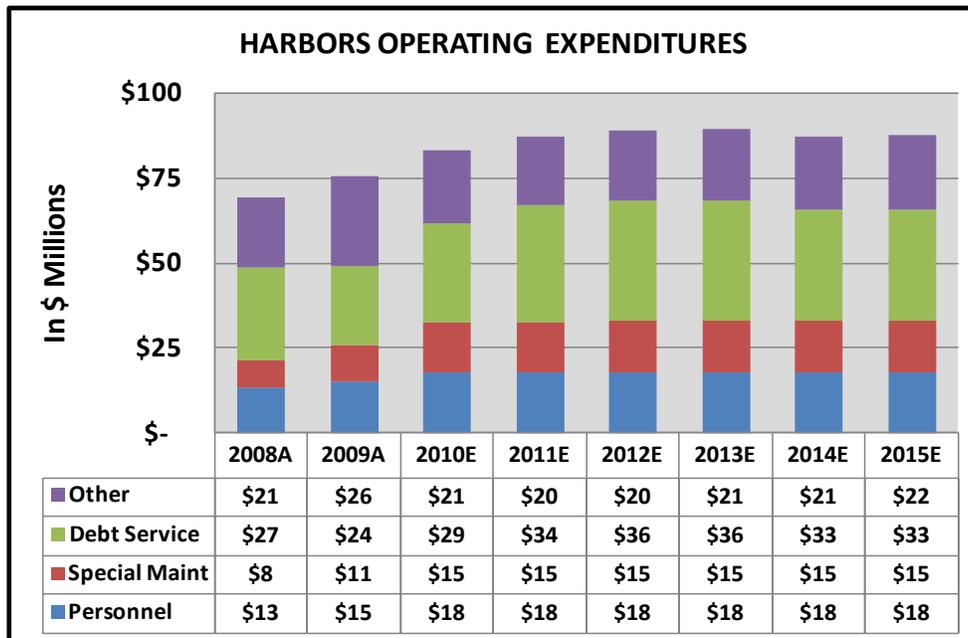
The administrative rules for the new tariffs were approved by the Governor in February 2010 with implementation on March 1, 2010. The initial program level of \$842 million was later reduced to \$618 million when NCL Cruise line abruptly cut back its service from three to one line, thus reducing the urgency for making new separate passenger improvements and reducing conflicts with cargo operations.

Phase I of HMP totals \$150 million. Projects include paving and strengthening improvements and property acquisitions at Kahului Harbor, Kalaheo Harbor and the former Kapalama Military Reservation; construction of a Kapalama container deep draft wharf and berthing for two container ships

and a 70-acre container yard with ancillary off-site improvements; utilities and a new fuel pier at Kalaheo West Harbor; a new pier and inter-island cargo handling yard at Pier 4 in Hilo plus acquisition of property for a third harbor entrance; expansion and extension of Pier 2 in Kawaihae Harbor; and construction of a new multi-use berth for additional liquid bulk cargo along the existing jetty at Nawiliwili Harbor in Kauai.

Harbors operating budget is \$75 million in FY 2009 and is expected to increase, as seen in Figure 53. Major expense categories include personnel, debt service, and special maintenance. Tariff increases implemented in March 2010 going forward will generate needed revenue.

Figure 56: Harbors Fund Expenditures



Source: HDOT Harbors Division Multi-year Financial Forecast, as of July 2009



HIGHWAYS SPECIAL FUND

Challenges

A key challenge facing the Highways Division is the decreasing availability of Federal program funds. Reauthorization of SAFETEA-LU has been delayed, and programs have been running under continuing resolutions since it expired in 2009. This has led to status quo funding at best, and in fact, reduced spending due to federal restrictions on spending. National Task Forces formed to address future needs have called for a substantial increase in the federal gasoline tax and an infrastructure bank to keep pace with the nation's needs for highways, bridges, and mass transit systems.

While Federal legislation for this has not moved forward, there was considerable relief in the form of economic stimulus bills with a component for road and bridge infrastructure. Hawaii received \$126 million in Federal stimulus funds, which was divided between the counties and the State. Stimulus monies were used for preservation projects and some new roads on Neighbor Islands.

Another challenge is that state funding has not been keeping pace with needs. At times past, the State General Fund borrowed from the Highway Special Fund, leaving a large

hole. New funds to replace this have not been forthcoming. Proposal to the Legislature to create a Highway Modernization Program, similar in concept to those in the Airport and Highway program areas, were not approved, at least to date.

