Hawaii Statewide Comprehensive Economic Development Strategy (CEDS)

PREPARED BY

Office of Planning
DBEDT
THE DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
STATE OF HAWAII

Enterprise Honolulu

Hawaii Island Economic Development Board

Kauai Economic Development Board

Maui Economic Development Board

With the assistance of the
Economic Development Alliance of Hawaii

This report was prepared under an Award from the U.S. Department of Commerce Economic Development Administration.
Economic Development Administration Award No. 07 69 05370

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Office of Planning

The Office of Planning guides Hawaii towards a strong economy and a healthy environment by bringing people and ideas together to resolve immediate and long-term issues facing our state. The Office facilitates collaboration between local business, community groups, and State and County governments to collectively analyze issues and develop courses of action.

The Office of Planning is responsible for the State's planning, land use and coastal zone management programs and for developing and implementing a statewide planning and geographic information system.

This report was prepared by the Office of Planning, Department of Business, Economic Development & Tourism. The statements, conclusions, and recommendations are those of the author and do not necessarily reflect the views of the Economic Development Administration.

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FORWARD

The Statewide Comprehensive Economic Development Strategy (CEDS) demonstrates that the State of Hawaii has gone through a deliberative and thorough planning process to provide a framework for recommending projects for EDA funding. A CEDS is required as a precondition for funding under most EDA programs.

The report identifies industry clusters which provide economic competitive advantages for the State. Strategies and infrastructure projects to support and strengthen these industry clusters are proposed.

This strategy has been developed through a collaborative effort between the State Department of Economic Development & Tourism; Economic Development Boards; Enterprise Honolulu; County Economic Development Agencies; and community, business, non-profit and other organizations, and the public.

We express our appreciation to the many who participated in focus groups, stakeholder meetings and public workshops and contributed their time and effort in the development of this strategy. Ted Liu, Director, Department of Business, Economic Development and Tourism, provided consistent support for the project. We acknowledge the assistance of Gail Fujita, Economic Development Representative for Hawaii and Outer Pacific, EDA, throughout this process.

This effort is one component of the State of Hawaii's broader mission to strengthen and diversity Hawaii's economy while honoring our island traditions and protecting our fragile environment.

ABSTRACT

This report sets forth a strategy for economic development for the State of Hawaii which supports key industry clusters to increase Hawaii's economic competitiveness. The recommendations promote economic stability, economic diversification, and regional competitiveness. The report identifies infrastructure needs for targeted industry clusters and recommends projects which may be eligible for EDA funding to address these needs. The timeframe (short- or long-range) and potential matching funds are also identified for these projects.

The report was prepared by the State Office of Planning, Department of Business, Economic Development & Tourism and its sub-grantees-Enterprise Honolulu, Kauai Economic Development Board, Maui Economic Development Board and Hawaii Island Economic Development Board. The Economic Development Alliance of Hawaii served as the Oversight Comprehensive Economic Development Strategy (CEDS) Committee for this project. In addition, assistance and cooperation was received from the economic development agencies of each county.

EXECUTIVE SUMMARY

The Statewide Comprehensive Economic Development Strategy is a collaborative effort between the State of Hawaii, Kauai Economic Development Board, Maui Economic Development Board, Hawaii Island Economic Development Board, Enterprise Honolulu, the Economic Development Alliance of Hawaii, and the County Economic Development agencies. It is a groundbreaking effort to coordinate economic development strategy throughout the State.

The Economic Development Administration of the U.S. Department of Commerce provided funding to develop a Statewide Comprehensive Economic Development Strategy including capacity building to utilize cluster industry analysis as an economic development tool. There are two inter-related parts of this project: 1) the CEDS and 2) identification of cluster industries and infrastructure projects to support these industries over a five-year time period. A CEDS is required as a prerequisite for certain types of EDA funding.

The Federal grant was provided to assist the State after 9-11, SARS, and other events led to a substantial loss of travel to the Islands and subsequent economic dislocation. The funds were provided to help the State diversify and stabilize its economy. Hawaii's economy has rebounded from those shocks and is presently strong and healthy. Nonetheless, it is prudent to continue efforts to diversify and expand the economy.

Workshops, focus groups, and public informational meetings have been held extensively throughout the State to develop economic development strategies, identify targeted cluster industries, and recommend infrastructure projects to support these industries.

A kick-off workshop was held on January 9, 2004, and was attended by a diverse group of public, private, and community representatives. A panel addressed the question, "How do we protect Hawaii's host culture, working families and island environment while growing our economy?" Speakers provided Native Hawaiian, environmental and labor force viewpoints. Breakout sessions were held to obtain participant feedback on this question. The feedback indicated that it was essential for Hawaii's economic development to support the social, environmental, and cultural goals of Hawaii's people.

Key economic drivers for the State as a whole were identified. Tourism remains the dominant economic engine with one out of every three jobs directly or indirectly related to the tourism industry. Opportunities for diversification exist in the expansion of niches such as agricultural tourism, cultural tourism, educational tourism, health and wellness, tourism, eco-tourism and techno tourism.

Defense, agriculture, technology, life science/biotechnology, energy/renewable technologies, astronomy and space science, arts, film and entertainment, ocean industries, and forestry are other key areas of economic activity.

Enterprise Honolulu prepared the **Oahu** component of the Statewide CEDS and coordinated with the City and County of Honolulu Department of Community Development. Enterprise Honolulu has significant expertise in the use of cluster industry analysis toward the goal of promoting clusters that provide high skill, high wage jobs.

Four areas were targeted for Oahu:

- Diversified Agriculture
- Film and Digital Media
- Information CommunicationTechnology
- Life Sciences

Focus group meetings were held with stakeholders from each cluster to identify physical infrastructure needs, propose projects to address these needs and identify alternative sources of funding and/or matching funds for projects. A public informational meeting was held to obtain broader public input on economic development strategies and projects. An Oahu CEDS Committee was formed to review and provide input into the strategies and projects.

Some of the major projects recommended include:

- Projects to support agriculture such as **Inter-Island Ferry Facility Improvements; the Hawaii Seal of Quality Branding Program and Kapiolani Culinary Institute** to expand use of local produce.

- **Film and Digital Media Facility** to support Hawaii's film industry and to expand into the digital media industry which is a national growth industry.

- **Wireless Waikiki/Oahu** to provide the visitor with seamless and consistent access to the internet.

- Projects to support a **Life Science Cluster in Kakaako** to build upon the opportunities provided by the new campus of the John A. Burns School of Medicine including **Life Science Technician Workforce Training Facility** and adding an outpatient/cancer research facility to elevate the Cancer Center to a **National Cancer Institute designated Cancer Center.**

Kauai County supplemented the funding provided for the Kauai component of the Statewide CEDS to prepare the Kauai Economic Development Plan 2004-2014. The report was prepared by the Kauai Economic Development Board and County of Kauai Office of Economic Development.

There were focus group meetings, phone interviews and one-to-one meetings. A CEDS Committee was also formed.

Six clusters were identified for Kauai:

- **Food and Agriculture**
- **Health and Wellness**
- **Recreation**
- **Arts and Culture**
- **High Technology**
- **Renewable Energy**

Some of the capital improvement projects included:

- **Treatment, handling and packing facilities for agricultural products**
- **Certified commercial kitchen**
- **Health and wellness retreat center**
- **Haena State Park improvements**
- **Kokee State Park improvements**
- **Permanent fair grounds for cultural festivals**
- **Renewable energy park**

Major technical assistance projects included:

- **Conduct market studies for growers**
- **Produce a local farm/crop directory**
- **Form cluster working groups to coordinate stakeholders**
- **Provide marketing and business planning assistance to arts and culture enterprises**
- **Advocate for more legislative support on high technology issues**
- **Conduct study of best practices from around the world and future needs/market opportunities in renewable energy**

On **Maui,** ***Focus Maui Nui*** provided the foundation for this effort. *Focus Maui Nui* was led by the Maui Economic Development Board and Maui County. Approximately 1,700 residents were involved in an intensive participatory process to plan the future of Maui County. An advisory committee of 23 community leaders was formed. Activities included countywide, door-to-door canvassing, 167 participatory group sessions and 16 youth focused sessions. There was an effort to involve under-represented groups.

An Economic Summit was held in January 2004. The following areas were identified as growth clusters:

- **Agriculture**
- **High Technology**
- **Film, Entertainment, Arts**
- **Health**
- **Sports**
- **Visitor Industry**

In addition, the community wanted to focus on small town retail revitalization.

The Maui Economic Development Board conducted focus groups meetings for each of the growth clusters. The focus groups included representation from the Islands of Maui, Lanai, and Molokai. Participants were asked to consider physical infrastructure needs for the cluster, recommend infrastructure projects to support the cluster, and identify potential sources of funding. A Maui CEDS Committee was formed to review and provide input into the recommendations and projects.

Some of the major projects recommended include:

- **Maui County Water Plan**
- **Agriculture Academy**
- **Film, Entertainment, Arts Market Study**
- **Molokai Culture and Arts Center**
- **Digital Media Multipurpose Center**
- **Expand/Develop Hospital Space**
- **Lanai Women's Center**
- **Health Careers Academy**
- **Mechanist Fabrication Facility**
- **Facility at Maui R&T Park**
- **Trolley Program for Central Maui**
- **Sports Strategic Plan**
- **Spring Training/Olympic Training Facility**
- **Greenways Feasibility Study**

In **Hawaii County**, the preparation of the Statewide CEDS dovetailed with the update of the County of Hawaii CEDS. The Hawaii Island Economic Development Board (HIEDB) had begun the update of the County of Hawaii CEDS in coordination with the County of Hawaii Department of Research and Development. Conferences, workshops, and visioning sessions preceded the formulation of the CEDS. The Renaissance Workshop involved community, environmental, social services, business, academic, and cultural leaders in a discussion on values and future scenarios. In formulating the CEDS, HIEDB conducted a series of public workshops in various communities throughout the Island, formed a County of Hawaii CEDS, and conducted research and analysis. HIEDB obtained additional public input and coordinated the integration of the county CEDS into the Statewide CEDS.

The following cluster industries were targeted:

- **Visitor Industry (Heritage Tourism and Cruise Industry)**
- **Agriculture**
- **Science and High Technology**
- **Education**
- **Health and Wellness**
- **Energy Development**

Some of the major projects recommended include:

- **Cruise Ship and Super Ferry Infrastructure**
- **Science and Technology Innovation Centers**
- **Agricultural Products Marketing Facility for collection, consolidation, packing and shipping of products**
- **Water Delivery Systems for former plantation communities**
- **Art and Environmental Education Campus at the Volcano Art Center**
- **Solid Waste Diversion**
- **Pacific Area Center for Emergency Management**

A Statewide Wrap Up Workshop was held on October 8, 2004. Presentations were made by each of the subgrantees on the draft findings and recommendations and there were breakout sessions for public input.

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CHAPTER 1 PURPOSE OF THE REPORT

Public Law 105-393, the Economic Development Administration Reform Act of 1998, a comprehensive amendment of the Public Works and Economic Development Act of 1965, as amended, requires a Comprehensive Economic Development Strategy (CEDS) to qualify for assistance under most Economic Development Administration (EDA) programs.

The EDA works to ensure that no geographic or demographic sector is left behind when it comes to participating in the American dream.

EDA projects/programs are intended to alleviate conditions of substantial and persistent unemployment and underemployment in economically-distressed areas or regions; help diversify economies in areas experiencing economic dislocation; promote economic self-sufficiency; and result in an environment where higher skill, higher wage jobs are created.

The State of Hawaii has received EDA funding to prepare 1) a CEDS/ Economic Diversification Plan and 2) a cluster industries infrastructure development strategy.

CEDS/ECONOMIC DIVERSIFICATION PLAN

Hawaii's economy is heavily reliant on the visitor industry. This reliance on a single industry makes Hawaii vulnerable to economic shocks. Recent events such as 9/11, SARS and the war in Iraq, which led to a substantial loss of travel to the islands, drove home more forcefully the need to diversify Hawaii's economy. Further, the shift in Hawaii's economy due to the closing of sugar and pineapple plantations has left many rural areas in dire straits. An overarching strategy is needed to concentrate and focus efforts statewide. This project will assist the State in facing recent events and the need to redirect Hawaii's economy. The CEDS will work to provide a vision to guide the State through these difficult times. The State does not currently have a CEDS. The State is required to utilize the four County CEDS in preparing the Statewide CEDS. Each of the Counties will be a partner in this effort. In addition, a CEDS Committee will be formed to oversee the CEDS process. Federal law requires a CEDS to qualify for assistance under most EDA programs.

ECONOMIC STRATEGY BASED ON CLUSTER INDUSTRIES

There are a number of types of economic development strategies that a state can pursue:

- export-oriented
- import substitution including a stoppage of leakage from the local economy
- a combination of economic development strategies.

The EDA and many other economic development organizations have found that pursuing an economic development strategy based on industry clusters can increase a state or region's competitive advantage. "Clusters," a new way of thinking about the building blocks of an economy, are groups of businesses or industries concentrated in a geographic area that are interrelated through alliances, competition or buyer/supplier linkages and draw upon common talent, technology and support base. Economic development efforts should be aimed at building and strengthening key clusters, not just specific firms. Clusters can be used as an analytic tool to better understand the economy and employ resources strategically; an organizational tool; and a service delivery tool. In addition, infrastructure development is a significant way in which a community can support industry clusters.

EDA has provided funding to the State of Hawaii to build capacity and knowledge of cluster industries as an economic development strategy and to begin to target infrastructure to support these clusters. These funds will be used to contract with the four County economic development boards to identify industry clusters in their geographic areas using available analytical tools; to identify physical infrastructure projects needed to support these clusters; and to recommend sources of financing for these projects.

Examples of industry clusters and possible infrastructure supports are shown below.

Clusters	Infrastructure
Information Technology & Telecommunication	Fiber Optic Networks Satellite Links, Wireless
Biotechnology Medical & Health Care	Research Parks with Wet Labs Life Science Research Facility
Defense & Dual Use Technology	Business Incubators for Defense Contractors
Earth, Ocean & Space Sciences	Astronomy Support Facilities Marine Science Research Facilities Agricultural Testing Facilities Renewable Energy Labs

PLANNING PROCESS

1. Conduct initial scoping workshop, January 9, 2004.
2. Draft statewide goals, policies and strategies for key clusters-Office of Planning, Department of Business, Economic Development & Tourism (DBEDT).
3. Conduct focus group/stakeholder meetings and draft reports on county industry clusters, strategies/recommendations and infrastructure needs-County Economic Development Boards and Enterprise Honolulu in coordination with county agencies.
4. Public informational meetings conducted in each County-County Economic Development Boards and Enterprise Honolulu.
5. Incorporation of public comments-County Economic Development Boards, Enterprise Honolulu and Office of Planning, DBEDT.
6. Final county reports on industry clusters, strategies/recommendations and infrastructure needs and integration into Statewide CEDS-County Economic Development Boards and Office of Planning, DBEDT.
7. Public meeting on Statewide CEDS.
8. Review by Statewide CEDS Committee.
9. Review by DBEDT.
10. Submittal to EDA.

CEDS COMMITTEE

As required as a condition of the grant, a CEDS Committee has been formed. The CEDS Committee will advise the Office of Planning, DBEDT throughout the process. Members are listed at the beginning of this report. The Economic Development Alliance of Hawaii served as the CEDS Oversight Committee for this process.

CHAPTER 2 HAWAII'S ECONOMIC STRENGTHS, CHALLENGES, ISSUES

Hawaii has numerous strengths that have helped grow and sustain its economy.

GEOGRAPHY AND INFRASTRUCTURE

- Hawaii's strategic mid-Pacific location makes it ideally suited to serve as an international bridge to Asia-Pacific markets.
- Hawaii's trans-Pacific fiber and satellite connectivity make our island community an increasingly important node on the global information superhighway. Already a number of multinational companies use Honolulu as their Pacific regional headquarters, partly because of Hawaii's excellent telecommunications link with the rest of the world. Our high-speed data processing and supercomputing facilities give us parallel processing capabilities that can serve a broad range of industries.
- Hawaii's geography works to very good advantage for aquaculture, astronomy, tropical agriculture and renewable energy resources such as solar, wind, geothermal, ocean energy and biomass. Advances in each of these fields have helped establish Hawaii as a center for scientific research and development.
- Hawaii is home to the world's premier sites for research, demonstration and development in astronomy, oceanography, and land-based geophysics.
- Hawaii's climate provides advantages for diversified agriculture.
- A base of defense/dual use activities is in place.
- Strong visitor industry infrastructure, e.g., resorts, attractions, activities, services and a knowledge bank of tourism experts.

LIFESTYLE/WORKFORCE ADVANTAGES

- Hawaii has a stable economic and political climate as part of the U.S. legal and economic system.
- The education level of the work force is among the highest of all the states. One in four of Hawaii's population over 25 years of age has completed college, ranking our state fifth in the nation. Eight out of ten have completed high school.
- Hawaii has a high quality of life with clean air and water and sunshine and clear skies year-round.

- Hawaii is a safe place to live. Honolulu has the lowest violent crime rate in the United States for cities of over 500,000 people.
- The life expectancy of Hawaii residents is the highest in the United States, reflecting not only the quality of life but also the quality of health care facilities.
- Hawaii offers a comprehensive and ever-growing range of medical expertise and services. Acute care patients throughout the Asia-Pacific region come to Hawaii for its exceptional medical technology.

ECONOMIC CHALLENGES

Economic Dislocation/Diversification/ Economic Stability

Hawaii's economy has moved from agriculture to a service industry based primarily on tourism. Recent shocks to the economy have included 9/11, SARS, and the war in Iraq. Hawaii is becoming increasingly vulnerable. The State is working to diversify the economy while supporting the visitor industry.

Hawaii is also an isolated, island state. Events such as the negative economic effects of oil price spikes, international events that reduce visitor arrivals, and longshoreman strikes drive home the need for greater self-sufficiency and import substitution. Hawaii has no fossil fuel resources and has become overly dependent on imported oil. The State uses oil for almost 90% of its energy needs. As such, the State has emphasized renewable energy and energy conservation programs and programs to reduce the dependence on imported oil. The State's efforts to develop a future hydrogen economy based on hydrogen produced by renewable energy are also directed toward greater self-sufficiency.

With its population on six islands, Hawaii relies on airline service more than any other state, with the possible exception of Alaska. Airlines provide virtually all intrastate passenger service between the islands. Interisland air service is critical to the economy as a link for business travel, commuting for work between islands, carrying visitors between islands and for high priority or perishable cargo. It is also the only way for most Hawaii residents to visit family and friends on a Neighbor Island. Recent fare increases, schedule cutbacks and the bankruptcy of one of the two principal carriers have economic effects and highlight Hawaii's need for interisland air service.

Hawaii's passenger and priority cargo connections with the rest of the United States and internationally are also by air. The number of overseas flights and availability of airline seats depends primarily on conditions in the tourism market, but as load factors increase as airlines seek to maximize efficiency,

some potential visitors may be discouraged from coming to Hawaii if seats are not available. It may also be difficult for business travelers on short-notice trips to fly to or from Hawaii.[1]

Agricultural self-sufficiency and food security are also areas which the State is examining. Agricultural programs such as "buy local" help to develop markets which in turn support agricultural self-sufficiency.

Several national organizations have articulated an alternative approach to economic development which relies less on attracting more export income and more on reducing imports and reducing the "leakage" of financial resources outside of the community. Common strategies include buying local rather than imported products (i.e., local produce from Farmers' Markets), and reducing energy imports by producing electricity from local renewable sources. It is generally accepted that a greater proportion of the revenue generated by small businesses stays in the community and circulates, creating secondary employment.[2]

Distressed Areas/Populations in Need

Many EDA programs are directed at those in need. Overall Hawaii's economy is doing well with unemployment rates lower than those of the U.S. as a whole. However, there are pockets of distressed areas and other less visible areas of concern that should be taken into consideration by EDA.

Areas with High Unemployment

			Below Poverty Level	
Census Tract	Resident Population	Unemployed	Families	Persons
Kau	5,827	16.1%	16.8%	23.9%
Molokai Island	7,404	11.2%	15.8%	21.4%
Waianae Kai	5,480	20.5%	30.6%	30.2%
Waimanalo	5,775	8.4%	6.6%	10.5%
Waimanalo Beach Homesteads	4,386	7.8%	5.3%	8.3%
Hana	1,855	6.3%	15.7%	17.4%

Source: U.S. Census, Selected Characteristics for Selected Places: 2000

High "Involuntary Part-Time Workers"

Hawaii has the highest number of "involuntary part-time" workers (those who are working part-time but would prefer full-time work) of any state in the

nation and lower wage levels than the national average in spite of a higher than average cost of living.[3]

A "Living Wage" in Hawaii

According to the federal poverty measure, a family of three in Hawaii earning above $17,550 is deemed to be "not poor". However, according to the report, The Self-Sufficiency Standard for Hawaii, a single parent with one preschooler and one school-age child in Hawaii County needs an annual income of $31,903 to meet their basic needs. A single parent with one preschooler and one school age child, living in the most expensive area, the City of Lahaina in Maui, requires $51,002 to meet basic needs. Thus, the family living in the least expensive area, Hawaii County (excluding Kamuela, Kailua-Kona, Keauhou and Holualoa) is more than double the poverty line. The family living in the most expensive area, Lahaina, is almost three times above the federal poverty measure.

However, as the following chart shows, only two of the ten largest occupations in Hawaii pay above these levels.

Wages of Hawaii's 10 Largest Occupations: 2000

		Average Wage	
Occupation Title	Employment	Hourly	Annual
Comb. Food Prep. & Serving Workers incl. Fast Food	25,440	$6.33	$13,156
Retail Salesperson	22,690	$9.40	$19,548
Janitors & Cleaners, ex. Maids & Housekpg. Cleaners	12,880	$8.74	$18,174
Cashiers	12,480	$8.75	$18,198
Waiters & Waitresses	12,400	$8.75	$18,198
Office Clerks, General	12,050	$11.02	$22,925
Maids & Housekeeping Cleaners	11,310	$10.93	$22,734
Security Guards	9,280	$8.83	$18,372
General & Operations Mgrs.	7,770	$33.14	$68,933
Registered Nurses	7,740	$26.46	$55,043

Annual Wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly mean wage published, the annual wage has been directly calculated from the reported survey data.

Source: Research & Statistics Office, Hawaii State Department of Labor and Industrial Relations, March 2002 as cited in The Self-Sufficiency Standard for Hawaii prepared for the Hawaii State Commission on the Status of Women, April 2003.

Hawaii's Unique Challenges:

Hawaii has a small and isolated population that limits market scale, competition and expansion in many industries.

Hawaii's geographic location adds costs and limitations to transported goods and sometimes creates barriers to market entry.

Hawaii has a uniquely undiversified and heavily service-oriented economy supplied by high concentrations of low-wage workers and susceptible to dramatic ups and downs.

Hawaii's culture is unique. It includes a strong affinity to place and family ties that can lead to intentional economic immobility, highly peer-influenced consumer choice and reliance on social capital.

Hawaii's industries are grounded in a unique economic and political history. For example, the prominent role of organized labor, the rights of indigenous peoples, and our experience with speculative foreign investments continue to shape our approach to economic development.

When the most recent available data were collected, Hawaii was still emerging from the longest economic slump in its history while the mainland U.S. was finishing a period of unprecedented, sustained economic growth. As a result, comparisons between Hawaii and the U.S. are dubious for certain indicators.

Source: A New Economy in Hawaii, Hawaii Institute for Public Policy, March 2003.

CHAPTER 3 VISION

A. Increased and diversified employment opportunities to achieve full employment, increased income and job choice and improved living standards for Hawaii's people.

B. A steadily growing and diversified economic base that is not overly dependent on a few industries and includes the development and expansion of industries on the neighbor islands.

C. An economy that preserves and enhances Hawaii's environment and quality of life. (The Hawaii State Plan)

CHAPTER 4 INDUSTRY DRIVERS: TOURISM/ VISITOR INDUSTRY

The tourism industry in Hawaii is a mature industry and is the State's largest industry cluster. Tourism is the chief generator of employment for Hawaii's people. Approximately one out of every three jobs is directly or indirectly related to the tourism industry. The tourism industry generates numerous indirect effects on the economy through transportation, retail trade, construction and professional services.

In 2001, DBEDT projected that tourism accounted for $14 billion in spending which supported 25.6% of total state jobs. In addition, it was projected to produce $7 billion or 18.8% of the Gross State Product and $906 million or 20.6% of the total tax revenues to the state and county governments.[4]

The Hawaii Tourism Authority (HTA) undertook a planning process which analyzed Hawaii's visitor industry, sought extensive public input and resulted in a plan for Hawaii's Visitor Industry—Ke Kumu, Strategic Directions for Hawaii's Visitor Industry. The HTA is undertaking an update of the 2002 Ke Kumu and may be revised through the current update effort. The following summary analysis and recommendations are from Ke Kumu. In addition, a Sustainable Tourism Study is underway which will also provide guidance to the visitor industry.

In 199l, after enjoying strong and sustained growth in tourism for more than 30 years, Hawaii experienced the beginning of a decline in visitor arrivals. Tourism in Hawaii is now at a critical stage of its lifecycle and operates within global and local environments that are vastly different from those which allowed it to prosper in the past.

The global economy has changed the competitive framework for Hawaii tourism. Hawaii now has relatively new and formidable competitors in several market areas that are investing heavily in promotion and product development. Technology and consolidation of travel distribution systems are changing the way people make travel decisions and book their trips. Domestic and international airlines are forming alliances to develop the most competitive routes.

Resident and visitor population growth and development have changed the needs and desires of Hawaii's people. As an island state, Hawaii faces a natural constraint on the development and use of its resources. Future population growth and economic development will require more coordinated planning than has occurred in the past in order to create the right balance between achieving economic objectives and sustaining Hawaii's natural and cultural resources.

The visitor industry experienced a dramatic change as a result of the terrorist attacks on September 11, 2001. Safety of air travel emerged as a major consumer concern. Because of the sharp drop in demand, many airlines had to reduce flight schedules and lay off employees.

Ke Kumu: Strategic Directions for Hawaii's Visitor Industry sets forth the following initiatives to keep Hawaii's tourism industry strong and viable.

Strategies:

1. **Communication and Community Relations**
   -Provide and support communication, education and outreach efforts to enhance understanding of, support for, and participation in tourism by residents, business community, visitor industry and government agencies.

2. **Leisure Marketing**
   -Promote Hawaii as a preferred destination for leisure tourism by increasing promotional presence and brand identity to more globally competitive levels that optimizes performance in each Major Market Area.

   -Structure marketing efforts to stimulate demand during shoulder periods (spring and fall).

   -Leverage HTA resources for brand marketing by collaborating with tourism and other business partners on cooperative programs.

3. **Business Tourism Marketing**
   -Promote Hawaii as a preferred destination for business tourism by increasing media awareness and brand identity on a global basis.

4. **Sporting Events**
   -Develop a comprehensive portfolio of sporting events that 1) generate awareness of the Hawaii brand and establish Hawaii as the preferred destination for high-profile, quality sports events through national and international media exposure; and 2) attract visitors to Hawaii as participants and spectators.

5. **Tourism Product Enrichment & Diversification**
   -Diversify and enrich Hawaii's tourism product by developing new and enhancing existing community-based tourism events, experiences, attractions and projects related to the niches of agriculture, culture, education, health and wellness, nature and technology to complement

Hawaii's traditional resort product and assist in overall economic diversification.

6. **Airlift**
   -Facilitate sustainable growth in airlift to Hawaii that enhances business relations between the air carriers and State of Hawaii.

7. **Advocacy and Representation for Tourism**
   -Provide advocacy and representation for the natural environment and public recreational areas, tourism investment, tourism-related infrastructure, and tourism support services for the purpose of strengthening the industry, enhancing the Hawaii visitor experience, and enriching residents' quality of life.

8. **Long-Range Planning**
   -Perform long-range planning for a strengthened visitor industry that will significantly contribute to the state's economy, benefit Hawaii's community, and sustain Hawaii's natural and cultural resources.

Ke Kumu sees the tourism industry as contributing to the diversification of Hawaii's economy. The following are niches that could be developed to diversify and enrich Hawaii's tourism product.

AGRI TOURISM

Hawaii has a rich agricultural tradition ranging from ranches, farms and plantations to fishponds, taro lo'i and coffee fields. The islands' unique climate and year-round growing season, coupled with the resources of the University of Hawaii (UH) and inventory of agricultural land provide vast potential for this form of tourism which could be combined with health, adventure, cuisine, cultural, eco-, and edu-tourism activities.

The following are actions which could be explored by government, the private sector, and the community to expand this niche.

-Create menus of experiences to make it easier for visitors to purchase agri-tourism experiences and products.
-Promote the value-added component of agricultural products.
-Promote cuisine related to Hawaiian products.
-In conjunction with the local communities, advocate, Bed and Breakfasts, Country Inns, Farm Stays and other Ag Tourism initiatives which clearly are a component of agriculture production and could enhance the value and success of the ranches and farmers of Hawaii.
-Combine agricultural experiences with health, adventure, culture, eco-, and edu-tourism activities.

CULTURAL TOURISM

Hawaii is one of the most culturally diverse places in the world. We have a unique host Hawaiian culture and our Aloha Spirit is acclaimed the world over. A number of major and community festivals are held each year which contribute to reinforcing pride in a community while also providing economic opportunities and benefits. Multi-cultural and traditional western cultural resources co-exist and Hawaii's high levels of artistic achievements are unparalleled.

The following are actions which could be explored by government, the private sector and the community to expand this niche.

-*Support major festivals that will attract participants and spectators, increase the appeal of the State as a destination for cultural activities, provide added value for the residents of the State, and assist in overall economic diversification.*
-*Create and support cultural events that engender community support and complement the visitor's entertainment calendar.*
-*Provide resources for community-based cultural initiatives.*

EDU-TOURISM

There is much to learn in Hawaii through formal educational forums as well as "soft programs" such as Pacific cuisine culinary classes, the Hawaiian EdVenture program, and others. Programs involving school children and their parents coming to Hawaii for educational excursions offer exceptional potential particularly from Japan.

The following are actions which could be explored by government, the private sector and the community to expand this niche.

-*Integrate the tourism marketing objectives with those of the academic and learning communities to achieve the goals of the HTA with a focus on statewide synergy.*
-*Foster partnerships of the visitor and education communities benefiting both visitors and residents alike.*
-*Develop programs to attract out-of-state visitors to Hawaii for educational purposes.*
-*Create packages and partnerships with airlines, travel agents and wholesalers.*
-*Develop programs and activities to expand product offerings in this area.*

HEALTH AND WELLNESS TOURISM

Hawaiian, Asian and Western cultural, spiritual and medicinal resources and practices currently flourish in Hawaii. Hawaii's healthy climate and environment provide an ideal relationship with "lifestyle" activities.

The following are actions which could be explored by government, the private sector and the community to expand this niche.

-Focus on wellness rather than the tertiary care aspects of health tourism.
-Integrate aspects of health tourism with other tourism products such as sports, agriculture, ecology, culture and technology.
-Create programs that relate complementary medical practices to traditional western medical care.
-Facilitate and develop partnerships of the visitor and health and wellness communities to provide expanded product offerings and visitor attractions.
-Establish programs based on telemedicine and dissemination of health care.

ECO-TOURISM

Hawaii's unique and beautiful settings provide a wide range of ecosystems. From unequalled ocean resources to majestic canyons and mountains, Hawaii offers both visitors and residents alike diverse nature experiences.

The following are actions which could be explored by government, the private sector and the community to expand this niche.

-Support programs that aid visitors and residents in understanding and appreciating Hawaii's unique environment.
-Support activities that promote conservation and sustainability of Hawaii's natural resources through conservation programs.
-Encourage synergy with the worldwide interest in ecologically responsible and economically sustainable tourism.
-Advocate changes in constraining laws that will encourage capital investments in resources and private lands for eco-tourism product development reducing pressure on public lands.

TECHNO TOURISM

Over the last several years, an infrastructure for high technology has been developed in Hawaii. There is a significantly growing reason for visitors to come to Hawaii to utilize these resources and participate in conferences and symposiums related to these areas. Recognizing the full spectrum of technology resources in Hawaii is key to enhancing Hawaii's business image,

accommodating science and technology conferences, as well as diversifying the economy and creating jobs.

The following are actions which could be explored by government, the private sector and the community to expand this niche.

-Integrate tourism marketing objectives with those of the science and technology communities to achieve the overall goals of Ke Kumu, with a focus on statewide synergy.
-Establish partnerships with non-profit and community organizations designed to leverage state funding with that of the federal and private sectors.
-Foster partnerships to provide for visitor attractions of technology venues.
-Market existing and emerging visitor centers.
-Integrate Ke Kumu objectives with those of the science and technology communities to provide for trade shows, seminars, expositions and visitor centers that will enhance Hawaii's business image.
-Establish marketing and business attraction programs that will increase tax revenues to Hawaii by attracting incremental and diversified businesses, thus stimulating job creation as well as an increase in visitor expenditures.

CHAPTER 5 INDUSTRY DRIVER: DEFENSE

Defense spending in Hawaii was $4.4 billion in 2000. Defense expenditures are second to tourism in terms of economic contribution to the State. Defense spending in Hawaii accounts for 10% of gross state product versus 20% for tourism.

Congress appropriated more than $772.3 million for military construction and other programs and projects for Hawaii's military and defense related agencies in the FY04 Defense Appropriations Bill. This included support for the Stryker Brigade Combat team in Hawaii, new infrastructure on Hickam Air Force Base to accommodate eight of the Air Force's C-17 transport aircraft and design work for a Biomedical Centre for Tripler Army Medical Center that would permit a fast response capability to a bioterrorists attack in Hawaii and enhance the ability of Tripler to address emerging infectious disease threats in the Pacific Rim.

The FY04 Congressional appropriation will bolster the more than $3.0 billion in ongoing defense related projects, such as the Ford Island Redevelopment project, redevelopment of military residential communities on military bases and redevelopment of the Moanalua Shopping Center complex. In addition, a new headquarters building for the U.S. Pacific Command was dedicated at Camp Smith.

Decisions on global repositioning of U.S. defense forces are forthcoming as there are strong indications that air, land and sea forces will be strengthened in the Pacific. This includes the possible positioning of an aircraft carrier battle group at Pearl Harbor.

The State of Hawaii Department of Defense plans a number of initiatives that will enhance the State's economy over the next decade.

Partnership in Peace. The Hawaii Army National Guard (HIARNG) is involved with the Philippines and India to establish relationships through military exchanges and exercises.

Military Deployment Training Exercises. The HIARNG will participate in Tiger Balm (Singapore), Yama Sakura (Japan) and Pacific Reserve (Australia).

Fire Training Academy, Kalaeloa. The HIARNG, in partnership with the Seafarers International Union, will provide simulation, classroom and live fire training for the National Guard and civilian firefighters.

The HIARNG is standing up Chemical, Biological, Radiological, Nuclear Enhanced Readiness Forces Package Teams to enhance their support

capabilities. Joint Homeland Security/Weapons of Mass Destruction joint training is planned at the HIARNG Regional Training Institute at Bellows AFS in Waimanalo. The HIARNG is part of the Army aviation transformation plan for both fixed and rotary wing aircraft. The HIARNG will be part of the National Guard Bureau force structure realignment plan in order to better provide and support the combatant commanders.

HIARNG is constructing a new Army complex in Puunene, Maui and a new Military Training Complex at Kalaeloa. Under design are the 29th Infantry Brigade and the 29th Support Battalion headquarters. A new State Emergency Operating Center and Aviation Support Facilities is being planned.

A new squadron of C-17's will be based at Hickam AFB. The C-17's will be maintained by the HIARNG. The building of several large facilities to accommodate the C-17's infrastructure will provide positive economic impacts to the State.

Federal research and development (R&D) projects in Hawaii in related areas of defense, medicine, agriculture, ocean sciences and UH programs have exceeded $1 billion in appropriations.[5] Federal agencies such as the Defense Department, NASA, and the Commerce and Energy departments have focused on programs and facilities that not only meet national security objectives but also have early and feasible application to civilian and commercial use. The rationale is that industry gets the opportunity to commercialize government R&D and federal agencies can draw from a broader commercial technical base and receive royalties should the commercialization result in a commercially successful product or service.

An example is the UH Free-Electron Laser Laboratory, Active Hyperspectral Imaging Sensors (AHI) project, led by Professor John Madey and funded by the U.S. Army Space and Missile Defense Command. The project will develop a prototype sensor for detection of short-lived radioactive materials and testing of nuclear weapons. The AHI project is collaborating with the Pacific Missile Range and TREX Enterprises to explore new remote sensing capabilities with wide ranging uses in both civilian and defense sectors, including advanced medical diagnostics, advanced cargo and personnel screening systems for airports and other U.S. ports of entry, and advanced laser radar systems for ballistic missile and air defense systems.

Homeland Security is a related area of opportunity. Following 9/11, homeland security and anti-terrorism has become the subject of tremendous focus and investment. There are estimates of $40 million or more per year for investments in R&D and solutions. The commercialization of defense-related technologies for homeland security and anti-terrorism use is an area in which Hawaii has existing unique competitive advantages.

Federal projects that relate to or promote high technology development in Hawaii include the following.

-Air Force Space Command - Haleakala
-Akamai/Pacific Medical Network
-Center of Excellence for Research in Ocean Science (CEROS)
-Pacific Missile Range Facility
-Maui Supercomputer and the Maui High Performance Computing Center
-SLICE Vessel
-Pacific Disaster Center
-U.S. Pacific Basin Agricultural Research Center
-Agriculture-Based Bioremediation

Strategies

-Support a large military presence in Hawaii consistent with their missions, plans and policies, and consistent with Hawaii's environmental concerns and community values.

-Support additional investment in and commercial use of dual-use facilities and research.

-Review official mandates or procedural directives relating to the commercialization of Federally funded projects.

-Investigate Hawaii-based projects and Hawaii impacted nationally-based programs to ascertain technological and commercialization potential.

-Assess Hawaii's natural, physical and human resources to determine levels of interest of capabilities to pursue identified opportunities or develop new compatible ventures.

-Support a collaborative effort between all sectors of government, the UH and private enterprise to encourage Federal input with regard to the State's world premier facilities at the Mauna Kea observatories, Maui Supercomputer and Pacific Missile Range of Kauai, together with research and development advances in such areas as ocean science, remote sensing, data archiving, telemedicine and telecommunications.

-Develop workforce skills that will support technology-based ventures.

-Capitalize on existing assets and recent emphasis on Homeland Security to promote Hawaii as a ***Center of Excellence for Homeland Security*** *Anti-Terrorism Best Practices. Based upon this center, position and promote Hawaii as an international education, training, briefing and information center for Asia-Pacific Homeland Security.*

CHAPTER 6 INDUSTRY DRIVER: AGRICULTURE

In 2000, agriculture was 3.1% of Hawaii's gross state product and contributed $2.4 billion in sales and 38,850 jobs. The agricultural industry in 2002 was valued at $536 million, the highest level recorded in eleven years.[6]

In Hawaii, there are few mid-sized farms. There is a predominance of small farms. Most farms report off-farm income. There are few full-time farmers. There are more farms with leases than the U.S. average.

It is clear that the public recognizes the need for a healthy agricultural industry. In 1978, the Hawaii State Constitution was revised to add Article XI, Section 3, which mandates, "The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands." In 2002, the People's Pulse survey, sponsored by Enterprise Honolulu and the Hawaii Business Roundtable, showed that 90 percent of the people surveyed said the State should help agribusiness grow.

Agriculture is an important sector as it provides food for the resident population and generates export revenues for the State. The issue of food self sufficiency is also a compelling argument for support of the agriculture industry from a food security perspective. Agriculture is also about rural development--the activities which affect the well-being of rural populations; the provision of basic needs such as food, development of human capital, creation of employment opportunities, establishment of agricultural processors and related agribusiness.[7]

The agricultural industry includes a number of components.

Distribution Margins	
Ground Transportation	
Water Transportation	
Air Transportation	
Wholesale Trade	
Retail Trade	
Food Processing Sectors	
Pineapple Processing	
Other Canned Vegetables and Fruits	
Sugar Processing	
Confectionery Products	
Salted and Roasted Nuts and Coffee	
Meat Products	
Grain and Bakery Products	
Beverages	
Other Food Products	
Farm Production	
Sugarcane	Hogs
Tree Nuts	Misc. Livestock
Pineapple	Aquaculture
Coffee	Other Agricultural Products
Other Fruits	Forestry and Forest Products
Flowers, Ornamentals	Commercial Fishing
Dairy Farm Products	Ag., Forestry & Fishery Services
Poultry and Eggs	Landscape and Yard Care Service
Cattle and Calves	

Source: College of Tropical Agriculture and Human Resources

The report, Revitalizing Hawaii's Agriculture and Rural Communities, Andrew Hashimoto, Dean, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa, December 2002, identifies many of the problems facing the agricultural industry and offers recommendations for improvement.

To support agribusiness, the following factors need to be addressed: capital, marketing objectives, management skills, knowledge of technical and regulatory requirements, and isolation from other entrepreneurs and professionals. Ways must be identified to provide adequate financing for new and existing agribusinesses. Another way to encourage new agribusinesses is to establish a statewide agribusiness incubator program.[8]

Two other major problems which Hawaii's farmers face are fruit flies infestation and land tenure. It has been estimated that the eradication of fruit flies in the State could increase agricultural production by $300 million annually. Land tenure is a concern because many farmers do not own their own land and are unable to get long-term leases which prevent them from obtaining loans to invest into their business.[9]

Strategies

1. Expansion and Creation of Agribusiness

-Move toward a market driven agriculture.
-Identify ways to meet food safety standards.
-Identify ways to meet environmental standards and/or develop strategies to revise onerous or ineffective regulations.
-Insure access to state-of-the-art technologies.
-Insure access to well educated and trained workforce.
-Provide incentives for agribusiness through tax and fee structures including those identified by the Agriculture Working Group.
-Explore ways to provide adequate financing for new and existing agribusiness.
-Simplify applications for loans and loan guarantees.

2. Availability and Protection of Important Agricultural Land

-Meet the Hawaii State Constitution mandate to "conserve and protect agricultural lands" and "assure the availability of agriculturally suitable lands".
-Examine ways to balance lease rents and tenure with private and public landowner's return on assets and support economically viable agricultural enterprises.
-Examine ways to provide incentives for private and public landowners to keep their land in agriculture.
-Identify incentives for lessees and landowners to be good stewards of their land.
-Examine ways to provide infrastructure at reasonable cost.

3. Availability of Reasonably Priced Water for Agriculture

-Develop a comprehensive state water plan.
-Maintain and upgrade existing irrigation systems.
-Examine ways to provide reasonably and equitably priced irrigation water to agriculture.
-Develop new water systems for agriculture.
-Examine ways to increase water recharge to aquifers and to increase water retention of surface waters.
-Develop ways to develop safe, economical and reliable ways to recycle wastewater.