Public-private partnerships have not proven to be a source of funding the way they have in some mainland states; most such ventures are limited to donation of land towards the state match of federal funds. In some instances, private developers have built improvements on behalf of the state and to state standards, which has proven beneficial to expediting project delivery. Congestions pricing has proven to be a very unpopular concept and received no political support to date, perhaps because few travel paths have a viable alternate routing.

Another looming concern is that some sources of funding into the Highway Special Fund were set to decrease in 2011 and 2012. To combat the State's budget deficit, the 2011 State Legislature increased the car rental surcharge from \$3 to \$7.50.

Photo: H-3 Freeway, Kaneohe, Oahu

Sources of Revenue

Highway Special Revenue Fund sources of revenue include Federal funds and fees generated from users. Operating funds in FY2009 are at \$196 million and are expected to remain flat for several more years due to the economic recession and its impact on state tax and fee revenues. The major sources are shown in Figure 54.

As can be seen in Table 13 and Figure 54, the gasoline tax (currently 17 cents per gallon), the weight and registration fees, and the \$7.50 car rental surcharge combined account for over ninety percent of the revenues going into the State Highway Special Revenue Fund.

Figure 57: Highways Operating Revenues

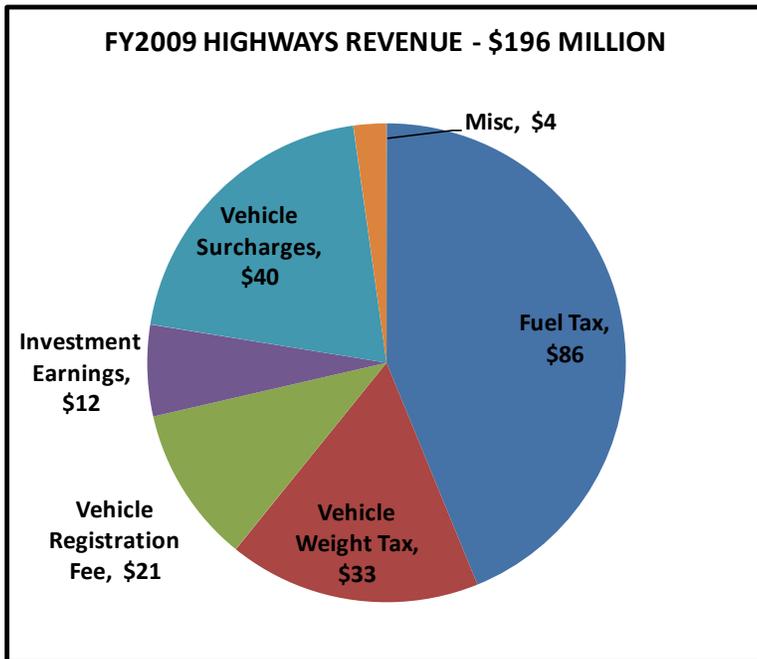


Table 13: Sources of HDOT Highways Revenues

Fuel tax revenues	\$86 million or 44%
Car rental surcharge	\$40 million or 20%
Vehicle weight tax	\$33 million or 17%
Vehicle registration fee	\$21 million or 11%
Interest earnings	\$12 million or 6%
Miscellaneous	\$4 million or 2%

Source: HDOT Highways Division, as of March 2010

Financial Systems



Hawaii's apportionments from the Federal Highway Trust Fund have averaged \$168.9 million annually for the past five years from FFY 2005-2009 as shown in Table 14. This is an aggregate total of \$844.7 million. Hawaii is classified as a "receiver" state, meaning it receives more in Federal Highway Trust Funds than it puts in.

Capital sources of revenue, in addition to Federal funds, are generally bond financed. In some years there have been private contributions such as those required from developers, usually constituting a match component.

Table 14: Highways Apportionments to State of Hawaii (2005-2009)

State of Hawaii USDOT FHWA Program	Federal Fiscal Year				
	2005	2006	2007	2008	2009
Interstate Maintenance	\$ 8,486,780	\$ 8,623,472	\$ 8,762,366	\$ 8,903,496	\$ 9,046,898
National Highway System	43,963,334	44,671,377	45,390,197	46,121,226	46,864,027
Surface Transportation Program	33,742,677	30,857,302	31,354,195	31,859,088	32,372,111
Bridge Replacement & Rehab	20,868,996	21,205,138	21,546,692	21,893,747	22,246,389
Congestion Mitigation & Air Quality	8,232,073	8,364,628	8,499,317	8,636,175	8,775,237
Recreational Trails	653,669	764,160	819,406	874,652	929,898
Metropolitan Planning	1,469,376	1,448,969	1,472,634	1,496,045	1,519,833
Safety	-	5,079,050	5,178,547	5,279,645	5,382,372
Rail Highway Crossings	-	1,100,000	1,100,000	1,100,000	1,100,000
Safe Routes to School	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
High Priority Projects	25,120,000	25,120,000	25,120,000	25,120,000	25,120,000
Equity Bonus	22,554,037	19,276,425	18,686,749	18,065,609	17,412,499
* Total	\$ 166,090,941	\$ 167,510,522	\$ 168,930,103	\$ 170,349,683	\$ 171,769,264
Annual % Change	n/a	0.9%	0.8%	0.8%	0.8%
Rate of Return (see Note)	183%	186%	180%	176%	175%

*Note: Rate of Return refers to state fund donor/donee status as a net contributor/receiver of Federal highway funds.
Source: Federal Highways Administration; <http://www.fhwa.dot.gov/safetealu/fundtables.htm>*

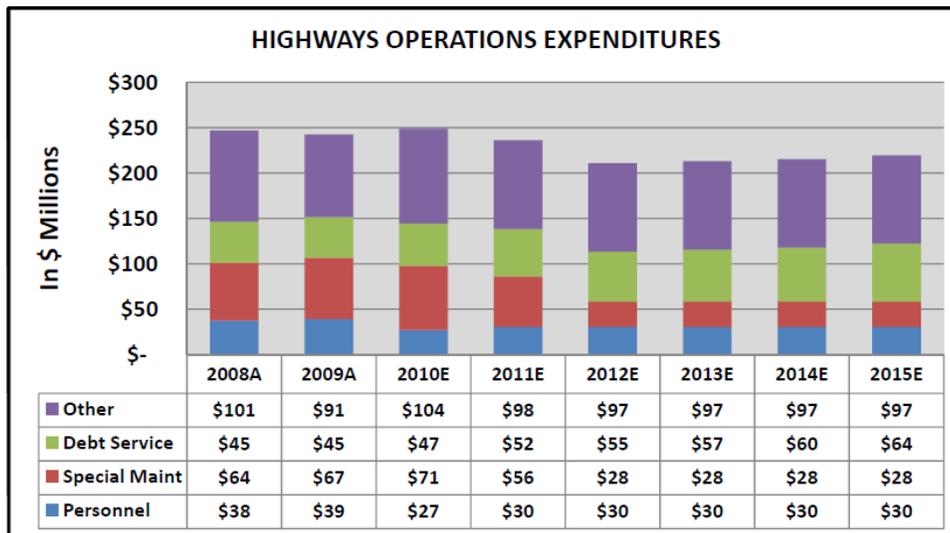
Photo: Pearl Harbor Interchange, Oahu

Expenditures

Expenditures in the Highways Division can be seen in Figure 55, totaling \$242 Million in Fiscal Year 2009. Expenditures include debt

service for general obligation and revenue bonds, special maintenance and personnel. Other expenditures include a required central services surcharge and departmental pro-rata shares.

Figure 58: Highways Fund Expenditures



Source: HDOT Highways Division Multi-year Financial Forecast, as of March 2010

TRANSIT FUNDS

Challenges

Hawaii's transit systems have been very resourceful in using federal formula funds and in seeking special earmarks for capital projects. County Councils have supported their transit systems operations and maintenance at large subsidy levels, allowing for system expansion and enhancements. Transit appears to be a very popular program throughout the counties.

Sources of Revenue and Expenditures

Federal funds available to Hawaii for transit come either from formula apportionment or from special earmarks. Most are formula grants from six different federal programs as shown in Table 15.

Two of the largest are Urbanized Area Formula Grants (Section 5307) and Non-Urbanized Apportionments (Section 5311 and 5340). Honolulu has also received formula funding for fixed guideway modernization and earmarks for bus acquisition and facilities and from the new starts program (all under section 5309).

Neighbor island systems receive additional funding from formula programs for Rural Transit Assistance (Section 5311), Job Access and Reverse Commute (section 5316), and New



Freedom (section 5317), as well as some earmark funds for bus acquisition and bus facilities (section 5309).