-Restore forested watersheds.
-Encourage water conservation and demand management.

4. Transportation for Agriculture

-Improve airport and harbor produce, live aquatic product, and value-added product handling and storage facilities.
-Increase lift capacity and consistency for in-state and out-of-state shipment of produce.
-Reduce transportation costs of Hawaii grown products.
-Review the impact of the Jones Act on the shipment of agricultural products.
-Reduce shipment costs of supplier materials and equipment needed to grow produce.

5. Agricultural Incentives and Supports (including aquaculture)

-Examine and pursue where feasible the recommendations of the Agriculture Working Group including but not limited to:

-Agricultural Enterprise Zones
-Agricultural Tax Incentives
-A Farm Viability Program similar to the Massachusetts program with business planning services and Implementation grants
-Agricultural Easements

-Support programs to control invasive species.

Also see the suggested actions in the Tourism Industry Chapter under Agricultural Tourism.

AQUACULTURE

The aquaculture industry produces high quality products that reach local and global markets. The 2002 value for Hawaii's commercial aquaculture production was $25.2 million, a 13% increase over 2001. All industry sectors increased significantly in value over the previous year, with algae (micro and seaweeds) accounting for $10.5 million or 42% of the harvest. The research and technology transfer sector adds another $10 million plus in project funds, led by the world famous Oceanic Institute.

Many Hawaii companies are developing technology for new species and new production systems. Companies in Kona and Maui operate algae production factories that market food and health supplements all over the world. Several of the high tech aquaculture operations are located at the Natural Energy Laboratory of Hawaii (NELHA), which is an incubator/industrial park located

in West Hawaii. NELHA offers advantages found nowhere else in the world: large volumes of cold nutrient-rich and pathogen-free sea water pumped up from the deep ocean off Keahole Point, warm surface water, very high solar radiation, a location adjacent to an international airport, governmental permits in place and infrastructure financed by State and Federal governments. One company at NELHA is the world's largest supplier of Spirulina and another is the largest U.S. grower of abalone.

Other aquaculture companies on the Big Island and Kauai are building high-tech systems to produce shrimp for markets on the West Coast and Japan. Some companies are taking advantage of Hawaii's geographic isolation by working with State aquatic animal health professionals to produce and market certified disease-free shrimp stock for export to Asia and North and South America. A fast developing sector is the culture of high value freshwater and marine aquarium species. Hawaii entrepreneurs also currently lead the nation in moving aquaculture offshore into the open sea, with the nation's first commercial lease for open ocean cage culture. In addition, development efforts include traditional aquaculture in Hawaiian fishponds, low-tech aquaculture in small backyard ponds, and semi-intensive aquaculture in large earthen ponds.

Strategies

-Support funding for aquaculture research, development and demonstration projects for aquaculture.

-Continue to identify and evaluate market potentials.

-Facilitate access to appropriate sites and capital and provide assistance with permitting.

-Provide technical extension services, marketing assistance and training to support the industry.

-Facilitate access to lease land at harbors for staging, storage and hatchery production activities to support offshore aquaculture development.

-Encourage the UH to pursue establishment of an endowed Chair for Tropical Aquaculture at the University to focus, catalyze and expand aquaculture research, education and technology transfer activities.

CHAPTER 7 INDUSTRY DRIVER: HIGH TECHNOLOGY

With the rapid advances occurring throughout the world in all types of technology, it has been only logical that the State has turned to the high technology sector as a means for industry diversification and renewed growth.[10]

Advantages and benefits are substantial. High technology tends to be a high growth, high-return economic sector. It generates rapid growth of new types of companies, new industry sectors, high paying jobs, new investment in education, and a stronger tax base with which to provide public services.

According to a survey done by the State of Hawaii High Technology Development Corporation (HTDC), jobs in high technology generally pay more than jobs in other fields. According to the 1996 survey, salaries statewide for high technology jobs averaged $50,000. In comparison, the State Department of Labor and Industrial Relations reported the 1996 annual average wage of $27,400 for the State.[11]

As an example, the following table shows the high multiplier of jobs in technology related areas in comparison to other sectors of the economy in Orange County.

Orange County

Industry	Employment	Multiplier	Output*
Hospitality &Tourism	150,000	1.29	$41,961
Bus & Prof Services	140,000	1.60	$75,161
Health Services	76,000	1.56	$77,033
Construction	62,500	1.90	$123,605
Computer/Electron.	46,000	2.40	$232,904
Computer Software	33,500	1.98	$142,051
Biomedical	28,000	2.13	$168,260
Communications	24,000	3.04	$403,030
Defense/Aerospace	23,000	2.20	$197,152

Source: Enterprise Honolulu
*Per worker

A high technology industry, if planned appropriately, is not harmful to the environment. This is an important benefit to consider because the State's environment is a critical part of Hawaii's culture and everyday life.

The following have been identified as technology areas with the greatest opportunity for growth in Hawaii.[12]

Information Technology/Telecommunications
Biotechnology
Medical/Health Care Technology
Earth/Ocean/Space Sciences
Defense and Dual Use Technology

Strategies:

The following actions have been identified in A Strategy for Technology Based Development in Hawaii.

1. **Marketing and Promotion**: Increase promotion of Hawaii's technology-based goods and services, and "brand" Hawaii as a serious business location and as a desirable site for advanced R&D.

   -Coordinate branding of Hawaii's technology offerings and advantages.
   -Focus on developing a cluster of defense and dual-use companies to provide a critical mass for sustained high technology development in the State.
   -Look to Asia for potential collaboration which could lead to joint operation in Hawaii or promotional entry into U.S. mainland markets.
   -Promote Hawaii as a desirable site for R&D, capitalizing on the islands' isolation, clean and healthy environment, as well as its multi-ethnic population for companies to test their market launches in Asian markets and/or to undertake clinical research studies.
   -Market Hawaii to attract subsidiaries of large high-tech companies particularly Asia-Pacific focused subsidiaries.
   -Seek needed marketing funding from the legislature and private industry to promote Hawaii's business image.

2. **Research and Development**: Encourage and improve university, federal and privately-sponsored research in support of technology-based development and accelerate the transfer of new technology for commercial development.

   -Increase Hawaii's share of National Science Foundation and National Institute of Health grants received.
   -Build up research capability within the UH system to take advantage of federal (congressional) interest in civilian and commercial applications of defense technology.
   -Provide salaries, facilities and support programs to attract scientific luminaries to UH.

-Create incentives to encourage: research in areas having a high probability of economic return; entrepreneurial activity by the faculty; disclosure of inventions; and information of value to the business community.
-Formulate public-private sector partnerships to create technology incubation centers on and off campus of the UH for its faculty.
-Coordinate technology development activities among the State's research organizations, educational institutions, business and industry and government.
-Refine economic indicators to better benchmark the growth and impact of Hawaii's technology sector.
-Improve commercialization activities with respect to existing UH intellectual property.

3. **Workforce Development**: Work with industry and educational institutions at all levels to facilitate acquisition and dissemination of knowledge and to advance workforce skills.

-Support the creation and implementation of programs encouraging teachers and students in K-12 to excel in skills and knowledge, i.e., math and science, which are needed to function effectively. Help teachers to be proficient in integrating technology into all curricula.
-Upgrade workforce skills in scientific disciplines.
-Re-orient some professional disciplines such as law, accounting, corporate management and finance to meet specialized requirements of technology-based transactions.
-Advance the use of internet technologies in teaching and learning including greater use of distance learning technologies.
-Encourage the hospitality industry to embrace the use of technology.
-Facilitate the use of information technology as a tool to market products and services in every sector of the economy to increase productivity and to determine the quantity and quality of existing and potential high-tech skills in Hawaii.

4. **Supporting Infrastructure**: Provide and encourage the use of physical infrastructure, including affordable building space and telecommunication connections and safeguards to achieve success with technology-based ventures. The crowning highlight of this program is the development overtime of a flagship bio-medical facility at Kakaako exhibiting the best of Hawaii's achievements in science and technology.

-Develop an integrated Justice Information Data System for county, state and federal law enforcement data.
-Encourage the development of a World Trade Center in Honolulu as a "tech-smart" facility offering services and programs that focus on global outreach.

5. **Encourage Local Business Entrepreneurship**: Streamline regulations and provide incentives with appropriate environmental safeguards to support more entrepreneurial activity and reduce the costs of doing business in Hawaii.

6. **Debt and Equity Formation**: Develop reliable sources and pools of funds for sustainable seed and venture capital investment to support growth of the technology industry.

   -Offer diversified fund of funds investment vehicles to encourage the Hawaii's State Employee's Retirement System as well as other local institutional and accredited investors to invest in professionally managed seed and venture capital programs that benefit Hawaii-based companies.
   -Form seed capital funds to provide commercialization financing for UH researchers and a very early stage of equity for incubator companies.
   -Promote cooperative applied research funding by industry partners to develop commercial applications of research projects.

7. **Dual-Use Opportunities**: Energize a collaborative effort between all sectors of government, the UH, and private enterprises in an effort to encourage federal inputs to advance the State's R&D activities, initially intended for defense applications but with ultimate commercial value.

   -Assess Hawaii-based defense projects and Hawaii-impacted nationally based programs to ascertain technological and commercialization potential.

8. **Increased Use of Sustainable Technologies:** Promote the use of technologies that can lead to environmental, energy, and economic sustainability through the formulation of policies, provision of incentives, and implementation of actions.

9. **Use of Modern Information Systems by Government:**

   -Significantly increase State government investment in modern information systems that will allow streamlining and automation of current personnel and paper-dependent purchasing and accounting systems.
   -Increase use of real-time, on-line management information systems to allow more purchasing, reimbursement and budget decisions to be made by front-line department managers.

CHAPTER 8 INDUSTRY DRIVERS: LIFESCIENCE/BIOSCIENCE/ BIOTECHNOLOGY

Hawaii is helping to pioneer the development and production of new, high value-added products and services in various biotechnology areas – including the seed industry, plant tissue cultures, floriculture, tropical fruits and beverage technology, bioprocess engineering, nutraceuticals, phytopharmaceuticals, tropical diseases, biomedical products, marine bioproducts, and bioremediation. Hawaii's competitive advantages fall into four broad areas of biotechnology: medical, agriculture, environmental and marine. In 1999, over $69 million in federal support was granted to the University of Hawaii and other research centers for important life science research.[13]

Many University of Hawaii programs are national and world leaders in bioscience and biotechnology. To highlight just a few, UH received world attention by producing the first mouse clone and working with colleagues in Japan to develop an innovative method for producing transgenic mammals – green mice produced by using DNA from fluorescent jellyfish. Genetically-engineered disease-resistant papaya, developed by the College of Tropical Agriculture and Human Resources, in collaboration with Cornell University and the Upjohn Company, saved the local papaya industry. A new method of producing biodegradable plastics is one of the technologies available for licensing from the UH Office of Technology Transfer and Economic Development.

The UH's Cancer Research Center is one of 60 National Cancer Institute designated cancer centers. The U.S. Congress recently appropriated $500,000 toward the creation of a new Center. Construction is already underway for the new, visionary $150 million medical education and research facility for the John A. Burns School of Medicine. Discussions are underway to develop private research capacity and a State-sponsored incubator surrounding the medical school facility to create a Bio-Medical-Science Research Park.[14] The Marine Bioproducts Engineering Center (MarBEC) at the University of Hawaii has been phased into the Center for Marine Microbial Ecology & Diversity (CMMED). CMMED will continue MarBEC's partnerships with industry to develop the engineering technology and science base for the commercial production of high-value marine bioproducts.

Private non-profit research institutions include the Hawaii Agriculture Research Center (HARC) with its emphasis on forestry, coffee, forage, vegetable crops, tropical fruits, and many other diversified crops in addition to sugarcane. Mainland seed companies take advantage of Hawaii's favorable weather conditions by utilizing HARC's field and nursery services for winter

growouts, seed increases, and testing. Hawaii is known as the most active state in the country in crop trials.

On the marine side, The Oceanic Institute attracts worldwide funding for aquaculture, marine biotechnology and environmental research and training. NELHA, a State-supported facility on the Big Island, is an important incubator and technology park for commercial marine biotechnology ventures. In many respects, Hawaii's island locale is a test tube with the multicultural population creating opportunities for using genome-sequencing data to customize the treatment of different diseases to different ethnic groups.[15]

Another of Hawaii's competitive niches is bioremediation, or the use of living organisms to reduce environmental contamination. The Hawaii agriculture-based remediation program addresses environmentally impacted sites and demonstrates agriculture-based remediation technologies to restore contaminated military and civilian sites especially those located in fragile Pacific Island ecosystems

There are close to 50 biotech related companies conducting research and producing products and services in the State. They employed over 2,000 Hawaii residents with operating budgets of over $320 million in 2000.[16]

Because of its unique ethnic population mix, Hawaii has hundreds of clinical research studies being conducted by almost all of the world's leading pharmaceutical companies.

Strategies:

-*Expand venture capital and marketing efforts targeted for the bioscience/biotechnology sector.*

-*Substantially strengthen public-private partnerships to increase the number of commercially viable patents emanating from research laboratories at the University of Hawaii and other research sources located in the State.*

-*Establish formal communications mechanisms between technology-based industries and the State's education community to plan for and meet anticipated increases in industry employment and training needs.*

-*Continue working with the private sector to ensure that facilities, programs and services are available.*

CHAPTER 9 INDUSTRY DRIVERS: HEALTH AND WELLNESS

Spurred by the increasingly comprehensive coverage at both Federal and State levels as well as scientific and technical advances, the medical and health services area was one of the few industries that showed steady growth in the last 10 years while our economy overall has been stagnant.[17]

Between 1987 and 1997, employment in medical and health services grew by 42% from 24,400 to 34,650. This compares with the growth of jobs in the hotel industry of 23% from 31,250 to 38,450 and overall increase in nonagricultural employment of 15%.[18]

Hawaii has more physicians per capita than the U.S. overall, ranking 9th with 2.5 physicians per 1,000 residents. Hawaii also has more dentists per capita than the national average at 0.82 per 1,000 than the U.S. with 0.55.[19]

Institutions such as the University of Hawaii John A. Burns School of Medicine, Cancer Research Center of Hawaii, Tripler Army Medical Center, Hawaii Pacific Health Research, Queens Medical Center, and Kaiser Permanente are leading research initiatives in biomedical research, medical technology, drug clinical trials, disease prevention and treatment protocols.[20]

Another catalyst enhancing medical services in Hawaii is Dr. Earl Bakken, the inventor of the pacemaker and a leader in a movement to transform the Island of Hawaii into the Healing Island. This healing concept is a holistic approach which embodies the curative properties of Hawaii's clean air, salt water, sun, earth, spirituality and aloha complemented by state-of-the-art medical equipment. This model is especially suited for chronic pain, cosmetic and reconstructive surgery, stroke rehabilitation, dermatology, electrical stimulation procedures, sports injuries, assisted living and hospice care.[21]

Construction of the new John A. Burns School of Medicine Facility in Kakaako is underway.

Strategy:

-*Support completion of University of Hawaii biomedical facility in Kakaako.*

CHAPTER 10 INDUSTRY DRIVERS: ASTRONOMY AND SPACE SCIENCE

Hawaii's astronomy and space science industry employs 796 people and generates $145 million in annual revenues. Hawaii's development in the astronomy and space science industry has helped drive global innovation in Electronics, Optics, Precision Mechanics and Information Technology.[22]

The UH's Institute of Astronomy (IFA) employs 200 staff, 60 scientists, and 40 tenure track faculty. IFA has around 30 graduate and 1,000 undergraduate students graduating each year. IFA plays an important role in supporting the research at the Mauna Kea Observatories, the Haleakala High Altitude Observatory Site on Maui, and base facilities spread around three islands. IFA conducts solar research and long-term stellar studies, planetary, galactic and extragalactic research and cosmology.

Hawaii's 4,200 meter summit at Mauna Kea houses the world's largest observatory for optical, infrared and sub-millimeter astronomy. International research entities representing 11 countries have invested more than $800 million in Mauna Kea to support astronomy and astrophysics research. The Mauna Kea Observatories have 13 world-class telescopes whose combined light-gathering power is fifteen times greater than that of the Palomar telescope in California and sixty times greater than that of the Hubble Space Telescope.

These telescopes are supported by large-scale international base facilities in Hilo that represent many countries.

The Maui High Performance Computing Center provides researchers with the necessary computing capabilities. Advanced communications technologies using fiber optic networks and satellite relays also allow astronomers to access these telescopes through remote viewing techniques.

The Air Force Research Laboratory atop Mt. Haleakala conducts research and development missions on the Maui Space Surveillance System and also oversees the operation of the Maui High Performance Computing Center.

Strategies

-*Develop adaptive optics research/incubation facilities to commercialize discoveries of IFA faculty and international observatory employees.*

CHAPTER 11 INDUSTRY DRIVERS: ENERGY/ RENEWABLE TECHNOLOGIES[23]

The Need for Energy

Energy is essential to modern life. Hawaii's citizens use energy for transportation, hot water, refrigeration, heating, air conditioning, ventilation, lighting, cooking, operating office and industrial machines, running appliances, and for other essential uses. Hawaii's people use less energy per capita than the citizens of any other state, primarily because of Hawaii's comfortable climate and short driving distances. Hawaii's total energy use per capita ranked 51st of the states and District of Columbia in 2000.[24]

Energy for Economic Activity

Energy is the power behind Hawaii's economy. Energy is used by the jets carrying visitors and residents to and among the islands. Energy is needed for overseas shipping and to move goods inter-island. It takes energy to provide ground transportation, air conditioning, hot water, telecommunications, and lights. Energy is needed by Hawaii's military installations, to produce Hawaii's sugar and other agricultural products, by almost all businesses, and for many other services. Energy use is a major component of economic activity, and energy-related companies make up a large segment of Hawaii's economy. Hawaii's residents and businesses spent about $3.37 billion on energy in 2001, or about 7% of the Gross State Product.

Based upon the components in the 2000-2001 U.S. Bureau of Labor Statistics Honolulu Consumer Expenditure Survey, electricity, fuel, and public services costs accounted for 5.1% of the average Honolulu consumer unit (of 2.8 persons) expenditures; and 2.7% was spent on motor fuel. Together these costs represented $3,358, or 7.8% of average consumer unit expenditures of 43,024 annually.[25]

Due to a number of factors, Hawaii's economy is overly dependent on oil. Oil is easy to transport, and an oil-based infrastructure has evolved in Hawaii over the years.

Hawaii's energy system requires massive exports of money to pay for imports of crude oil and some refined products. Most of this money is not used for further development of Hawaii's economy and does not have local multiplier effects. Much of Hawaii's energy demand is inelastic, so that when energy prices rise, even more money is diverted from other sectors of the economy to meet energy needs. Hawaii's dependence on oil poses risks to Hawaii's economy from sudden price increases as were experienced in 1973, 1979, 1991, 1992, 2000, and 2003.

Renewable energy and energy efficiency offer the economic benefits of keeping money in the State and providing greater levels of employment per unit of energy. Greater local employment would result in multiplier effects that would enhance the local economy. Numerous studies have found that greater use of energy efficiency measures and renewable energy result in more jobs, higher personal income, and slightly higher economic output than the fossil-fuel base case. Energy efficiency reduces bills paid by consumers and businesses, allowing a shift in spending to sectors that employ more workers per dollar received. This could increase employment in Hawaii and keep money in the State's economy that otherwise would have gone abroad to pay for fossil fuel.

The Links between Hawaii's Energy Use, the Economy, and the Environment

Hawaii enjoys a beautiful natural environment that provides pleasant living conditions for residents, and many regard it as paradise. Hawaii's economy is based upon its beautiful environment, and the environment is the major reason tourists come to the Islands. The challenge is to protect Hawaii's environment while meeting the energy needs of Hawaii's people for jobs, income, and a growing economy.

Over the long term, energy use in Hawaii degrades air quality, poses risks of water and land pollution, and is Hawaii's major human-caused contribution to greenhouse gas emissions that contribute to global climate change. A threat to both Hawaii's environment and economy is the small but real potential for a large oil spill and damage to beaches and the tourism industry.

Balancing Energy Needs, Economic Growth, and Environmental Protection

Reduction in oil use in particular offers the opportunity to reduce the environmental risks of energy production and use, and the costs of managing those risks. In general, efforts to improve energy efficiency can reduce energy costs and permit businesses and consumers to spend their money in ways more productive to the local economy. In some cases, by investing in alternative energy resources within the State, expenses may not necessarily be reduced, but more of the money spent will remain in the State's economy and more jobs will be created when compared to the fossil fuel option.

State Energy Objectives

The Legislature has provided guidance on balancing energy needs, economic growth, and environmental protection through Section 226-18, Hawaii

Revised Statutes, Objectives and policies for facility systems – energy, which states that:

> (a) Planning for the State's facility systems with regard to energy shall be directed toward the achievement of the following objectives, giving due consideration to all:
>
> (1) Dependable, efficient, and economical statewide energy systems capable of supporting the needs of the people;
>
> (2) Increased energy self-sufficiency where the ratio of indigenous to imported energy use is increased;
>
> (3) Greater energy security in the face of threats to Hawaii's energy supplies and systems; and
>
> (4) Reduction, avoidance, or sequestration of greenhouse gas emissions from energy supply and use.

Hawaii: An Island State

Hawaii is an island state with finite resources. Hawaii has the opportunity to be a model for the nation in the use of its resources. As such, applicants for EDA funding for buildings and facilities under this plan will be encouraged to take advantage of DBEDT's Green Building Program which promotes energy-efficient buildings. They will also be encouraged to consider innovative technologies. For example, the UH Medical School is testing the feasibility of utilizing deep ocean water to air condition its buildings.

Strategies:

End-Use Energy Efficiency

Most of Hawaii's electricity, utility gas, and non-transportation uses of fuel are used to provide lighting, heating, ventilation, air conditioning, water heating, drying, cooking, and other end-uses in buildings. There are many ways to reduce energy demand in Hawaii's buildings and energy efficiency can be increased. These efforts involve a variety of energy efficiency programs carried out by federal, state, and local governments, the utilities, and public-private partnerships such as the Rebuild America Program.

Increased energy efficiency reduces the need for imported fossil fuels, reduces the negative economic and environmental effects of energy use, and can contribute to deferring the construction of new electricity generation units. For energy users, energy costs can be significantly reduced.

Current building efficiency measures include the Model Energy Code, utility demand-side management programs, and a variety of State, County, and Federal government efficiency programs. The following are recommendations to improve Hawaii's energy efficiency – many of which build upon existing efforts:

-Design and construction of buildings appropriate to Hawaii's climate should go beyond the minimum standards of the Model Energy Code where cost effective. Adopt Model Energy Code for Maui County and adopt Residential Building Model Energy Code in all Counties. Continue to evaluate impact of and improve the rate of compliance with Model Energy Code.

-Continue and expand State and County government energy efficiency programs. Increase efforts to improve energy efficiency by expanding government energy Performance Contracting and alternative financing activities.

-Continue energy efficiency market transformation activities.

-Continue Solid Waste Reduction and Recycling Programs.

-Continue to support State and County participation in Public-Private Partnerships and alliances, such as Rebuild America, to improve resource efficiency.

-New measures and practices for building energy efficiency should be investigated for technical potential.

-Continue technology transfer of advanced building technologies and development of design guidelines

-Support energy efficiency programs in Federal facilities in Hawaii.

-Continue to support cost-effective utility Demand-Side Management programs.

-Continue to support Hawaii Natural Energy Institute and the Hawaii Center for Advanced Transportation Technologies at the High Technology Development Center.

Efficiency of Fossil Fuel Use

Greater diversification of fuels in the electricity sector holds the promise of making the greatest early contribution to reducing Hawaii's over-dependence on oil. Coal is the principal fossil fuel alternative, but coal produces 20% more CO_2 per unit of energy than oil. Consequently, the economics of importing liquefied natural gas (LNG) should be monitored in case appear to be becoming increasingly favorable for LNG use in Hawaii.

Additional use of naphtha and synthetic natural gas (SNG) would diversify Hawaii's fuels and provide greater use of oil already brought in for refining. Fuel switching from electricity to SNG or liquid petroleum gas could delay the need to build new electricity generation. Fuel switching from gas to electricity should also be considered where it offers greater efficiency.

Fossil fuel use efficiency can be improved in the electricity sector by using combined cycle generators at utility power stations and combined heat and power distributed energy systems at customer sites.

Renewable Energy Use

In the 1990s, deployment of geothermal resources, additional solar water heating, and additional hydroelectricity only offset the declining use of bagasse and wind, keeping the renewable share relatively constant. Hawaii's small, isolated electricity grids and current lack of inexpensive electricity storage options impose constraints on the use of intermittent renewable electricity generation. Geothermal, landfill methane, municipal solid waste, ocean energy, and biomass are the only potential baseload renewable sources. Hawaii seeks to increase renewable energy use through research, development, and demonstration projects; a renewable portfolio standard; net metering; income tax credits; and by providing the results of renewable energy resource assessments to the utilities and potential developers.

Renewable Energy and a Future Hydrogen Economy.

The State has been exploring ways to use renewable energy derived from solar, wind, biomass, and geothermal resources. Among impediments to the large-scale use of these resources are their characteristic localized production and the intermittent availability of solar energy and wind. Consequently, the production of hydrogen using renewable energy sources may be an optimal pathway toward diversification of Hawaii's energy mix – especially in the State's transportation and distributed power generation sectors – to reduce Hawaii's dependence on fossil fuels, promote higher energy efficiencies, and decrease air pollution and greenhouse gases.

The eventual large-scale use of hydrogen fuel will require low-cost production; compact, safe, and cost-effective storage capabilities; and the support of a hydrogen-based energy infrastructure. The State of Hawaii, with its vast renewable energy resources, energy expertise, critical need for greater fuel diversity, policy directives toward increased energy self-sufficiency, and Asia-Pacific location, is an ideal site for hydrogen and fuel cell research.

Strategies:

1. Energy Systems

Research and demonstration of the following:
-Hydrogen and fuel cells
-Renewable hydrogen production from wind, solar, geothermal, wave, biomass
-Hydrogen production from liquefied petroleum gas and synthetic natural gas
-Hydrogen storage technologies
-Fuel cell technologies
-Systems integration
-Biomass conversion for biofuels or biogases
-Renewable Energy Systems
-Energy Storage Systems
-Energy Efficiency Programs
-Brightfields and Green Building on Brownfields
-Recycling and Reuse Programs
-Support initiatives including the Hawaii Hydrogen Power Park, NELHA Gateway Distributed Energy Resources Center, Hawaii Fuel Cell Test Facility and Hydrogen Fleet Infrastructure Demonstration and Validation project.

2. Workforce Development

-Study to identify skill sets of works and how to facilitate employment.
-Training centers for employee development.
-Technology and entrepreneurship training at high school level.
-Venturing mentoring.
-Training for recycling and reuse industry.
-Training for environmental site remediation.
-Internship and cooperative education opportunities for both teachers and students.
-Inventory of student and employee training and education programs that work.
-Create/maintain public website to advertise training/education programs and employment opportunities.

CHAPTER 12 INDUSTRY DRIVERS: FILM AND DIGITAL MEDIA AND THE CREATIVE INDUSTRIES[26]

Film and Digital Media

According to the report, Hawaii Film and Television Industry 2000, A Road Map: The Film Industry's Potential and How to Get There, Hawaii's film and television industry generates $100 million a year which results in State tax revenues of approximately $15 million a year. It employs approximately 4,000 persons. This includes crews for motion picture and television production, positions at television stations, broadcast departments of advertising agencies and corporations, independent productions and post production houses and related jobs.

The film and television industry heavily utilizes the services of other businesses such as hotels, airlines, car and truck rentals, restaurants and caterers, building suppliers, florists and nurseries, clothing and furniture rentals and telephone and communications equipment.

Hawaii has a favorable track record in the film and television industry. It is a premier tropical location for film and television production. Other assets include sophisticated production companies and a film studio which is considered state-of-the-art suitable for various production requirements. The Legislature recently appropriated $7.3 million for renovations and improvements to the Film Studio. Approximately 190 motion pictures have been produced here since 1913 and 18 television series since 1968.

The film and television industry is targeted as an industry for future growth and development because it is clean and non-polluting, creates hundreds of skilled labor jobs, provides enormous promotional exposure, and is complementary to Hawaii's visitor industry.

Hawaii's film and television industry saw double-digit growth during the period from 1995 to 1998 with productions expenditures increasing 21%, 18% and 28% during each of the four years of this period.

Infrastructure is a critical factor in attracting film and television production to a locale. In addition to the Hawaii Film Studio, infrastructure includes:

	Oahu	Hawaii	Kauai	Maui
Stage	2	0	0	0
Water Tanks	1	0	0	0
Alt. Stages	2+	2+	2+	2+
TV Studios	12	2	1	1
Recording Studios	5	3	3	3
Motion Pic. Film Labs	0	0	0	0
Super Computer	0	0	0	1
Facilities for Screening Rms.	5	5	5	5
Stock Footage Libraries	8	9	3	6

The State of Hawaii wants to expand into the digital media industry. The industry is a national growth industry and Hawaii has established a niche in this area. Nationally, there has been growth in the use of technology in entertainment. For example, the number one movie of the year, Finding Nemo, was created by Pixar, the company that also created the Toy Story movies. Video games are a $25 billion a year business.

Square USA which produced Final Fantasy in Hawaii employed 200 workers from 22 different countries over a five-year period. Some of the local talent stayed after the production of this film to form Sprite, an animation company. Konami, one of Japan's largest video game producers, has a branch in Waikiki.

The Academy for Creative Media (ACM) has been recently formed at the UH. It is envisioned that the curriculum will encompass a range of entertainment media including traditional film-making, digital film-making interactive video game production, computer animation, internet based multi-player universes, dynamic web page design, and military applications.

It is anticipated to include all ten UH campuses and three UH Centers.

The cornerstone of ACM is the proposed development of a new state-of-the art, mixed-use digital media facility that will provide a learning environment

for students, an incubator for digital media business, and an R&D lab for creation of intellectual property.

Strategies:

1. **Tax and Other Incentives**

   -Strengthen tax incentives for the film and digital media industry including broadening tax incentives to be useful to a greater number of productions and right-size labor taxes such as unemployment and workers compensation.
   -Explore incentives that would allow local equipment providers (film gear and vehicles) to be more competitive.
   -Seek more favorable shipping rates for both trans-Pacific and inter-island shipping.
   -Create incentive packages for companies to move to Hawaii such as including the film and digital media industry in the Enterprise Zone Program.

2. **Film Permitting**

   -Examine ways to simplify applications and processing of permits to film at both the State and County level.

3. **Pool Current Funding Sources**

   -Establish a statewide marketing fund dedicated to the film industry.
   -Create a film and television development fund covering a mix of grants and low interest loans to provide seed money for production development and to support indigenous production.

4. **Training Opportunities**

   -Support the development of the ACM including outreach to the Neighbor Islands.
   -Develop union apprentice and training programs for young professionals.
   -Develop on-going continuing education for existing union members.

5. **Public Information**

   -Maintain a public information campaign to keep the public and film and digital media constituency informed.

6. **Physical Infrastructure**

   -Support planning for and construction of a Film and Digital Media Facility.

THE CREATIVE INDUSTRIES

Arts and Culture in Hawaii make up a group called the Creative Industry and represent a grouping/cluster composed of for-profit components and non-profit organizations. Both groups employ many people and imbed a sense of multi-cultural uniqueness that we call Hawaii. This industry is made up of a wide range of areas that are not all tied to the definitions of "industry" but do contribute to the overall value of products and services offered as it creates differentiation, branding, and product identification in the vast market place.

CREATIVE INDUSTRY GROUPINGS / CLUSTERS:

VISUAL ARTS		
Fine Arts		
Fiber Arts	Metals	Drawing
Ceramics	Woodwork	Print Making
Glass	Painting	Sculpture
Applied Design		
Architecture	Product Design	Graphic Design
Interior Design	Fashion Design	
Crafts & Folk Art		
Furniture	Baskets	Jewelry
ARTS & ENTERTAINMENT		
Tourism (Walking Tours, Eco-tours)	Festivals Cultural Events	Sporting Events Arts Seasons
PERFORMING ARTS		
Theater	Music	Dance
PUBLISHING		
Literature Books	Periodicals Music	Recording and Broadcasting
CULINARY ART		
Training		
Regional Cuisine		
MUSEUMS, GALLERIES, & EXHIBITIONS		
RETAIL		
ARTS TRAINING, EDUCATION, & CONFERENCES		
RESOURCE DEVELOPMENT		
Grant & Funding Resources		
Training & Workforce		

Strategies:

1. **Defining Hawaii's Creative Industries – Strategic Planning and Research**

   -Establish baseline information and data on the creative industry sector.

2. **Facilitating Communication and Networking**

   -Establish communication and networking between government, business, institutions and community groups to create new opportunities.
   -Expand awareness of the creative industry sector impacts on the community and economy through education and marketing programs.
   -Building of infrastructure - i.e. connectivity via cable (telecom, internet and satellite).

3. **Creating Opportunities - Marketing and Promotion**

   -Promotion of the products and services from the creative industry sector through out major markets in the world.
   -Integrate tourism marketing to promote arts and culture districts, events, cultural / ethno tourism, etc. To stimulate visitor expenditures, attract new visitors and create new attractions.

4. **Providing Assistance and Capacity Building**

   -Finding and attracting resources, funding and new business to expand the resources available to the sector.
   -Creation of arts community clusters – which in turn create a critical mass of attractions and activities fostering the growth of businesses. An example is the formation of the Hawaii Capitol Cultural District.
   -Establishment and building of venues (theatres, galleries, meeting and rehearsal space) for arts and culture display and performances. These would to be the focal points of Arts community clusters.
   -Creation of business incubator and studio space for artists and groups (with this would be the development of needed infrastructure – utilities, connectivity, building renovations). This would be a part of the development activities of arts community clusters to foster business growth.
   -Fostering support for Arts and Culture / creative industry education and business training. Development of vocational, business and technical skills.
   -Creation of incubator services for the creative industry sector. To expand and grow existing businesses and to ultimately create job opportunities and added income to the State Economy

CHAPTER 13 INDUSTRY DRIVER: OCEAN INDUSTRIES[27]

Industries which are dependent upon ocean resources and which produce export products and services, provide for import substitution or bring Federal funds to the State include ocean science and technology, ocean tourism and recreation, aquaculture and commercial fishing.

Ocean Science and Technology

Hawaii is an unequalled natural laboratory for ocean research and development, attracting professionals from around the world to pursue a multitude of ocean science and technology projects. Hawaii's volcanic origin and lack of a continental shelf mean ready access to deep water and its mid-North Pacific remoteness offers outstanding clarity of ocean and atmosphere. The wide range of diverse habitats and ecosystems close to land-based research facilities includes all types of coral reefs and estuaries, an active and growing subsea volcano, ancient seamounts and major deposits of manganese nodules and cobalt-rich manganese crusts. Both impacted coastal ecosystems and contrasting pristine areas are ideal for environmental research and technology development.

Hawaii's rich resource base is complemented by a remarkable array of world-class facilities and expertise in the public and private sectors. The School of Ocean and Earth Science and Technology at the UH at Manoa, with its affiliated research institutes, consistently ranks among the top five in the nation for National Science Foundation peer-reviewed funding. In 2003, UH added a new state-of-the-art $45 million SWATH (Small Waterplane Area Twin Hull) research vessel to its research fleet. Other programs and facilities within the UH system and in private universities add to this impressive academic research and education capacity.

Other industry sectors include State and Federal agencies carrying out significant research, particularly in the area of resource management, non-profit organizations, such as the world famous Oceanic Institute, and most notably the 100-plus private companies involved in both R&D and commercialization of new products and services. Revenues for all ocean science and technology sectors were $132.5 million in 2001, a 13% increase over 2000. Employment is about 1,500 primarily high tech jobs. Since 1999, the private sector has been the top-performing sector. A key factor in its growth has been funding through CEROS and the State's commitment to supporting the industry. Hawaii has become a leader in such fields as coral reef ecology, remote sensing, design and installation of deep ocean pipelines, marine cable industry support software, marine minerals, underwater surveying and many other specialties.

Strategies

-Support the growth of research facilities and faculty at UH campuses. This would attract increased federal grant funding. (Note: In May 2002, Dr. Barry Raleigh prepared a business plan for growing the research enterprise at UH.)

-Increase marketing support to: 1) assist the industry in developing new export markets; 2) attract new companies and expertise to expand the critical mass and Hawaii's role as an industry leader; and 3) increase Hawaii's market share of federally funded grants.

-Develop/expand programs to assist companies to commercialize products derived from R&D efforts.

Ocean Tourism and Recreation

As America's only state with the distinction of being totally surrounded by water and with the fourth longest coastline, Hawaii has developed diverse opportunities in ocean tourism and recreation with annual sales of over half a billion dollars. Visitors list ocean recreation opportunities as one of the most important reasons for choosing Hawaii as their vacation destination and our beaches and nearshore waters are prime recreation areas for residents. Business opportunities run the gamut: tour boats, dive and surf shops, charter boat fishing, recreational fishing, major yacht races, personal boating, competitive ocean swims, canoe races, wind surfing, board and body surfing, and land and ocean sports events.

With these opportunities there are also challenges. A beautiful, pristine environment is not only a recognized social value, it also is a definite business asset for those organizations that rely on providing a memorable experience to retain customers and attract new business. Thus, resource management is critical to the development and expansion of a sustainable ocean tourism and recreation business. Many industry leaders serve on advisory committees to assist Federal and State agencies in developing the policies and programs to further this goal. There is also the need for improved facilities and infrastructure to promote safe and equitable access to the resources.

Strategies

-Support infrastructure development at small boat harbors and boat ramps to provide improved access, increased capacity and new facilities such as pump out stations.

-Support research funding for resource management initiatives.

-Provide targeted marketing assistance for environmentally sustainable sector development.

-Prevent the introduction of alien/invasive species.

Commercial Fishing and Seafood Marketing

Hawaii is strategically located in the major central Pacific tuna fishing grounds which are free from pollution so catches are more desirable and saleable in these days of environmental concerns. The commercial fishing industry realized landings valued at $60 million in 2000, approximately four times the value of its catch in 1985. However, preliminary data for 2001 indicates a significant decline in catches due primarily to the closure of swordfish grounds to avoid accidental take of endangered sea turtles. Recent court rulings may change the federal restrictions, but environmental concerns will continue to impact the ability of the industry to grow.

Seafood marketing in Hawaii involves both processing and selling at multiple levels of local product and the import and brokering of catch from elsewhere, including species from the Pacific islands that are the same or similar to local catch. Considerable effort has been expended by the State over the past 15 years to promote the high quality and exotic appeal of Hawaii and Pacific Island seafood, with emphasis on developing interest in a variety of species and the use of underutilized species to relieve pressure on the most popular seafood. Given the current decline in local catch, growth potential lies in increased brokering activity.

Strategies

-Determine sustainable yields of fishing grounds and appropriate management measures to safeguard resources and the environment.

-Maximize economic value by providing marketing support for the industry.

CHAPTER 14 INDUSTRY DRIVER: FORESTRY

Forestry is developing into a significant export industry with major planting of fast-growing high-value trees occurring on former sugarcane lands on the Big Island and to a lesser extent on Kauai. Depending upon the amount of land planted in forest and the market for wood products, large lumber and processing mills may also be built in Hawaii to produce lumber and wood products.[28]

Hawaii also has a sizeable craft industry which is based on koa and other specialty woods.

Hawaii's principal advantages in forestry are the availability of land (due to contraction of sugar operations), high yields for certain tropical species and its access to nearby ports for shipping. In addition, high-value specialty woods can be grown in Hawaii including koa and sandalwood.

For new forests in Hawaii, profitability may be enhanced by carbon sequestration payments from companies as an offset of carbon emissions.

Competition comes from countries having virgin forests which can be harvested without the costs and delays associated with planting new trees and from new plantings in areas where production costs are lower.

Strategies:

-Aid in securing private lands and lease State lands that would be appropriate for growing high-value trees but excluding land that is needed for growing crops.

-Support the development of non-polluting mills in Hawaii to produce chips, fiberboard, veneer and solid wood products.

-Promote and expedite private investment in the creation of a sustainable commercial forest industry.

-Conduct public awareness and education campaigns that promote forestry and the forest industry.

-Provide private landowners and processors of forest products with technical forestry assistance in the form of State and Federal cost sharing grants or programs.

CHAPTER 15 DESCRIPTION OF CLUSTER INDUSTRIES CONCEPT

Cluster industries are a key determinant of economic competitive advantage. Industry clusters are geographic concentrations of competing, complementary, or interdependent firms and industries that do business with each other and/or have common needs for talent, technology and infrastructure. The firms included in the cluster may be both competitive and cooperative. They may compete directly with some members of the cluster, purchase inputs from other cluster members, and rely on the services of other cluster firms in the operation of their business.

Examples of industry clusters are North Carolina's Research Triangle, Hartford Connecticut's insurance and finance markets; Hollywood's film industry; carpets in Dalton, Georgia; tourism in South Florida; technology along Route 128 in Massachusetts and in Silicon Valley, California and biotech in San Diego, California.

In analyzing the success of these areas, experts have come to the conclusion that industry clusters have given these areas advantages over their competitors. Moreover, communities have come to understand that the best way to expand their own economies and those of the surrounding region is to support a cluster of firms—companies in the same industry that share infrastructure, suppliers, and distribution networks-rather than to chase after companies one at a time.

The cluster framework involves mobilizing stakeholders, assessing existing industry clusters, fostering collaboration by bringing together participants from key industries and institutions in the region, and implementing the actions identified as a result of the collaborative process. It is a valuable tool for improving economic conditions because it is market-driven, inclusive, collaborative, strategic and value-creating.

Infrastructure development is one of the major ways in which a community can support industry clusters. Michael Porter's work on competitive advantage suggests that targeted infrastructure development is an important economic development tool.

CHAPTER 16 OAHU

CLUSTER INDUSTRY IDENTIFICATION/DESCRIPTION

During first quarter 2004, Enterprise Honolulu obtained a sub-grant from the State Office of Planning to assist in the Oahu portion of their dual task of developing a statewide Comprehensive Economic Development Strategy (CEDS) and Cluster Infrastructure Development Strategy. The state office of planning had previously obtained funding for the study from the Economic Development Administration (EDA).

Enterprise Honolulu 501 C(3) is Oahu's private sector funded non-profit, economic development organization. Enterprise Honolulu's mission is to create and implement a strategy for Oahu's economic prosperity – good paying jobs and globally competitive industries – in a manner that helps ensure the environment and culture will be sustainable for future generations. Enterprise Honolulu works towards fostering economic growth through accelerating technology and knowledge convergence.

As an economic development agency, Enterprise Honolulu is a leading provider of information, research and analysis on Oahu's economy to public and private stakeholders involved in economic development. Enterprise Honolulu's website, enterprisehonolulu.com, is a widely used database developed using nationally accepted site selection standards.