Local match funding varies between 20% and 50% of support for systems, typically derived from the General Fund and from fares (except in the case of Hawaii County, which was fare free until July 1, 2011).

Kauai Transportation

Kauai Transportation Agency handles both a fixed route and a paratransit service. The operating budget in FY 2010 was \$525,000, which comes from fares (66%) and general fund revenues (33%). Capital funds in FY 2010 were budgeted at \$2.4 million consisting of county funds and Federal grants, including the formula programs described above and a \$978,000 ARRA grant.



Photo: Kauai Transportation Agency Buses

Table 15: Federal Transit Administration FY 2009 Funding Summary for State of Hawaii Projects

State of Hawaii USDOT FTA Program	Type	FY2009	Notes
Section 5307 & 5340 Urbanized Area Apportionment	Formula	\$28,580,124	Areas 200,000-999,999 Population: Honolulu, HI
Section 5307 Urbanized Area Formula Program	Formula	\$2,479,241	Areas less than 200,000 Population: Kailua-Kaneohe, HI, Honolulu County
Section 5309 Fixed Guideway Modernization Apportionment	Formula	\$2,123,719	
Section 5309 Bus & Bus Facilities Allocations	Earmark	\$1,900,000	Rural Bus Program for Hawaii, Maui and Kauai
Section 5309 Bus & Bus Facilities Allocations	Earmark	\$1,300,000	Honolulu, HI Bus Facilities
Section 5309 New Starts Allocations	Earmark	\$14,850,000	Alaska and Hawaii Ferry Projects
Section 5309 New Starts Allocations	Earmark	\$19,800,000	Honolulu High Capacity Transit Corridor Project
Section 5311 & 5340 Non-Urbanized Apportionments	Formula	\$1,960,676	
Section 5311 (b)(3) Rural Transit Asst. Program (RTAP) Apportionments	Formula	\$84,132	
Section 5310 Special Needs for Elderly Individuals with Disabilities	Formula	\$665,421	
Section 5303 Metropolitan Transportation Planning Program	Formula	\$374,505	
Section 5304 Statewide Transportation Planning Program	Formula	\$101,472	
Section 5316 Job Access & Reverse Commute Apportionment	Formula	\$396,817 \$69,227 \$145,707	Honolulu, HI Governor Small Urbanized Areas Governor Non-urbanized Areas
Section 5317 New Freedom Apportionment	Formula	\$248,184 \$58,058 \$80,557	Honolulu, HI Governor Small Urbanized Areas Governor Non-urbanized Areas
Total		\$75,598,110	

Source: Federal Transit Administration

Financial Systems

City & County of Honolulu

The largest transit system within the state is in the City & County of Honolulu. In FY 2010, revenues were estimated at \$213.6 million for both the bus and the paratransit system. Revenues and expenditures are balanced each year through the City budget process. The major change anticipated is implementation of a rail transit system, funded from a dedicated General Excise and Use Tax (GET) surcharge of 0.5% on Oahu and from future Federal New Starts grants. The operations costs will shift once the rail system goes into operation, in approximately 2019.



Hawaii Mass Transit (Hele-On)

Hawaii Mass Transit operates a fixed route system around the island and offers a Shared Ride Taxi program. Up until June 30, 2011, there were no fares for the fixed route system, and the shared ride taxi fares are very low. Operations and maintenance of \$4.5 million come from the County General Fund. Capital funding of around \$2.5 million comes from County funds, Federal formula funds, and in FY 2010 an ARRA grant of \$978,000.

Photo Left: TheBus, City & County of Honolulu
Top Right Photo: Maui Bus Commuter Service
Bottom Right Photo: Hele-On, Hawaii Mass Transit



Maui Public Bus System

Maui public transit includes a fixed route service through several communities, Bus Commuter Service. Free paratransit service on fixed shuttle routes with $\frac{3}{4}$ mile diversion is privately contracted to Roberts Hawaii. In FY 2010 operating costs were \$11 million, of which came from \$1.2 million in fares and the rest from the General Fund. Capital expenditures totaled \$2.4 million coming from Federal formula funds, county matching funds, and an ARRA grant of \$978,000.