Enterprise Honolulu's top priorities are to:

- Attract and recruit new businesses;
- Encourage growth and diversification among existing businesses;
- Help entrepreneurs in their business development efforts;
- Drive the collaborative process for obtaining economic development information.

Oahu CEDS has been developed to serve as a consolidated economic development plan that addresses the island's economy diversification needs for a prosperous future. This study was developed through Enterprise Honolulu's constant effort to focus the community on identifying, prioritizing and developing clusters that can create high paying jobs for Oahu's residents.

The Oahu CEDS study focused on clusters that excluded the visitor industry. The visitor industry is covered in the statewide section of the CEDS prepared by the State Office of Planning. Oahu's prioritized clusters have potential for economic diversification and economic prosperity through attracting and retaining high paying jobs for Oahu's residents. The study was conducted through a combination of quantitative and qualitative methods.

The current study focused on identification of:

1. Oahu's clusters that can enable economic diversification.
2. Potential for growth in these clusters and its impact on economic diversification.
3. Critical infrastructural opportunities, gaps and barriers for developing the clusters.
4. Means for financing top priority projects with emphasis on minimizing government's financing burden.

METHODOLOGY

In order to accomplish this task, using EDA directives, Enterprise Honolulu adopted the approach given below. Representatives from City and County of Honolulu were included throughout the CEDS process to ensure consistency with the County's objectives.

Step 1 - Committee Formation/Brainstorming Session - A CEDS oversight committee was established with 39 individuals representing 33 participating organizations. The oversight committee included a cross representation of local authorities, economic development agencies, financial intermediaries, educational institutions and business leaders in the prioritized clusters. The role of the CEDS committee was: (a) to review and approve the identified clusters, (b) to identify necessary physical infrastructure for growing these clusters, (c) to identify alternate funding sources and (d) to oversee the prioritization of projects identified through focus groups, interviews and a public informational meeting.

Step 2 – Cluster Identification – Secondary research was conducted to identify Oahu's industry clusters. Factors covered in the cluster identification process included evidence of university and educational institutions that can provide skilled workers and enable development of new technologies, local entrepreneurship, existing infrastructure (including transportation, buildings / sites, communication), established companies and capital availability. The analysis looked at past success stories and current developments to identify the potential for growth and its impact on economic diversification.

Step 3 - Focus Groups - was conducted for the prioritized clusters. A focus group was also conducted for the Enterprise Honolulu board, which includes a cross representation of Oahu's business community. Each focus group provided direct input to the CEDS in their cluster. The objective was to obtain a clear picture of current infrastructure gaps and future requirements. Additional means of financing top priority projects including funding from public and private sources was also explored.

Step 4 – Oahu Public Informational Meeting - A public informational meeting was arranged to solicit Oahu's public opinion about the prioritized clusters and infrastructure projects recommended for cluster growth.

Step 5 – Oahu Committee Meeting for Project Prioritization – A meeting was held to review the infrastructure list, solicit public comments and to prioritize infrastructure projects. The committee members prioritized projects for each cluster by voting on which projects will have maximum impact on cluster growth.

Step 6 – Statewide Public Informational Meeting - A public informational meeting was thereafter conducted at a statewide level in collaboration with the state office of planning, neighboring island economic development boards and economic development alliance of Hawaii to solicit Hawaii's public opinion on the prioritized clusters and proposed infrastructure project recommendations.

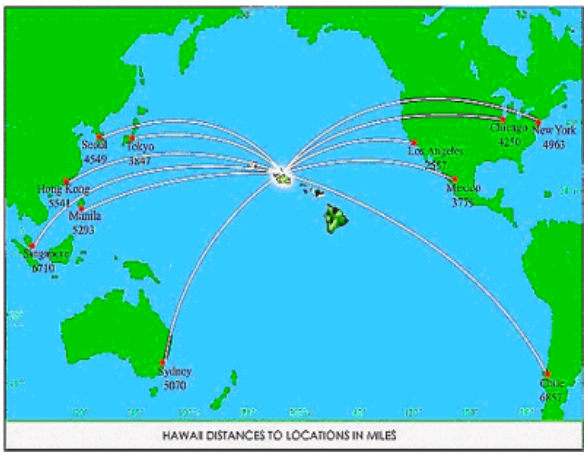
Step 6 – Report to State Office of Planning - Upon completion of the CEDS, the study was presented to the state office of planning for incorporation into their statewide CEDS.

COUNTY PROFILE

This section provides a brief description of Oahu's geography, environment, demography and infrastructure.

GEOGRAPHY

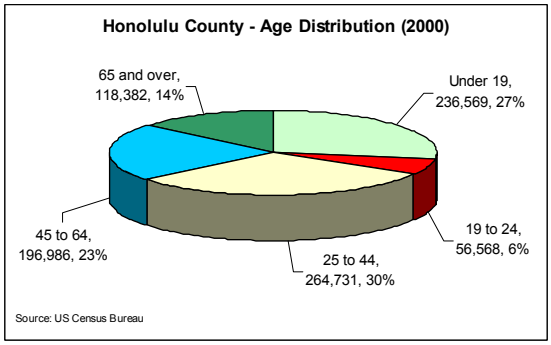
The island of Oahu, also known as Honolulu County, is the most populated island in the state of Hawaii. It is strategically positioned between mainland U.S. and Asia. The County's total land area is 596.7 square miles. The island's population density is 1,460.8 person / square mile. Oahu is located 2,557 miles from San Francisco, 3,847 miles from Tokyo and 5,293 miles from Singapore.



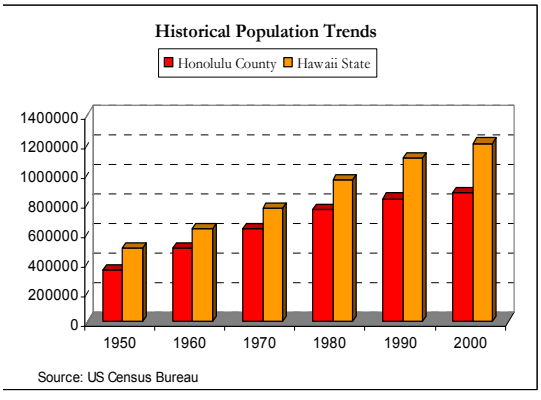
No other site in the Pacific Rim can match Honolulu's state-of-the-art infrastructure combined with a multilingual workforce, growing concentration of corporate and financial resources, all in a world-class pro-business environment and an attractive geographical setting.

DEMOGRAPHIC PROFILE

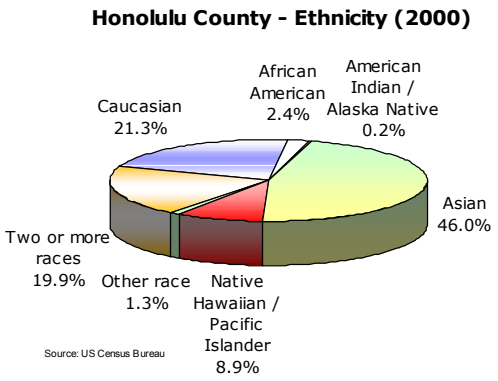
In 2001, Oahu had 881,295 residents. Around 59% of the population was in the age group 18 to 65. The chart on the right provides the actual number and percentage distribution of the County's population by age group.



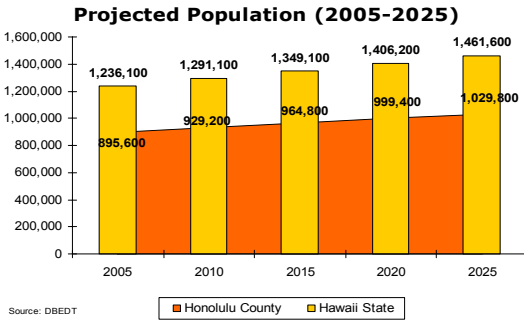
After four decades of consistent population growth, Oahu's population grew only 4.8% in the 1990's, compared to the state's growth rate of 9.3 percent and the U.S. growth rate of 12.3 percent. The chart given on right provides an overview of the County's population growth in comparison to the entire state of Hawaii from 1950 to 2000.



Honolulu County is known for its diverse racial mix. Nearly 20 percent of the population reports two or more ancestries, 20 percent are Caucasians, 46 percent are Asians and 8.9 percent Native Hawaiian or Pacific-Islander ancestry. The chart given on the right provides the break down of population by ethnicity.



Oahu's population is projected to reach 1,029,800 by the year 2025. The chart given on the right show the County's population projection compared with the entire state of Hawaii from year 2005 to 2025.



INFRASTRUCTURE PROFILE

TRANSPORTATION

Strategically positioned between the U.S. mainland and Asia, businesses located in Honolulu benefit from some strategic advantages:

- Shorter air travel distance to U.S. mainland and Asia.
- Service by 30 airlines offering over 600 arrivals and departures per week.
- Same day travel to all major Pacific Rim destinations.
- Pacific Rim convenience to assemble strategic meetings and conferences.

Honolulu's International airport is the primary hub for the state of Hawaii's domestic, overseas and inter-island flights. In 2002, the airport was used by 19.749 million passengers, 368,665 tons of cargo and 88,324 tons of mail. Honolulu is also served by two commercial harbors: Honolulu Harbor and Barbers Point Harbor outside of Kapolei.

Mean travel time to work in Oahu is 27.3 minutes. Hawaii's Department of Transportation manages the highway system. The division won an outstanding achievement award from American Society of Civil Engineers in 1997. Hawaii is ranked 3rd in USA for excellence in public mass transit. The American Public Transit Association has named "The Bus" America's best transit system in 2000-2001 as well as in 1994-1995.

ELECTRIC POWER

Hawaiian Electric Company, Inc. (HECO) and its subsidiaries Maui Electric Company Ltd. (MECO) and Hawaii Electric Light Company (HELCO) together supply electricity to 95% of Hawaii's 1.2 million residents. Due to the County's high population density, 74 percent of Hawaii's electric power is generated in this island. In 2001, HECO's system capability was 1,669 MW, HELCO was 261 MW, and MECO was 203 MW. In comparison, the system peak load was HECO (1,233 MW), HELCO (178 MW) and MECO (154 MW).

Majority of petroleum used by HECO is residual low sulfur fuel oil, left after lighter petroleum products such as gasoline and jet fuel are refined from crude oil. All three utility companies also use some diesel fuel. Most petroleum products used in Oahu are either refined locally from imported crude oil or brought in their refined state by Chevron and Tesoro. Sources of crude oil imports are Indonesia (30.7 percent), United States (29.5 percent), Australia (11.5 percent), China (11.5 percent), Vietnam (3.1 percent), Papua NG (2.7 percent), Malaysia (1.3 percent), South America (2.2 percent), Canada (0.8 percent) and Middle East (0.5 percent).

TELECOMMUNICATION

The competitive nature of Oahu's telecom industry has created an affordable marketplace for all telecommunications services. Oahu provides direct access to submarine fiber optics links that connect all points throughout the Pacific Rim. 14 Satellite Earth Stations (Teleports) on Oahu can see satellite transmissions not available to the mainland US, or to Asia. These satellite footprints provide direct simultaneous connections to fiber optic submarine capacity connecting the islands to the Pacific Rim growth markets. From Oahu, companies can easily establish video links between North America and Asia on a same day basis. Hawaii's extensive inter-island digital fiber optic networks allow companies to utilize resources, facilities and manpower on all islands as a single marketplace. Hawaii's research and education facilities such as the Maui Super Computer, Mauna Kea observatory complex and the numerous campuses of the University of Hawaii are the backbone of a I-2 network and accessible worldwide to research partners. Oahu's service providers offer broadband cable, DSL, T-1 to DS-3 to OC-96 capacity, Voice over IP (VOIP), secure data storage and data backup, offshore disaster recovery systems, Web and e-commerce hosting and other cutting edge Internet services.

ECONOMIC ANALYSIS

Honolulu County's major traded cluster continues to be tourism. The County's economic downturns subsequent to 09/11 and SARS were reminders of the importance of pursuing economic diversification. The County has started recovering from these economic slumps. Realizing the importance of economic diversification, there is growing collaboration between the public and private sectors for achieving sustainable economic development. This partnership understands that investments in fostering innovation, developing the necessary physical infrastructure, increasing the skills of its workforce, improving public education, improving technology infrastructure, streamlining government operations and fostering capital formation are critical to the County's success in the new economy.

The need for economic development is further evident from the following indicators:

1. **High Cost of Living -** According to the ACCRA cost of living index, Honolulu was the 4th most expensive place to live among 307 urban areas surveyed in third quarter 2003.

Urban area	ACCRA Composite Index
Manhattan	219.1
Jersey City	181.2
San Francisco	181.0
Honolulu	**154.4**
LA - Long Beach	147.4
San Diego	138
Washington DC	137.7

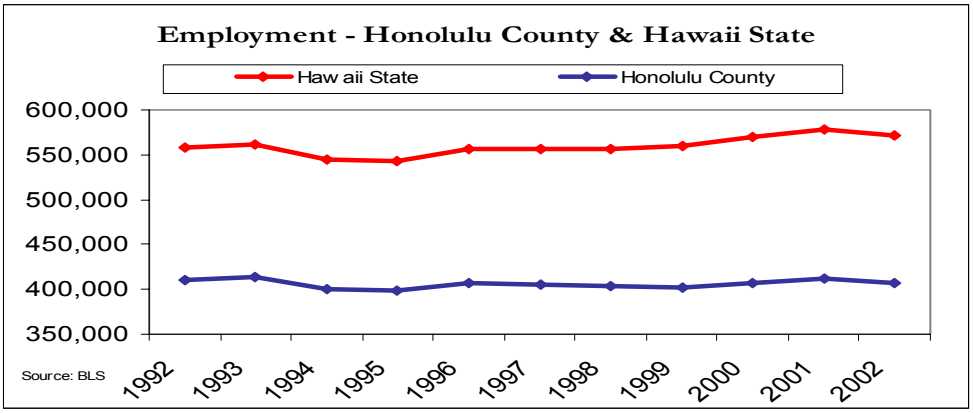
Source: ACCRA / UHERO

2. **Gap Between Prevalent Wages and High Cost of Living -** The self sufficiency study, an alternative for the federal poverty measure and a more realistic measure of the real cost of living, showed that only two of the ten largest occupations in Hawaii provide wages high enough to meet even the basic family needs.

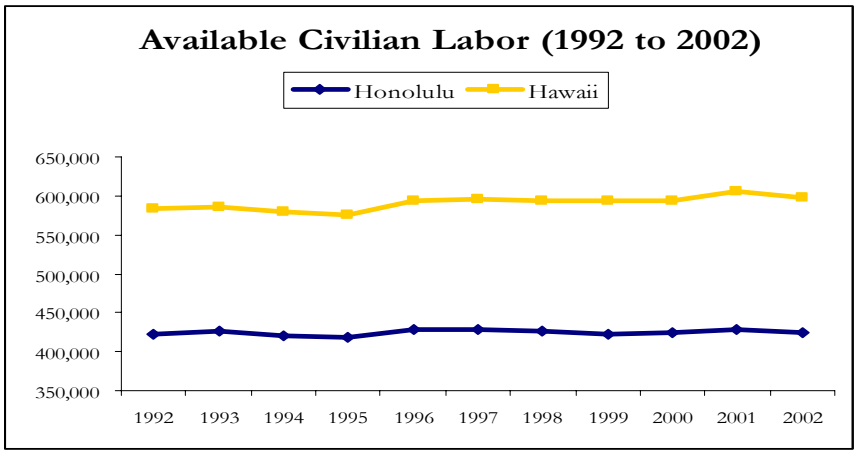
3. **Low Home Ownership Rate -** The mismatch between high cost of living and low wage jobs forces the local population to maintain multiple jobs and share homes. The County's home ownership rate is only 54.6 percent

compared to the state's 56.5 percent and the national average of 66.2 percent.

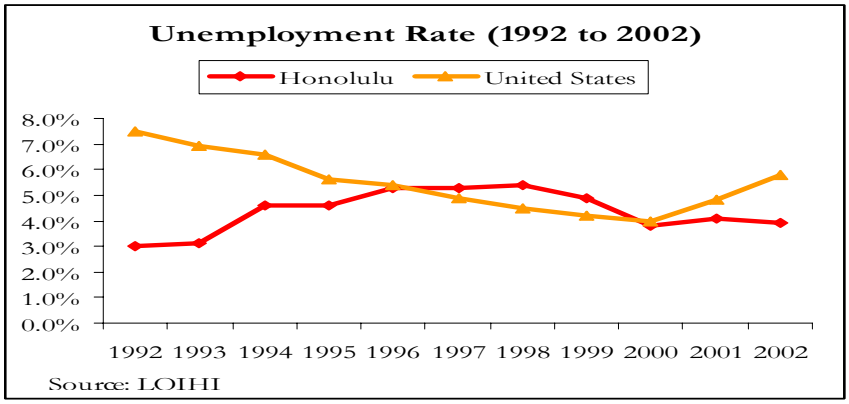
4. **Underperformance in Job Creation -** Another critical issue facing the County is the underperformance in job creation. In 2002, the County had 71 percent of the state's available civilian labor force and 71 percent of its employment. During 1992, the County's civilian employment was 417,055. Ten years later, in 2002, the County's civilian employment was only 410,183.



5. **Stagnation in Available Civilian Labor:** A similar story exists in the County's available civilian labor pool. During 1992, the County's available civilian labor pool was 423,367. Ten years later, the County's available civilian labor pool was only 423,609.



6. **Unemployment:** Since 2000, cumulative effect of negligible growth in available civilian labor pool and marginal growth in employment.



7. **High Educational Attainment:** Almost 28 percent of Oahu's work force has a high school diploma, 8 percent have Associate Degrees, and 19 percent have Bachelor Degrees, while 8 percent have Professional or Graduate Degrees.

8. **Growing Out-migration:** The state's growing out migration is an indication of the lack of career opportunity to these highly qualified workers. According to data from the U.S. Census Bureau, between 1995 and 2000, while the state's in-migration was 125,160, out-migration was 201,293 and hence the net migration was -76,133.

9. **Need for High Skill High Wage Jobs:** Above indicators show the County's need to focus on the quality of jobs rather than the number of jobs being created in the county. The county's public/private leadership intends to achieve this through focusing on high paying clusters. Economic development efforts are based on the concept of substituting imports and enhancing exports.

10. **Distressed Areas:** Oahu's cluster based economic development strategy is aimed at attracting necessary workforce from distressed areas.

PRIORITIZED CLUSTERS

The concept of clustering is increasingly utilized by progressive communities as a key driver of their economic development efforts. Michael Porter's definition was used as our guide for identifying clusters: "Geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries and associated institutions (for example, universities, standards agencies and trade associations) in particular fields that compete but also co-operate."

Clusters are thus groups of inter-related industries that are linked either horizontally or vertically. Clusters normally thrive when the inter-related industries are in close proximity. Clusters are normally classified according to their stage of development. The life cycle stages are Embryonic, Established, Mature and Declining.

Focusing on cluster development allows regions to reap the following benefits: (a) increasing level of expertise, (b) allowing firms to draw complimentary skills, (c) creating economies of scale, (d) strengthening social/other informal networks, enhancing entrepreneurship and innovation, (e) improving information flows within a cluster and (f) enabling development of support organizations.

While identifying Oahu's clusters prevalence of critical success factors was central to Enterprise Honolulu's analysis. The clusters where prioritized based on the prevalence of a variety of the following success factors:

- prevalence of networking partners
- innovative technology
- human capital
- physical infrastructure
- presence of large firms
- entrepreneurship
- access to finance
- availability of specialist services
- access to markets
- access to business support services
- competition
- access to information
- communication channels
- leadership
- virtual aspects/ICT
- external economic impact

The prioritized clusters for Oahu include:

- Diversified Agriculture
- Film & Digital Media
- Information Communication Technology
- Life Sciences

Except diversified agriculture, dual use technology has been considered as a market segment for all other prioritized clusters. Oahu has historically benefited from heavy federal funding which has helped in fueling productivity and economic opportunities through dual use technological innovation. In 2002 alone, Oahu received nearly $8,335,064,000 in federal funds and grants. Dual use technology is the product of federally funded projects applied to civilian and commercial use. Projects for agencies such as NASA and the Departments of Defense, Commerce, and Energy have all focused on programs and facilities that not only meet national security objectives, but also have early and feasible application to civilian and commercial use.

DIVERSIFIED AGRICULTURE CLUSTER

Due to the double impact of import substitution and export enhancement, this cluster has critical importance in Oahu's future. During Oahu's plantation era sugar cane and pineapples were major agricultural revenue generators. Currently these crops are being replaced by smaller farms generating higher value diversified agricultural products.

In 2002, annual revenue from Oahu's diversified agriculture cluster was $113.2 million. This accounts for 31 percent of the annual revenues obtained by this cluster in the entire state. Additionally, Oahu produces 71 percent of the state's pineapple production.

OAHU	2002
Annual Revenue	$113.2 m
Share of Hawaii	31%
Pineapples	$70.9 m
Share of Hawaii	71%

(Source: Hawaii Agricultural Statistics Service)

Oahu's diversified agriculture cluster is still in its embryonic stage and future growth potential is immense. Oahu's competence in this cluster lies in the areas of (1) vegetables, ginger root, herbs & melon, (2) fruits, (3) floriculture, (4) aquaculture and (5) livestock (cattle, hogs, milk, eggs).

Revenues from various industries in Oahu's diversified agriculture cluster are given in the table on the right.

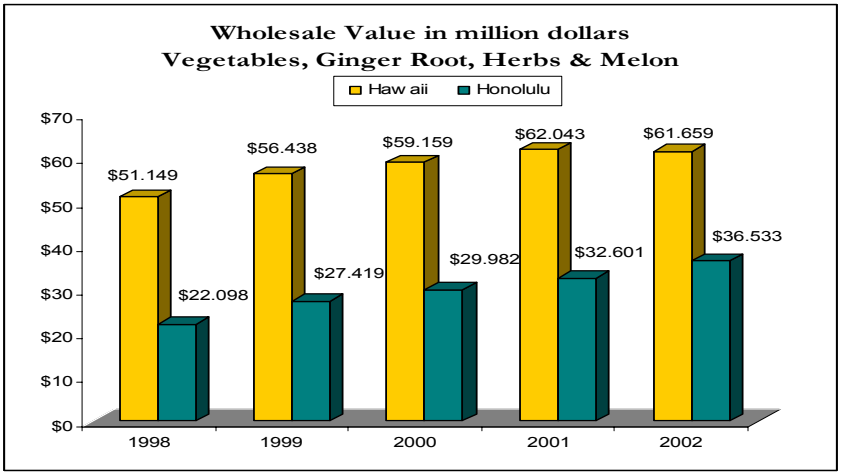
Oahu's Competence (annual revenue 2002)	
Vegetables, Ginger Root, Herbs & Melon	$ 36.5 m
Fruits (excluding Pineapple)	$ 3.7 m
Floriculture	$ 31.5 m
Aquaculture	$ 4.1 m
Livestock (Cattle, Hogs, Milk, Eggs)	$ 25.9 m

Different parts of Oahu have their own unique concentration of diversified agriculture. Critical success factors driving growth in Oahu's diversified agriculture cluster are:

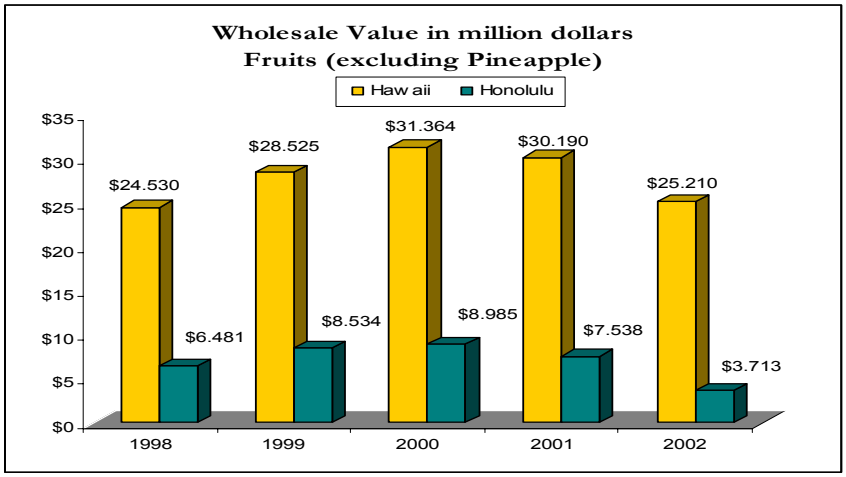
- Highly predictable climate that allows three growing seasons per year.
- Access to largest seafood markets in U.S. mainland and Asia. Fresh produce and manufactured products are finding global markets especially in Canada and Japan.
- "Grown in Hawaii", exports have gained recognition in foreign and domestic markets as premium products.
- Human capital from a highly educated, productive, multilingual workforce.
- Access to finance through the revolving loan program.
- Networking partnerships through the Hawaii Farm Bureau Federation.
- Ready access to information through the Hawaii Agricultural Gateway and Hawaii Agricultural Statistics Service.

- Innovative capabilities arising from:
    - University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR), the Hawaii Institute of Marine Biology and Departments of Zoology, Botany, Chemistry and Oceanography are all conducting basic and applied agriculture related research.
    - UH Sea Grant College Program - part of a nationwide network of 32 institutional programs of the U.S. National Oceanic and Atmospheric Administration (NOAA). During 35 years UH Sea Grant, through coordinated research and outreach activities, has attracted an investment of $82 million and built a wide range of partnerships among the university, government and private sectors.
    - Aquaculture development program (ADP) of the state department of land and natural resources helps farmers in planning and coordination, information dissemination, business counseling, marketing, animal health management and R&D funding.
    - Anuenue Fisheries Research Center (AFRC), a facility of the State of Hawaii's Division of Aquatic Resources, Department of Land and Natural Resources is situated on a 4.25-acre parcel on Sand Island, some six miles from downtown Honolulu.
    - Hawaii is the site for several regional programs including USDA tropical agriculture research unit, USDA regional center for tropical and subtropical aquaculture and gulf coast research laboratory consortium.
    - Oceanic Institute (founded in 1960) a not-for-profit research and development organization dedicated to marine aquaculture, biotechnology and coastal resource management. The institute develops leading marine science technologies to restore marine fisheries and to resolve problems associated with the culture of marine shrimp and finfish species including complete life-cycle technologies, aquatic feeds and nutrition and aquaculture production system design. The Oceanic Institute conducts collaborative research, provides consulting services and enters into partnerships to increase the productivity of the aquaculture industry. The institute is affiliated with Hawaii Pacific University.
    - Center for Tropical and Subtropical Aquaculture (CTSA) is one of five regional aquaculture centers in the United States established by the U.S. department of agriculture. CTSA was established in 1986 and is jointly administered by the Oceanic Institute and the University of Hawaii. CTSA's mission is to support aquaculture research, development, demonstration and extension education to enhance viable and profitable U.S. aquaculture. Unlike other centers, which work within a defined geographical region the CTSA "region" currently encompasses tropical and subtropical species wherever they are cultured within the United States and the U.S. affiliated pacific islands.

Vegetables, Ginger Root, Herbs & Melon – In 2002, Oahu's top 5 revenue generating vegetables were tomatoes, watermelons, green peppers, head cabbage and green onions. Forty eight percent of the County's total farm revenue was accounted by these 5 vegetables. The combined category of other vegetables and melons account for another 31 percent of total farm value. The industry has been witnessing steady revenue growth over the past 5 years.

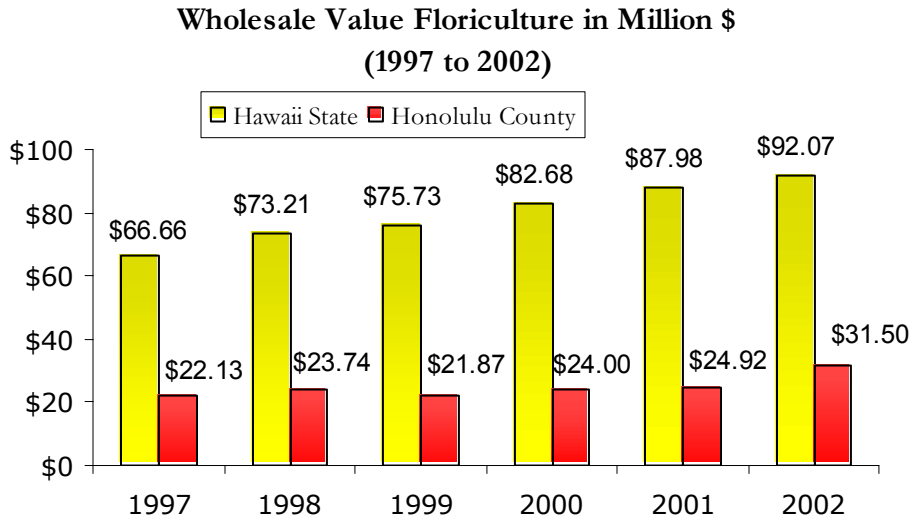


Fruits (excluding pineapple) – Apart from producing 71% of the state's pineapple, other fresh fruits grown by Oahu include avocados, bananas and papayas.



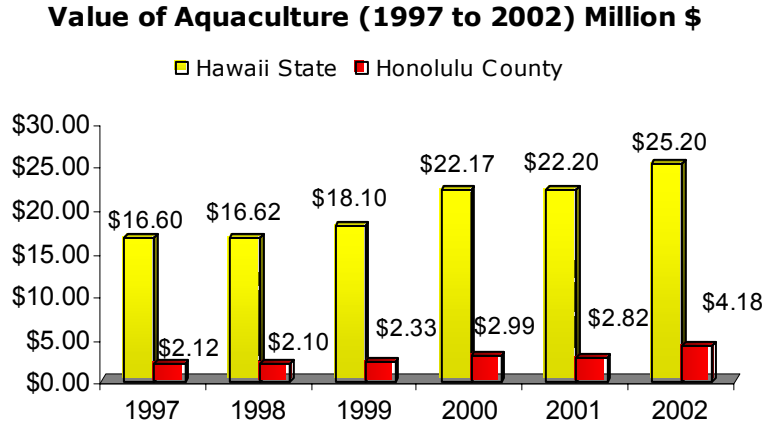
Floriculture – Oahu's floral and foliage products are known for their high quality and beauty. Protea, orchids and anthuriums are among the tropical flowering plants shipped regularly to hotels and resorts on the U.S West Coast. Most varieties of these tropical flowering plants were developed by horticulturists at the University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR).

CTAHR has an excellent plant breeding program that has been indispensable in keeping Hawaii's tropical floriculture industry among the best in the world. Honolulu's top five floriculture and nursery product categories include: (1) landscape plant material, (2) other potted orchids, (3) potted dendrobiums, plant rentals and (4) other bedding and garden plants. The chart given below provides an illustration of the rapid growth in this industry.



Source: Hawaii Agricultural Statistics Service

Aquaculture - Aquaculture, often referred to as fish or aqua farming, is the art, science and business of cultivating aquatic animals and plants in fresh or marine waters. Commercial aquaculture is currently conducted in Oahu, Kauai, Maui, Molokai and Big Island. In 2002, Oahu had 30 operations with a total production value of $4.18 million. The chart given below provides an illustration of the rapid growth in this industry.



Source: Hawaii Agricultural Statistics Service

INFORMATION & COMMUNICATION TECHNOLOGY (ICT) CLUSTER

Oahu's ICT cluster employs 9,580 in 730 establishments with an annual payroll of $507.6 million.

The information technology sector alone employs 4,130 workers in 579 establishments with an annual payroll of $253.3 million. The average annual wage in IT sector is $56,901.

OAHU	2001	HI Share
IT SECTOR		
Employment	4,130	94%
Establishments	579	79%
Annual payroll	$235.3 m	95%
Average Wage	$56,943	
TELECOMMUNICATION SECTOR		
Employment	5,450	87%
Establishments	151	72%
Annual payroll	$272.3 m	85%
Average Wage	$49,970	

(Source: DBEDT)

The telecommunication sector employs an additional 5,568 workers in 151 establishments with an annual payroll of $272.3 million. The average annual wage in telecommunication sector is $48,905.

Oahu's major competence in Information Technology Sector lies in:

- Software Development.
- Information Retrieval Services.
- Data Processing.
- Chip Design.
- Dual Use.

Oahu's major competence in the Telecommunication Sector lies in:

- Submarine Fiber Optic Cables.
- Broadband Satellite & Wireless.
- Wireless Cellular Phone.
- Internet Service Providers.
- Dual Use.

CRITICAL SUCCESS FACTORS

- **Networking** occurs through a variety of associations such as High Technology Development Corporation, the High Technology Trade Association, the Association of IT Professionals in Hawaii, the Association of Internet Professionals (Hawaii Chapter), the Hawaii Venture Capital Association, the Information Systems Audit & Control

Association, the Information Systems Security Association, the Pacific Telecommunication Council and the Hawaii Telecommunications Association.

- **Innovative Technology**
  - *Office of Technology Transfer and Economic Development (OTTED)* - New inventions and technologies developed at the University of Hawaii are available for licensing. The OTTED maintains a listing of their inventions and technologies and facilitates technology transfer and licensing.
  - *UH's Electrical Engineering and Computer Sciences departments* – are conducting pioneering research in intelligent image processing and strategic resource management.
  - *University Connections* - founded in February 1999, helps connect entrepreneurs inside and outside the UH with necessary resources. The organization administers the Accelerated Research Commercialization (ARC) grant and New Economy Research grant. Each month University Connections arranges a "Meet the Researchers" meeting which features a different UH presentation on an exciting area of research, along with a business person's perspective on its commercialization prospects.
  - *EPSCoR* - Hawaii is designated as an EPSCoR state (Experimental Program to Stimulate Competitive Research) by the National Science Foundation. Hawaii's EPSCoR institutions include the University of Hawaii campuses throughout the university system. In addition, Hawaii participates in the EPSCoR or EPSCoR-like programs of: Departments of Defense, Energy, Environmental Protection Agency (EPA) and the National Institute of Health.
  - *Collaborative Software Development Laboratory (CSDL)* - at the Department of Information and Computer Sciences in UH works with the mission to provide a physical, organizational, technological and intellectual environment conducive to collaborative development of world-class software engineering skills.
  - *Hawaii Center for Advanced Communications (HCAC)* - is a research and education center in the University of Hawaii's College of Engineering. HCAC supports research and training on a wide range of advanced communication technologies with a special emphasis on broadband and wireless communications. HCAC has an "Industry Partners Program" to stimulate collaborative research, joint development of technologies, student and faculty interaction with companies and other means to integrate industry, academic research and education in advanced communications.

- **Human Capital –** Oahu's outstanding training facilities are creating a fast-growing IT sector that attracts students and workers from all over the world.
    - *Pacific Center for Advanced Technology Training (PCATT*) a consortium of University of Hawaii Community Colleges is committed to the development of a skilled and knowledgeable workforce in Hawaii. PCATT offers customized training packages.
    - *Honolulu Community College* has partnered with Cisco Systems to provide certified network designations.
    - *Hawaii Pacific University* has undergraduate and graduate programs in the IT field.
    - *University of Hawaii Department of Information and Computer Sciences* supports Honolulu's information technology sector through education and research, and acts as a catalyst for the growth of entrepreneurial high technology and software intensive industries.
    - *Chaminade University* provides BS and AS programs in Computer Science and Computer Information Systems.
    - *Brigham Young University* has programs in Computer Science and Information Systems.
    - *University of Phoenix* has BA and MBA programs in e-business, Technology Management and Information Systems.
    - *American University of Hawaii* has BS, MS and Doctorial programs in Computer Science.

- **Physical Infrastructure**
    - *Tech Parks/Incubators* – Kapolei Business Park, Honolulu's Manoa Innovation Center and Mililani Technology Park are all facilities committed towards growth in the IT sector.
    - *Maui Super Computer* - Companies located in Honolulu can also make use of the supercomputer in Maui, ranked one of the most powerful computational centers in the world.
    - *Telecom Backbone* – Honolulu's strategic mid-pacific location has made it an optimal surfacing location for fiber optic cables between mainland U.S and Asia. Digital submarine cables link Hawaii to destinations in North America and Asia. Some of the major networks include Southern Cross Cable Network and Japan-US Cable Network. The entire state of Hawaii is internally wired with several other terrestrial networks. Kapolei has fiber optic cable facility and a teleport. Sophisticated Satellite Network complements the mature terrestrial network. Advanced Communications Technology Satellite (ACTS), operated by NASA, provides point-to multi point connectivity. Hawaii's research and education facilities such as the Maui Super Computer, Mauna Kea Observatory complex, and the numerous campuses of

the University of Hawaii are on the backbone of the I-2 network and accessible worldwide to research partners.

- **Access to Markets**
  - *Dual Use* - Several Honolulu based IT companies have secured multimillion defense contracts and other companies are exploring dual use contracts.
  - *Time Zone & High Speed Connectivity* - Honolulu's mid pacific location combined with high speed connectivity offers time zone advantage and access to major markets in mainland U.S. and Asia.

- **Access to Finance**
  - *High Tech Investment Tax credits* - Hawaii offers technology companies with one of the most progressive investment tax credit in the country. Qualified High Technology Businesses (QHTB) is provided with 100 percent return on cash investments on a front-loaded basis over 5 years.
  - *Federal R&D dollars* - spent in Oahu either cover the cost of federal R&D units operating in the county or are awarded as grants, contracts and cooperative agreements to other entities.
  - *High Technology Development Venture* – HTDV is a program of the Pacific International Center for High Technology Research (PICHTR) and funded by the Office of Naval Research (ONR). The program utilizes the capabilities of Hawaii-based small businesses in performing high technology efforts related to current and future Department of Navy and Department of Defense programs.
  - *Venture Capital Funds* - Hawaii Strategic Development Corporation (HSDC) provides equity growth financing to local technology companies through private sector venture capital limited partnerships. HSDC has committed $13.5 million to seven limited partnerships, which provide equity and/or debt financing to companies ranging from seed stage to later stage in their business development. MN Capital LLC is the managing member and HSDC is a member of HSDC Capital Fund LLC. This organization was established to transfer HSDC's investment portfolio in various funds into a newly created fund of funds. Unlike other venture capital partnerships, the fund of fund invests in a portfolio of venture funds, which in turn invests in start-up companies.

- **Access to Business Support Services**
  - *Hawaii Software Service Center at UH* - provides strategic market information and business development resources for

companies that create, sell, use or support software-based products.

- *Hawaii Business Entrepreneur Acceleration Mentors (HiBEAM)* - Professional advice is provided for selected startups at critical stages of development. Selected companies have access to mentors in the areas of management/leadership, law, marketing/public relations, commercial banking, risk management, accounting and venture capital funding.
- *Hawaii Energy Alternatives Team (HEAT)* - Private sector initiative to help form an energy research community by assisting researchers, entrepreneurs and investors to form new ventures and commercialize new technologies for energy independent and environmentally friendly living. HEAT also plans to extend the promotion of new energy R&D ventures globally, so as to attract new talent, collaborators, investors and markets.
- *Hawaii Small Business Development Center (SBDC) Network* - Provides support services for small or new businesses through training, free consulting from professional staff and business professionals, business plan assistance, business planning and research and confidential counseling online.
- *Hawaii Technology Development Corporation (HTDC)* – is a state agency tasked with the development and growth of Hawaii's commercial high technology sector. Established by the legislature in 1983, HTDC provides broad based programs ranging from incubation to federal research and development partnerships to marketing.

FILM & DIGITAL MEDIA CLUSTER

Oahu's Film & Digital Media Cluster includes (a) traditional film & television production sector and (b) digital media sector which include digital film making, video games, computer animation and dynamic web design.

Film & Television Production: Historically, Hawaii has been a major tropical location for film & television production. Hawaii as a choice of film and television production is evident from the hosting of 190 motion pictures since 1913 and 18 TV series (735 episodes) hosted since 1968. Future plans are aimed at making Oahu a full service film & television production center rather than a location backdrop.

During 2000, Oahu's film & television sector revenues reached $97 million. Oahu's revenue accounted for 71 percent of the state's film revenue. According to a road map prepared by the Hawaii Film Offices, there is potential for Hawaii's film and television industry to grow to a $300 million per year industry within ten years.

	2000
HI Annual Revenue	$136m
Oahu Annual Revenue	$97m
Oahu's share of Hawaii	71%
Employment	4,000

(Source: Hawaii Film Office)

According to these estimates, Oahu's film and television industry provided full time employment for an estimated 4,000 local residents in year 2000. Projections indicate employment to quadruple to 16,000 full time positions within ten years.

Production facilities present throughout the state are running at full capacity. More production facilities are critical for the sector's growth. Infrastructural requirements include studio space, sound stages, film mapping facilities and post-production facilities.

Digital Media: The Academy of Creative Media is geared to produce professionals who will not only be experts in digital media but also excellent story writers. Oahu already has a handful of companies specializing in this sector. Given Honolulu's excellent telecommunication infrastructure that allows real time collaboration the sector has immense export potential. Dual approach of workforce development and business incubation is being followed to fuel further growth in this sector.

Some of the major reasons Oahu targets the film & digital media cluster are due to its: (1) clean and non-polluting nature, (2) creation of skilled labor jobs, (3) enormous promotional exposure and (4) complement Oahu's visitor industry.

CRITICAL SUCCESS FACTORS

- *Networking Partnerships* – Hawaii Film & Entertainment Board is a committee of the state and county commissioners, trade union representatives and associations.

- *Human Capital*
    - *Academy for Creative Media (ACM)* is a system-wide interdisciplinary initiative that seeks to leverage existing university resources and assets across all ten University of Hawaii (UH) campuses and the three UH centers in the architecting of a comprehensive, world-class creative media program.
    - *Collaborative Software Development Laboratory* at the department of information and computer sciences at UH works with the mission to provide a physical, organizational, technological and intellectual environment conducive to collaborative development of world-class software engineering skills.
    - *Pacific New Media (PNM*) presents popular classes and workshops taught by an exceptional group of nationally recognized professionals. Highly respected on an international level, the PNM program offers participants the tools they need to excel in their chosen fields. Balancing creativity with technology, PNM is the premier digital and media education center in Hawaii.

- ***Infrastructure -*** Oahu's current facilities infrastructure include – 2 stages, 1 water tank, 2+ alternate stages, 12 television studios, 5 recording studios, 5 facilities for screening rooms, 8 stock footage libraries and 6 still photo libraries.

- ***Access to Finance -*** Two different sets of tax incentives are available for film and television production in Hawaii. A high-tech investment tax credit is applicable to a television and film production company wanting to establish a presence in Hawaii. A Motion Picture and Film Production Income Tax Credit is a refundable tax credit for production taking place in Hawaii.