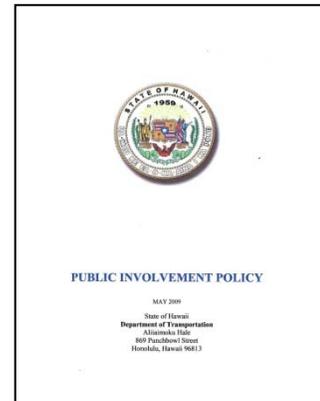
HAWAII STATEWIDE TRANSPORTATION PLAN: CHAPTER VII PUBLIC PARTICIPATION



INVOLVE STAKEHOLDERS AND THE PUBLIC IN PLANNING AND DECISION- MAKING

IMPROVING THE PUBLIC INVOLVEMENT PROCESS IN PLANNING

The Hawaii Department of Transportation (HDOT) issued public involvement guidelines in 2004 and again in 2009. SAFETEA-LU requirements for public involvement are contained in 23 CFR 450.208(a) (4), 210, 212 (g) and 216 (c). Most specifically, the federal requirements look toward early involvement, interactive participation, and greater use of visualization techniques in the planning process. The 2009 Guidelines for Public Participation are provided in Volume 3, Appendix 3.



Public Involvement During Preparation of the HSTP

During preparation of this update to the HSTP, several methods were used to make sure that members of the public, stakeholders, and interested parties were part of the plan formulation.

Website

Project materials, project history, and meeting notices are posted on a project website. The website was interactive by including a single question web survey that changed every few weeks and with a Contact Us section.

www.hawaiistatewidetransplan.com



Photo: Lava Flows, Hawaii Island

Public Participation



Stakeholder Interviews

Stakeholders were identified by the HSTP Team and interviewed and involved early during the preparation of the ten emerging issue papers. Several stakeholders served as volunteer reviewers of the draft emerging issue papers, and their input proved helpful.

Telephone Survey

A 1200 person statewide telephone survey was conducted from December 2009 to January 2010 to identify important issues early in the plan preparation process. The sample included cell phone users, who are an increasingly large portion of the population. All islands were part of the survey in a statistically significant size that allowed responses to be compared by island as well as statewide. The Survey questionnaire and results can be found in HSTP Volume 3, Appendix 4.

In-depth Interviews

In person interviews were held with individuals familiar with issues of the disadvantaged, minorities, and special needs populations. These interviews went beyond the random sample of the telephone survey. Interview Guide and results can be found in HSTP Volume 3, Appendix 5.



Public Informational Meetings

Five Countywide Public Informational Meetings (PIM) were held from August 2010 to September 2010 in Lihue, Kauai; Hilo and Kona, Hawaii; Kahului, Maui; and Honolulu, Oahu. Direct mail invitations were sent to multiple interest group mailing lists, by email, and through the counties' systems. Advertisement included banners, postcards, media releases, flyers, and newspaper advertisements in both the legal notice section and the community calendar section. Summaries of input from the PIM meetings can be found in HSTP Volume 3, Appendix 6.

Visualization

The Land Use Transportation connection was shown through animated visualization models during the public and stakeholder meetings. Each time it was tailored to the island where the meeting was being held. This seemed to hold great interest to the participants. Visualization techniques employed included colorful poster boards, illustrative land use maps, and a segment of the presentation was devoted to animated GIS layers for transportation, and application of the CommunityViz program for a sub-area on each island.

Photos from Maui Countywide Public Informational Meeting on HSTP, August 2010

Stakeholder Workshops

Three Stakeholder Workshops were held to discuss Goals & Objectives, Performance Measures, and Prioritization. The Stakeholder meetings included: transportation providers; environmental and public interest groups; and members of government Boards and Commissions. Several exercises were conducted.

Those who could not attend were mailed a survey on the Goals and Objectives exercises and invited to send back their responses. Summaries of input from the Stakeholder Workshops can be found in HSTP Volume 3, Appendix 7.

Coordination

As there were other transportation planning activities taking place simultaneously (such as OahuMPO Regional Transportation Plan, STIP, Statewide Pedestrian Master Plan, and Coordinated Services Plan), each of the plan sponsors was in close coordination. HSTP provided an umbrella explanation of all the plans, using the pyramid concept. HSTP storyboards were used at other meetings, and flyers were regularly distributed to inform people of upcoming opportunities for participation.