- ***Access to Markets -*** Hawaii is served by over 30 airlines that offer more than 600 arrivals and departures per week. From Honolulu, travel to all major Pacific Rim destinations can be accomplished in a single day. Honolulu is ranked high for its logistic friendliness. Honolulu's central position between time zones also allows communication with cities from Sydney and Tokyo to Los Angeles and New York during the same day.

LIFE SCIENCES CLUSTER

The Life Sciences cluster includes companies, organizations and institutions devoting majority of their efforts in research, development, technology transfer and commercialization across the following fields: biotechnology, pharmaceuticals, biomedical technologies, biomedical devices, environmental, food processing, cosmeceuticals and nutraceuticals. Hawaii's Life Sciences cluster is the smallest but fastest growing segment of Hawaii's high technology sector.

Biotechnology	2001	Share of HI
Employment	145	16%
Establishments	12	32%
Annual payroll	$3.648m	14%

Due to data limitations, these figures do not include the biotechnology R&D at private hospitals and University of Hawaii. (Source: DBEDT)

Healthcare	2001	Share of HI
Employment	30,624	80%
Establishments	1,896	73%
Annual payroll	$1.25b	81%

(Source: Hawaii Department of Labor and Industrial Relations)

A road map is currently being prepared for cluster development and will assess Hawaii's core competence and potential actions necessary to foster growth.

Oahu's competence in the cluster include:

- Biotechnology – agriculture, marine, human therapeutics, environmental bioremediation
- Medical technology
- Dual use

Agriculture Biotechnology: Hawaii's agro-biotechnology is found in corn seed, plant tissue culture, tropical fruits and beverages. The industry uses plant genetics to produce plants that have enhanced nutritional qualities or ripening characteristics, altered or enhanced color and resistance to pests and viruses. This approach not only reduces the need for chemical pesticides but also prevents soil and water contamination while reducing health risks. Hawaii has played an important early role in agricultural biotechnology through the development of genetically engineered papaya with resistance for the "ring-spot" virus.

Marine Biotechnology: This industry searches for applications among the 30,000 known species of marine organisms for developing new drugs, vitamins, nutritional products and enzymes. Hawaii companies and institutes support a range of marine biotechnology research and development projects in

botanicals, nutraceuticals, phytopharmaceuticals, aquaculture and biomaterials.

Human Therapeutics: Oahu is successfully conducting human genome research already tracking down a gene mutation which is responsible for rare PXE diseases. These diseases usually result in blindness, heart disease and shortened life expectancies.

Dr. Ryuzo Yanagimachi and his team of scientists were internationally recognized for producing the first cloned mice and transgenic green mice as visible demonstrations of the ability to transfer genetic material from one species to another. Oahu's diverse population has led to the successful completion of various epidemiological studies in the state.

Environmental Bioremediation: Bioremediation is the use of living organisms to reduce environmental contamination. Oahu is a leader in the use of highly efficient electro technologies for lighting, cooling and other demand-side applications. Federally funded environmental bioremediation research, demonstration and educational programs including those administered through PICHTR and Hawaii's diversity in climate, plant species and geology make it a strategic regional player. The agriculture based remediation program (ABRP) is funded through PICHTR as local agent for the U.S. Department of Agriculture.

Medical Technology – Dual use technology is fostering developments in Hawaii's medical technology industry. Despite the current nascent state of the industry dual use combined with local demand will grow this industry.

CRITICAL SUCCESS FACTORS

- ***Networking Partnerships –*** Hawaii Life Sciences Council, the Hawaii Technology Trade Association, the Kakaako Revitalization Association, Enterprise Honolulu and Economic Development Alliance of Hawaii.

- ***Human Capital -*** Educational Institutions supporting the various industries in this cluster:
    - Agriculture and Marine Biotechnology - University of Hawaii's College of Tropical Agriculture & Human Resources (CTAHR), Hawaii Agriculture Research Center (HARC) and Marine Bioproducts Engineering Center (MarBEC).
    - Human Therapeutics - John A. Burns School of Medicine, Pacific Biomedical Research Center, Cancer Research Center of Hawaii and Pacific Health Research Institute
    - Environmental Bioremediation - PICHTR funds an agriculture based bioremediation program.

- Medical Technology – The Laboratory of Intelligent and Parallel Systems (LIPS) at University of Hawaii's department of engineering is leading research in a variety of advanced medical technology areas. In addition, the University of Hawaii's John A. Burns School of Medicine offers a BS program in Medical Technology.

- ***Access to Finance -*** Hawaii's high-tech investment tax credit is the most progressive investment tax credit in the nation. Oahu's venture capital industry is also growing rapidly.

  HSDC provides equity growth financing to local technology companies through private sector venture capital limited partnerships. HSDC has committed $13.5 million to seven limited partnerships, which provide equity and/or debt financing to companies ranging from seed stage to later stage in their business development.

- ***Infrastructure -*** Apart form the various research institutes operating in Honolulu County, the Kakaako Biotech complex, nearing completion, is expected to be a catalyst in the cluster's growth.

- ***Access to Markets -*** Hawaii is served by over 30 airlines that offer more than 600 arrivals and departures per week. From Honolulu, travel to all major Pacific Rim destinations can be accomplished in a single day. Honolulu is ranked high for its logistic friendliness. Honolulu's central position between time zones also allows communication with cities from Sydney and Tokyo to Los Angeles and New York during the same day.

- ***Access to Business Support Services -*** Hawaii Business Entrepreneur Acceleration Mentors (HIBEAM), Hawaii Opportunities Group LLC, Hawaii Small Business Development Center, DBEDT, Enterprise Honolulu, Hawaii Technology Trade Association, Hawaii Venture Capital Association, High Technology Development Corporation are all committed players for assisting growth in this cluster.

IDENTIFIED PROJECTS

This section lists physical infrastructure projects identified as critical to Oahu's cluster growth. The projects are divided into short range, medium range and long range categories.

SHORT RANGE PROJECT LIST

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
DIVERSIFIED AGRICULTURE CLUSTER							
DAS1	Inter-Island Ferry Facility Improvements	Hawaii Department of Transportation	Public Works	300+	$3M	$105,458,400	~ CIP citation
DAS2	Kapiolani Community College Culinary Institute		Public Works	600 placements (over 5 yrs)	$3M	$14M (Phase I) $6M (Phase II)	~ Legislative appropriations ~ Governor's release ~ Foundations ~ Corporate donors ~ Private donors ~ Federal funds ~ State funds
DAS3	Hawaii Seal of Quality (Branding) Program	Hawaii Department of Agriculture	Economic Adjustment		$500,000 (over 5 yrs)	$1M (over 5 yrs)	~ State government agencies ~ County government agencies ~ Private industries

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
INFORMATION & COMMUNICATION TECHNOLOGY (ICT) CLUSTER							
ICS1	IT/Software Development Incubator	Hawaii Technology Trade Association	Public Works	50 minimum	$500,000	$1 M+	~ Private sector ~ City & County of Honolulu ~ Non-profit organizations
ICS2	Wireless Waikiki/Oahu	Hawaii Technology Trade Association	Public Works		$500,000	$1M+	~ Private sector
ICS3	Hawaiian Homestead Technology	Council for Native Hawaiian Advancement	Partnership Planning	36+	$350,000	$700,000	~ Program Revenue ~ Local foundations ~ Private organizations
ICS4	Information Technology and Training Facility (ITTF), FY 2005	Oceanic Institute	Public Works	90	$1.5 M	$ 3 M	
FILM & DIGITAL MEDIA CLUSTER							
FDS1	Academy for Creative Media (facilities)	UH - Academy for Creative Media Hawaii Film Office	Economic Adjustment		$3M	$6M	~ UH Foundation-designated donations ~ UH CIP Appropriation

SL No	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
LIFE SCIENCES CLUSTER							
LSS1	Life Sciences Technician Workforce Training Facility	UH, OWIB, Life Sciences Consortium	Public Works		$3M	$ 6M	~ Kakaako Revitalization Association ~ UH ~ OWIB
LSS2	National Cancer Institute (NCI)-designated Comprehensive Cancer Center	Cancer Research Center of Hawaii Hawaii Pacific Health	Public Works	100 to 700	$375,000	$150M+	~ Cancer Research Center of Hawaii ~ Hawaii Pacific Health
LSS3	Kakaako Parking Structure	Hawaii Community Development Authority	Public Works		$3M	$20M	~ Revenue bonds
SUPPORT INDUSTRIES PROJECTS							
SIP1	Construction Training Center of the Pacific (CTC-Pacific)	Building Industry Association – Hawaii	Public Works		$2M	$4M	~ City and County of Honolulu ~ Weinberg Foundation

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
SIP2	International Trade Resource Center	DBEDT - Foreign Trade Zone Division	Public Works	700	$1.7M	$6.8M	~ Federal Funds ~ State Funds
SIP3	Native Hawaiian Cultural Center	Pa'I Foundation	Public Works	77	$2.5M	$5.0509M	~ Ford Foundation ~ Department of Hawaiian Homelands ~ Office of Hawaiian Affairs
SIP4	Caregiver Training/Apprenticeship Program; Long Term Care Financing & Infrastructure Development	Hawaii State Department of Health	Public Works	260 (over 2 yrs) plus 100 to 150 more / year after	$10M	$20M	~ Hawaii State Department of Health (in-kind staff services, supplies, and facilities) ~ Native Hawaiian Health System ~ Native Hawaiian organizations ~ Other businesses

MEDIUM RANGE PROJECT LIST

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
DIVERSIFIED AGRICULTURE CLUSTER							
DAM1	Waiahole Water System Repair	Agribusiness Development Corporation	Public Works	4% increase per year	$125,000	$250,000 (over 2 yrs)	~ Waiahole Water System Revolving Fund
DAM2	Development of Anthurium Industry in Waimanalo	Friends of Waimanalo	Local Technical Assistance	25	$150,000	$2M (for 5 yrs)	~ AMA Grant ~ Hawaiian agencies ~ Castle Foundation ~ Castle Foundation
DAM3	Land-Based Support for Offshore Aquaculture Development	Aquaculture Development Program	Economic Adjustment	2500 (over 10 yrs)	$1.25M	$2.5M	~ In-Kind State salaries & operating costs ~ Legislative Appropriations

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
INFORMATION & COMMUNICATION TECHNOLOGY (ICT) CLUSTER							
ICM1	Media Park Hawaii	Hawaii Technology Trade Association	Public Works	8 to 10	$750,000	$1.5M	~ Private Sector ~ Private Foundations
ICM2	Hawaii Tech Jobs Website	Hawaii Technology Trade Association	Public Works	100 minimum	$100,000	$200,000	~ Private sector ~ Alumni Associations
LIFE SCIENCES CLUSTER							
LSM1	Kakaako Improvement Districts	Hawaii Community Development Authority	Public Works		$2M annually	$10M annually	~ HCDA Revolving Funds

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
LSM2	Position Kakaako	HCDA, DBEDT (possible partner) HTDC (possible partner)	Economic Adjustment		$100,000	$200,000	~ HCDA Revolving Funds
SUPPORT INDUSTRY PROJECTS							
SIM1	Woodworking Trade School	Ka Lama O Kamani	Public Works	25 (first year) increase to 50/yr	$2M	$4M	~ Private sector
SIM2	Nanakuli Housing Corporation Facility	Nanakuli Housing Corporation	Public Works	50	$700,000	$1.4M	~ State of Hawaii - Department of Home Lands ~ Administration for Native Hawaiians ~ Economic Development Institute ~ Alu Like ~ Native American Housing Assistance & Self Determination Act ~ Nanakuli Housing Corporation (in-kind volunteer labor and facilities)

LONG RANGE PROJECT LIST

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
DIVERSIFIED AGRICULTURE CLUSTER							
DAL1	Entrepreneur Development System	UH – CTAHR	Local Technical Assistance	240	$1M	$2M (three years)	~ Kellogg Foundation
INFORMATION & COMMUNICATION TECHNOLOGY (ICT) CLUSTER							
ICL1	Dual Use Technologies Resource Center	Hawaii Technology Trade Association	Local Technical Assistance	50 minimum	$150,000	$300,000	~ Private sector
ICL2	Construction Training Tech-Based Warehouse	Nanakuli Housing Corporation	Public Works	40 per yr (for next 5 yrs)	$3M	$3M	~ Department of Hawaiian Home Lands ($3 M in land value)
LIFE SCIENCES CLUSTER							
LSL21	Grand Innovation Cluster Strategy	Kakaako Community Revitalization Association	Economic Adjustment		$150,000	$300,000	~ Private Sector

SL NO	Project Name	Applicant	Project Type	Estimated Jobs	EDA Request	Estimated Cost	Potential Source of Matching Funds
LSL2	Master Plan for Facilities	Kakaako Community Revitalization Association	Economic Adjustment		$150,000	$300,000	~ Private Sector
SUPPORT INDUSTRY PROJECTS							
SIL1	Chinatown Renovations	Honolulu Culture and Arts District Association	Economic Adjustment	40	$2.4M	$4.9 M	
SIL2	Association of Hawaiian Civic Clubs Facility	Association of Hawaiian Civic Clubs	Local Technical Assistance	22	$799,000	$1.598M	~ U.S. Department of Housing and Urban Development
SIL3	Hawaii Community Loan Fund	Hawaii Alliance for Community-Based Economic Development	Local Technical Assistance	461 (over next 5 yrs)	$3M	$6M	~ Local funding organizations ~ Interest earned on portfolio operations
SIL4	Building Environment	Pacific Resource Partnership	Economic Adjustment		$1.25M (for 5 yrs)	$2.5M (for 5 yrs)	~ Professional associations ~ Labor unions ~ Private companies ~ In-kind services from industry professionals.

SHORT RANGE PROJECT DESCRIPTION

Diversified Agriculture Cluster

DAS1 - Inter-island Ferry Facility Improvements

Inter-island ferry facility improvements—including pier improvements, ramp equipment, and terminal and parking construction.

Total project cost is $105,458,400 (Phase I - $43,638,200, Phase II - $29,810,100, Phase III - $32,010,100). Amount of EDA funding requested is $3 million.

DAS2 - Kapi'olani Community College/Culinary Institute of the Pacific

Kapi'olani Community College/Culinary Institute of the Pacific acquired a favorable long-term lease (65 years) on the former Cannon Club site located on historic Diamond Head State Monument. The college's strategic plan includes the development of a world-class, LEEDS certified, high-tech facility which will include; a four-star signature restaurant, duel-use function training rooms, state-of-the-art open kitchen, pastry and cooking classrooms and labs, demonstration theatre and competition kitchen, snack and gift shop, and garden theme plots. The parking area will provide spaces for facility users, Diamond Head State Monument visitors, as well as serve as the base for the visitor center and tram ticket office. The Kapi'olani Community College/Culinary Institute of the Pacific project is an integral part of the Diamond Head State Monument Master Plan, which was accepted by the Board of Land and Natural Resources in 1979, later updated in 1998, and adopted by the Legislature as the official document setting for the future direction of the Monument (Act 313, SLH 1992).

Total construction project cost is $20-22 million (Phase I - $14 mil, Phase II - $6 mil). Amount of EDA funding requested: $3 million

DAS3 – Hawaii Seal of Quality (Branding) Program

Establish and promote the Hawaii Seal of Quality (Branding) Program. Two years ago the Hawaii Legislature passed a law that provided for a voluntary branding program for agricultural and food products that are grown or produced in Hawaii. Hawaii products have been known throughout the world for its quality and command higher prices in the market. Many producers outside of Hawaii have unfairly capitalized on this made in Hawaii image by leading consumers to believe that their products originated in Hawaii. The Hawaii Seal of Quality Program consists of the following three components: origin, content, and quality that will be enforced.

Total project cost: $1,000,000 over 5 years. Amount of EDA funding requested: $500,000 over 5 years.

Information & Communication Technology Cluster

ICS1 – IT / Software Development Incubator

There is a great and urgent need for additional incubator facilities and services for Hawaii's growing IT and software start-ups. To grow Hawaii's technology industry, we need to provide start-ups with the resources they need to turn their intellectual property into commercial businesses. Software developers and IT companies are growing exponentially in Hawaii, but need the proper resources and guidance to be successful. Incubators not only provide affordable lease-rents and shared facilities, but also work with start-ups to provide the business support and mentoring start-ups need in areas such as business plan development, marketing, product distribution, etc. HTTA, along with EDA, and the City & County of Honolulu proposes to develop an incubator focusing on IT/Software Development. City & County has already expressed interest in providing possible City-owned facilities that have not been maximized or used. With HTTA's leadership, and membership involvement, a successful incubator can be developed.

Total project cost is $1,000,000+. Amount of EDA funding requested: $500,000 (a large portion of the funding requested will go towards retrofitting the selected facility for high speed connectivity, computers, and renovations of the interiors.

ICS2 – Wireless Waikiki / Oahu

Wireless connectivity has exploded in recent years. From "hot spots" in cafes and airport, "hot zones" encompassing larger areas have exploded across the nation. Many areas even have "hot cities", such as San Diego and Anaheim. What better way to support Hawaii's image as a place to do business than to develop "Wireless Waikiki" or even "Wireless Oahu". The technology is available and local Hawaii companies are on the cutting edge. HTTA proposes to work with EDA, tourism industry organizations and companies, and local wireless companies to deploy "Wireless Waikiki". "Wireless Waikiki" would provide the visitor a seamless and consistent access to the internet throughout their visitor experience from the airport throughout Waikiki, not just in-room, but more importantly, outside and common areas. The visitor profile has changed over the years. Even those vacationing in Hawaii still need to be connected to their businesses and "Wireless Waikiki" will provide added-value to their experience in Hawaii.

Total project cost is $1,000,000+. Amount of EDA funding requested is $500,000.

ICS3 – Hawaiian Homestead Technology

Hawaiian Homestead Technology. The Council for Native Hawaiian Advancement (501c3) launched a project entitled Hawaiian Homestead Technology (HHT) in January 2003. The mission of HHT is to create and

sustain living wage *technology* jobs in economically challenged Native Hawaiian communities, and to transfer a plethora of technological and managerial skills to residents of Hawaiian homestead communities and Native Hawaiian Community non-profits.

The first target information technology industry is document digitization, or the conversion of paper (maps, manuals, charts, diagrams, schematics) into electronic formats (SGML, XML, CAD). HHT launched its first Technology Center in Anahola, a rural community on Kauai. Nearly 20 public and private organizations supported the start up phase (facility, equipment, start up, and training). HHT currently has 12 employees that started with virtually no computer skills (they all went through an intensive six month training program). Self sufficient now for over a year, the team has worked on projects for both the commercial (Delta Airlines) and federal (Army, Navy, Marines) sectors. With excellent marketing as a result of joining an unprecedented alliance of American Indians, Alaska Natives, and Native Hawaiians, HHT has roughly 4 years of document digitization work for roughly three centers. Now, HHT's push is to open two more document digitization centers in the homestead communities of Waimanalo and Papakolea over the next 12 months. HHT's need is for one time capital to obtain adequate facilities, start up equipment, and a six-month training period. As demonstrated in Anahola, program revenue is sufficient to sustain operations once market productivity is reached.

Total project cost is $700,000. Amount of EDA funding requested is $350,000.

ICS4 - Oceanic Institute – Information Technology and Training Facility (ITTF), FY 2005

This project will complement and complete the Oceanic Institute's (OI) Oceanic Learning Center. The first facility completed, the Information Technology and Training Facility has received such an overwhelmingly positive response creating an immediate need to expand the facility. This project will provide approximately 7000 square feet of additional classrooms, a laboratory classroom and much needed administrative and storage space for our training and education programs. OI estimates that the completion of the Oceanic Learning Center and other related facility expansions will create up to 90 new full-time employment opportunities over the next 10 years. Among the types of positions that would be created are training and education specialist, training and education assistant, accounting assistant, custodian, facilities maintenance technician, human resource assistant, office assistant, receptionist, researchers, research technician, secretary, and security guard.

Total project cost is $3 million. Amount of EDA funding requested is $1.5 million.

Film & Digital Media Cluster

FDS1 – Academy for Creative Media (Facilities)

Design and construction of the Film and Digital Media facilities based on the Master Plan for the University of Hawaii's Academy for Creative Media. The Master Plan calls for design and construction of a digital media incubator combined with anchor tenant space and classrooms and office space for instructors. The "campus" will include parking and landscaping to shield the surrounding community

Total project cost is $6.0 million. Amount of EDA funding requested is $3 million.

Life Sciences Cluster

LSS1 – Life Sciences Technician Workforce Training Facility

This project is a public/private consortium among Kakaako based Biotechnology/Life Sciences/ Information Technology services providers, the Oahu Workforce Investment Board, and the University of Hawaii community colleges through their Pacific Center for Advanced Technology Training (PCATT) that will result in cost effective entry-level technician training and incumbent worker re-training for low and moderate income residents of the area. As detailed earlier in the Hawaii application, human capital is cited as a Critical Success Factor in more than 70% of the articles mentioning success criteria. This is especially true in the development of a new industry as is the case in this proposal. While existing associate and baccalaureate degree programs can be modified and expanded once the industry is well established, there is a critical need to develop an industry responsive short-term training capacity in close proximity to emerging biotech/life sciences/IT businesses. This need has been recognized by the partners in the consortium who have committed to providing $3,000,000 in matching funds to support the design and delivery of specialized training for low and moderate income individuals seeking employment as bio-tech laboratory and information technology technicians. Recognizing that effective short-term training occurs within environments where both federal and private industry funded research is conducted in proximity to employers work sites, the plan is to develop and operate a co-located facility that will support the growing medical research investment into the State of Hawaii. The technician training center will also be co-located near the University of Hawaii School of Medicine in the University of Hawaii Biomedical Research location and will serve as a tenant in a facility located in the Kakaako neighborhood in Honolulu, Hawaii to attract and develop the emerging biotech/ IT industry.