Left Photo: Oahu PIM Land Use Map Filmed for Olelo Public Access TV

Right Photo: Handing out Reply Systems Handheld Voting Devices, Maui PIM



Instant Voting

New technologies were tried, in particular electronic handheld voting connected to “Reply Systems” software that provided instant results. Results of the questions being answered were shown immediately and discussion about the results, yielding more in-depth information. The hand held voting proved easy to implement and an immensely popular form of interaction.

Special Needs

Special steps were taken to accommodate special needs. Invitation lists included all known groups and organizations that serve environmental justice communities. All facilities were accessible. One meeting was attended by a visually impaired person. The meeting materials were translated into Braille and staff assisted the person to make sure the participant was comfortable using the handheld device.

Public Participation

Public Access Television

The PIM meetings were recorded by the island public broadcast access television stations: Na Leo on Hawaii Island; Akaku on Maui; Hoike on Kauai; and Olelo on Oahu. Delayed broadcast and multiple showings by these stations proved to be cost-effective outreach. We envision a future where television can be both real time and delay rebroadcast, linking at-home participation with electronic voting.

Connecting Transportation with a Locally Made Product

The Countywide PIM meetings provided novel refreshments, locally produced gelato, on each island. These were coupled with a poster board linking transportation with goods movement for the product. The use of locally made refreshments was an excellent ice-breaker before and during the meeting and it encouraged discussion of sustainability practices. See HSTP Volume 3, Appendix 8 for examples of the education board connecting the gelato with goods movement.



Left Photo: Maui Transportation and a Locally Made Product Filmed for Akaku Public Access Television
Right Photo: Maui PIM Locally Made Gelato



Environmental Justice/Title VI Compliance

The HSTP is required to adequately address Civil Rights/Environmental Justice/Title VI in their requirements for Public Involvement. The HSTP Public Involvement Plan included identifying barriers to participation by using the guidance of the Hawaii Environmental Justice Report (2008). Efforts were made to identify minority and low-income populations as well as traditionally underserved populations. At times, this meant reaching out to advocacy organizations to find these individuals and to make sure their interests were included. Representatives from these targeted populations were included in the In-Depth Interviews in order to ensure that their input was considered in the HSTP.

The HDOT Civil Rights Office has a Voluntary Form for self identification of EJ populations, "Title VI Public Involvement Data Card." This was distributed at workshops, forums, and public information meetings and speaking engagements. It is a proactive way of measuring whether targeted populations are being reached.

HAWAII STATEWIDE TRANSPORTATION PLAN: REFERENCES

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Session Laws of Hawaii Act 254 (2007): Study on Energy Efficient Transportation
Session Laws of Hawaii Act 20 (2009): Scope and Impacts of Global Climate Change Trends in the State
Session Laws of Hawaii Act 54 (2009): Complete Streets
Session Laws of Hawaii Act 73 (2010): Energy Self Sufficiency and Food Security
Hawaii Revised Chapters: Chapter 279A, Statewide Transportation Planning
Hawaii Revised Chapters: Chapter 279-G, Ridesharing
Hawaii Revised Chapters: Chapter 226, Hawaii State Planning Act

Federal Laws

National Environmental Protection Act (NEPA)
Federal Aviation Administration, Advisory Circular 150/5070-6B Airport Master Plans
Federal Aviation Administration, Advisory Circular 150/5300-13 Airport Design Standards
Federal Aviation Administration, Advisory Circular 150/5340-1K Standards for Airport Markings
Federal Aviation Administration, Advisory Circular 150/5340-30D Design and Installation Details for Airport Visual Aids
Federal Aviation Administration, Advisory Circular 150/5340-18E Standards for Airport Sign Systems
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Federal Aviation Administration, Order 1050.1E—Policies and Procedures for Considering Environmental Impacts
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Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
Transportation Equity Act of 1998 (TEA-21)
Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005(SAFETEA-LU) (23 CFR 45)
23 CFR 45.214 (i) and (j): Natural Resource Agencies and Transportation Planning
23 CFR 45.208 (a) (4), 210, 212 (g), 216 (c) and 23 CFR 771.11—Integration of Transportation Planning and Land Use Planning
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Kauai Long Range Transportation Plan (1997)
Hawaii Long Range Transportation Plan (1998)

Transit and Bike Plans

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Public Transportation Plan for Maui (2003)
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County of Kauai General Plan, latest update 2000

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Hawaii Clean Energy Initiative Website
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HSTP Statewide Survey Report, May 2010
Chip Fletcher and Matthew Barbee, HSTP Issue Paper #2 on Climate Change and Sea Level Rise