Total project cost is $6 million construction and equipping of specialized bioscience and computer training laboratories, and the delivery of focused short-term training to meet growing new industry work force requirements.

Amount of EDA funding requested is $3 million for project planning and facilities construction costs.

LSS2 – National Cancer Institute (NCI)-designated Comprehensive Cancer Center

This project is a public/private consortium among Hawaii healthcare providers and the Cancer Research Center of Hawaii that will result in an outpatient/cancer research facility to elevate the Center to a National Cancer Institute (NCI)-designated Comprehensive Cancer Center and thereby increase Hawaii's potential to attract research investment into the region. Recognizing that effective research occurs within environments where both federal and private industry funded research is conducted in proximity to clinical patient care delivery sites, our plan is to build a co-located facility that will bring further oncology medical research investment into the State of Hawaii. The outpatient/cancer care project will also be co-located near the University of Hawaii School of Medicine in the University of Hawaii Biomedical Research location and will serve as an "anchor tenant" of this new campus facility located in the Kakaako neighborhood in Honolulu, Hawaii to attract and develop the emerging biotech industry.

Total project cost is $150 million to $200 million for construction and equipping of cancer research labs and the clinical component for patient care. Amount of EDA funding requested is $375,000 to cover project planning costs (planning/meeting, legal, architectural studies).

LSS3 – Kakaako Parking Structure

Construction of 1,000-stall central parking structure Kakaako Makai.

Total project cost is $20 million. Amount of EDA funding requested is $3 million (CIP Public Works)

Support Industry Projects

SIP1 – Construction Training Center of the Pacific (CTC – Pacific)

The Construction Training Center of the Pacific (CTC) is seeking funds to build a facility for the development of a sustainable construction workforce in Hawaii through career development and life-long learning programs. CTC's goals are two fold: first: to reach out to communities at large, women, youth, minority and disadvantaged groups; and second, to provide continuing education to the construction industry including promotion of a safe work environment, participation in comprehensive designation programs that promote entrepreneurship and company success.

CTC has already formed strategic partnerships with Kamehameha Schools/Bishop Estate, Nanakuli Housing Corporation and ALU LIKE, Inc. to provide unemployed clients the opportunity to train during the day, and those

with jobs during evenings and weekends. Youth and adults have the opportunity to go through BIA partner programs and enter CTC's pre-apprenticeship construction training (PACT) program.

In addition to working with the industry, CTC, through partnerships with the Office of Hawaiian Affairs, Volunteer Resource Center, and Pacific Gateway Center, will help introduce Native Hawaiians and integrate recent immigrants into Hawaii's construction industry. This clientele can benefit from focused skills training to prepare for entry into the workforce—and the CTC can open up opportunities that will enable Native Hawaiians as well as new immigrants to increase the capacity of their communities to achieve and sustain economic growth and equity. BIA projects that it will place well over 1000 PACT graduates in the construction industry in the next five years and reach thousands more clients through its continuing education classes.

The total project cost is $4 million. Amount of EDA funding requested is $2 million.

SIP2 – International Trade Resource Center

The international trade sector in Hawaii's economy is underdeveloped. The State of Hawaii through its Department of Business, Economic Development and Tourism (DBEDT) has a trade development strategy to increase the amount of international trade that occurs in Hawaii. FTZ plans to improve the business environment conditions and expansion of the current Pier 2 facilities will create a model of efficiency and a growing maritime services hub. Upon completion of the planned $6,850,000 capital improvement project, this center will support additional trade, industrial, and technology based employment in Kakaako. More specifically the three components are:

- Hub for international trade resources: Add space to attract organizations that develop and facilitate small business development international trade and house trade-related non-profit organizations (e.g. DBEDT's Business Action Center and Federal SBDC programs). We believe that by concentrating these international trade resources in one location, we will increase business formation, improve coordination in Hawaii's international trade community, and ultimately increase the amount of international trading activity in Hawaii.
- International Business Attraction: Attract companies seeking to gain a presence in the United States. This incubator will target first and foremost existing established technology companies seeking to phase-in operations in the US, and also potential new start-up businesses. We believe that we can capitalize on the significant air links between Hawaii and the Pacific Rim to our $14 billion visitor industry. Other government agencies that provide one-stop business formation service that assists foreign-owned enterprises with the legal and government processes required for establishing a U.S. subsidiary of a foreign corporation or a new corporation in the State of Hawaii will be co-located in the facility.

- Grow Export of Hawaii Products: We also believe that this type of facility can eventually be successfully integrated with the proposed adjacent cruiseport planned to serve over 500,000 visitors annually. Following Vancouver, B.C.'s Ballantyne model, we hope to add amenities to the facility to accommodate mixed use activity. A Hawaii variation would include a market to display *Made in Hawaii* products and crafts. Perhaps more importantly, "Island Fresh" grown in Hawaii products can be promoted in the context of an exciting 'night market' for Hawaii residents and visitors.

The proposed project is to renovate a portion of the existing 350,000 square foot warehouse facility to provide 30,000 square feet of office space for international high technology incubator and import-export related small businesses. The proposed space is composed of two floors of approximately 15,000 square feet each. The footprints of the proposed offices are between 300 and 1,000 square feet and is designed for small businesses of from 1 to 5 people. The current design will accommodate over 40 individual offices. In addition, common amenities will include one large conference room, three small meeting rooms, work rooms, administration office and lounge/break room.

Total project cost is $6.8 million. Amount of EDA funding requested is $1.7 million.

SIP3 – Native Hawaiian Cultural Center

P'AI Foundation submits this request for $2,500,000 for Phase I in the construction of a Native Hawaiian Cultural Center. The foundation is currently working with the Department of Hawaiian Homelands to select a 5-acre parcel of land close to one of the Hawaiian Homesteads in economically distressed areas. Areas being considered are Papakolea, Waimanalo and Kalaeloa on the island of Oahu.

The Native Hawaiian Cultural Center will feature an outdoor amphitheatre perfect for festivals and concerts and a smaller venue featuring "black box" theater seating, a movable stage and omni-directional lighting ideal for small-scale performances, seminars and meetings. The main building will house offices, an arts and craft gallery, classrooms and studios. Besides being a venue for public performances, the Native Hawaiian Cultural Center will be a center for native Hawaiian culture and arts demonstrations and workshops. It will be a leading source of education for Hawaii residents, from schoolchildren to senior citizens.

The Center will also have computer, media and technology centers for video and audio documentation for archival purposes. The center will also have a commercial kitchen and small café. The completed Center will offer a full menu of programs in native Hawaiian arts education, teacher training, community activities and more. The Center will be host for International

Cultural Exchanges among indigenous peoples. The Center will serve as the foci of the cultural, educational and tourism programs in Hawaii.

Phase I of the project will be the construction of a 20,000 square feet building that will house offices, studios, classrooms, gallery space, media and technology center, the outdoor amphitheatre and parking facility. Landscaping will utilize native Hawaiian plants vital to the cultural practices.

Total project Cost is $5,050,900. Amount of EDA funding requested is $2.5 million.

SIP4 – Caregiver Training / Apprenticeship Program; Long Term Care Financing & Infrastructure Development

The Hawaii State Department of Health is deemed with the responsibility of ensuring the health, welfare and safety of all individuals receiving healthcare in the state. As such, the Department is currently developing its initiative for Long Term Living which encompasses the development of a comprehensive program that would allow for training of individuals seeking positions as caregivers, whether the positions be in the traditional institutional setting or in a community setting is underway, options for financing long term care and infrastructure development to meet the needs of the growing elder and disabled population. An adjunct is to enable entrepreneurial opportunities to these trainees/apprentices for development of small businesses in the health care industry.

There is proposed a three-year caregiver training/apprenticeship project, beginning with two pilot sites on the islands of Molokai and Kauai during the Spring of 2005 (50 trainees), and expanding to other islands incrementally over the subsequent two years Hawaii Fall, 2005 (60 trainees), Maui Spring 2006 (50 trainees) and Oahu, 2006 (100 trainees). The final year will focus on evaluating the impact of the training/apprenticeship program on all stakeholders: caregivers, providers, and recipients.

The Department is working with the Department of Labor and is anticipating having the Training/Apprenticeship program certified by the DOL. Additionally on the statewide committees are representatives from the various Community Colleges, University of Hawaii Gerontology Program, Healthcare Association of Hawaii, Hawaii Long Term Care Association, Alu Like, AARP, other department and state agencies and community members.

An added component will be a web-base information system to track trainees/apprentices as they complete their education and their ability to work in the various healthcare settings, over time with a telehealth component to link community-based healthcare settings with the Department to ensure quality care services are provided to residents.

Total project cost is $20 million. Amount of EDA funding requested is $10 million.

MEDIUM RANGE PROJECT DESCRIPTION

Diversified Agriculture

DAM1 – Waiahole Water System Repair

The Waiahole Water System, also known as the Waiahole ditch, was built in the 1910's and has served the Oahu agricultural industry for almost 100 years. The ditch system supplies irrigation water to about 5,000 acres of agricultural land on Central Oahu. In 1999, with the demise of Oahu Sugar Company, the ditch system was sold to the state under the management and operation of the Agribusiness Development Corporation (ADC), an attached agency to the Department of Agriculture.

Slow deterioration of the ditch infrastructure was identified to be one of the causes of system loss (water wastage). Until recently a permit for system loss of no more than 2 million gallons per day (mgd) was a condition allowed by the Commission on Water Resource Management (CWRM) for continued operation of the ditch system. In June 2004, the Hawaii Supreme Court vacated CWRM's decision and remanded, among other things, the issuance of a permit for system loss to the ditch operator. This action created uncertainty of how much system loss will be permitted in future decisions. ADC needs to accelerate its repair program to further reduce system loss from the current level.

Due to limited funding available for the matching requirement, this project will only focus on the lining of several selected settling basins and the repair or improvement of a few damaged ditch sections. ADC believes this action alone will help bring down total system loss.

Total project cost is $250,000 in 2 years. Amount of EDA funding requested is $125,000.

DAM2 – Development of Anthurium Industry in Waimanalo

The goal of this project is to create an anthurium industry in Waimanalo. Twenty-five families from Waimanalo will be selected to participate in the five-year project that: fosters strong families and healthy community; safeguards the health and cultural well-being of its participants; and fosters options and opportunities to increase family income and promote a community-based economic development infrastructure and industry. Land is essential and DHHL should make land available. UH agriculture extension to provide agriculture education classes and I will teach cultural education and strengthening families with the help of staff and others. Wealth and wellness will be the responsibility of a nurse practitioner staff person. Budget and finances will be taught by staff too. Greenhouses need to be constructed for each family (a ¼-acres per family x 25 families = seven acres covered with shade cloth. Gravel, cement, pipes, wire, shade cloth, PVC pipes, values, and

timers needed. A packing house with meeting/class room, storage area is also needed. Demand is high, $7.3 million in 2001 and the # one cut flower, national and international market and not labor intensive.

Total project cost is $2.0 million for 5 years. Amount of EDA funding requested is $150,000.

DAM3 – Land-Based Support for Offshore Aquaculture Development

The State of Hawaii amended its ocean leasing law in 1999 to allow commercial use of ocean space for aquaculture (Chapter 190D, HRS, as amended). Since the statutory change, three leases have been authorized, with one in commercial production of fish. Serious interest in four other lease sites has been expressed, but in general the private sector has been slow to respond to this opportunity for large-scale, open ocean cage culture.

The reluctance to pursue sites is due in large part to two reasons: 1) ability to routinely produce large quantities of stocking material (seed stock) for the expansive ocean cages, and 2) ability to locate land based support sites in or near commercial harbors for activities, such as hatchery production of seed, feed storage, equipment storage and on/off loading supplies and product. While hatchery technology for some economically important species targeted for offshore aquaculture is available, there has been no demonstration of large-scale, commercial seed production for these species. Moreover, with the recent realization of commercial offshore aquaculture potential, support infrastructure and space in and around Hawaii's commercial harbors have not been considered by government agencies and may well limit future industry expansion.

We proposed a two-part project to address these issues of seed production capacity and land-based support infrastructure for Oahu, with implications statewide. Part One would consist of a planning and assessment study to: 1) describe the need (current five years and ten years) for infrastructure, alternative uses and site selection criteria; 2) conduct an assessment of suitable support sites in and around commercial and recreational harbors around Oahu, with identification and detailed description, e.g., size and zoning, of as many possible sites as possible; 3) complete and utilize a existing ocean GIS database (compiled by ADP through prior federal grant) that utilizes ocean resources and use maps to identify the best sites for offshore aquaculture and distances from harbors; and 4) identify and describe in detail several alternative sites for one or more Offshore Aquaculture Industry Support (multi-use) Parks.

Part Two would consist of acquiring a site for planning, design and construction of an Offshore Aquaculture Industry Support Park, that includes building a demonstration large-scale commercial hatchery for one or more species targeted for offshore aquaculture. Site acquisition may require statutory or rule changes and rezoning. The site would be large enough, e.g.,

eight to ten acres, to accommodate the demonstration hatchery, as well as other future hatcheries and support infrastructure to be built by the private sector upon their leasing of portions of the site. Long-term, the concept is to lease the demonstration hatchery and other portions of the site to the private sector to support statewide offshore aquaculture development. The State would recruit tenants and may consider relocating some industry support services to the site, e.g., the Aquaculture Disease Diagnosis and Prevention Program.

Total Project Cost is $2.5 million (Planning is $500,000 and infrastructure is $2 million). Amount of EDA funding requested is $1.25 million.

Information & Communication Technology Cluster

ICM1 – Media Park Hawaii

Within Hawaii and throughout the Pacific, content producers have created storerooms full of multimedia content. This content is in the form of photographs, images, film, video, animation, script copy, audio, etc. These digital assets are the elements that producers will bring together into a final product. The producers of this content span a wide range of talent, from community based, educational content to high end, commercial productions. Media Park Hawaii is a project that provides the infrastructure for the aggregation of Hawaii's digital media assets making it available over the network to the community of content producers and viewers. As a starting point, Media Park Hawaii can be thought of as a portal for digital media in the Pacific. As a central repository for this digital media, for example, a user of Media Park Hawaii could look up photos by subject matter, location, time period, photographer, etc. The digital asset is only limited by what can be digitized. This lookup could extend to video, audio, animation, images and documents.

This digital asset management center would be the primary interface for content producers wanting a central repository for content. Users would include businesses, non-profits, government agencies and students. For example, the hospitality industry could use the Media Park to locate images and panoramas of Hawaii for use in a multimedia production; video producers could locate video clips of interviews of local personalities; storytellers could connect with a talent pool to create a multimedia production.

The initial phase of the Media Park would include the system interface, content management database, storage, e-commerce and distribution. The next phase of Media Park would include access to grid computing capabilities to facilitate the creation of animation, visualization, 3D special effects and interactive game development. The three layers of the Media Park would include at the first layer, the communications network, then the content layer and finally the computing layer.

The Media Park would serve not only as a means to aggregate digital content but to also bring together the talent pool to produce a wide assortment of multimedia projects. It could become the Pacific Rim nexus for digital content creation.

The technology to implement the Media Park concept already exists in Hawaii. Elements required would include fiber optic communications, data storage and repository, content management, computing resources like the Maui Supercomputer, web services, visualization lab and a technical resource pool.

One barrier to entry is the digitization of analog content, like film and photographs. For example a vast amount of content exists on or about the restoration and preservation of Hawaii's natural environment, places such as Kahoolawe, Mauna Kea, Hawaiian fishponds, Kipahulu, Nualolo, Kalaupapa and the list goes on. Each island has its own unique stories. A facility needs to be created to capture and digitize this content. This facility could then be used for other conversion projects.

A rough estimate of first phase funding would be $1.5M. This would include the digitization facility, development of the content management system, user interface, storage capabilities and workflow tool kits. Monies would also be spent to attract content producers in the form of marketing and low cost of entry on to the Media Park Hawaii system.

Phase 2 incorporates the computing capabilities such as rendering, animation, 3D visualization, simulations and game production. This involves server requirements that could be housed at the Maui Supercomputer. Training programs and marketing would supplement this initiative. Estimated phase 2 costs are $1M.

There are several non-profits that could oversee this project. Alternatively, a non-profit could be form to plan, implement and maintain the Media Park Hawaii infrastructure. It would consist of a governing board of private and public sector representation thus ensuring broad base involvement and support.

Total project cost is $1.5 million. Amount of EDA funding requested is $750,000.

ICM2 – Hawaii Tech Jobs Website

There remains a consistent and urgent need for a full, comprehensive, and up-to-date website linking Hawaii’s technology employers TO technology professionals both locally and more importantly kamaaina on the mainland. Recruiting is and continues to be a daunting task for many technology companies, particularly those looking for candidates with scientific backgrounds or highly skilled technology backgrounds.

Recruiting candidates with a connection to Hawaii has resulted in the most successful hires.

HTTA proposes to develop a comprehensive technology jobs website. This website will provide:

- Complete and up-to-date listing of job opportunities in Hawaii's technology industry
- Ability for technology professionals to post resumes
- Connections with UH, high school alumni associations

Total project cost is $200,000. Amount of EDA funding requested is $100,000.

Life Sciences Cluster

LSM1 – Kakaako Improvement Districts

Improvement Districts – adding capacity to new business ventures.

Total project cost is $10 million annually. Amount of EDA funding requested is $2,000,000 annually (Public Works CIP)

LSM2 – Position Kakaako

Position Kakaako as the center of leading-edge technology by leveraging existing Community Development District activities, especially in the area of alternative energy, to support high-technology initiatives. For example, hydrogen-fuel cell, bio-diesel, and electric vehicle research could be channeled to make the district home to alternative fuel powered vehicles shuttling workers between their homes in the district and places of work as well as throughout the day.

Total project cost is $200,000. Amount of EDA funding requested is $100,000 (planning & technical assistance).

Support Industry Projects

SIM1 – Woodworking Trade School

To establish a trade school for custom woodworking, furniture building & restoration, and cabinetry in Kalihi, an economically-distressed community, by renovating and equipping an existing warehouse at the Nimitz Business Center. The school will begin with 15 students increasing to 50 per year. Custom woodworkers make $35/hr. after their apprenticeship (2 years) and $75-$100/hr. with further experience. Thirty students have been trained on an informal basis in limited facilities over the last 14 years and all have successfully started their own woodworking business. Skilled laborers are currently being brought in from the mainland U.S. to fill this labor gap.

Students will be drawn from both males and females, from lower income and immigrant populations throughout the State. Visiting master woodworkers

will be brought in to help teach specific skills. Custom woodworkers include artisans employing traditional Hawaiian designs in their work, furthering the cultural traditions of the State. The school will include an open carving area with viewing ramp similar to that in Rotorua, New Zealand that permits the public and especially school groups to view the craftsmen at work and talk to both instructors and students. In this manner, we hope to attract future students for the school as well as help students develop their comfort in communicating with the public/ businesses about their profession. Training will include not only the woodworking itself, but instruction on the various woods available locally, nationally, and internationally as well as sustainable forestry practices related to each.

Total project cost is $4 million which includes classrooms and woodshop with wiring, fixtures, etc. per safety regulations. Amount of EDA funding requested is $2 million.

SIM2 – Nanakuli Housing Corporation Facility

The vision of Nanakuli Housing Corporation (NHC) is that every native Hawaiian family will own their own home. To realize that vision, NHC has secured a lease from the Department of Hawaiian Home Lands on a former navy training center at Kalaeloa, once known as Barber's Point Naval Air Station. This project will rehabilitate this facility for the training programs NHC currently offers, allow NHC to continue a current project that trains Construction Entrepreneurs in construction basics and starting up their handyman businesses, and provide closer proximity to the leeward coast and a primary market. It will also equip NHC with the necessary infrastructure to support new handymen in their projects by providing a workshop area and tools.

Background on Nanakuli Housing Corporation (NHC**):** NHC is a native Hawaiian, 501(c)3 non profit organization formed in the State of Hawaii in 1989. Its mission of Hoólaulima is to work together to revitalize declining neighborhoods. NHC provides homeownership and home maintenance training to low to moderate income families. NHC also provides surplus, reusable construction materials at base yards located at Sand Island and Kalaeloa to assist these families in their efforts.

Amount of EDA funding requested is $700,000.

LONG RANGE PROJECT DESCRIPTION

Even though projects under this category were specified by the various focus groups, they didn't receive any vote from the Oahu CEDS committee.

Diversified Agriculture Cluster

DAL1 – Entrepreneur Development System

The project is to develop and implement a comprehensive, flexible, and seamless Entrepreneur Development System (EDS) tailored to Hawaii's rural entrepreneurs and distressed communities. The project will coordinate service providers in a one-stop shop format for entrepreneurs, implement proven innovative educational and training programs, provide financial assistance to disadvantaged entrepreneurs, engage entrepreneurs and the target communities in all aspects of the project, create networks for aspiring and existing entrepreneurs, and provide a strong voice for legislative initiatives that will bolster entrepreneurship. Initially, the project will target the communities of Hamakua (Hawaii), North Shore (Oahu), Kekaha (Kauai), and Central Maui. It is expected that the program will be replicated in rural communities throughout the state.

The EDS is a collaborative comprising public, private, non-profit, and community organizations with significant input from the rural entrepreneurs. Dean Andy Hashimoto of the UH College of Tropical Agriculture and Human Resources, is leading this effort and working closely with many entities including Kauai Community College, Maui Community College, UH Hilo, Hawaii Small Business Development Centers, UH College of Business Administration's Pacific Asian Center for Entrepreneurship and E-Business (PACEE), High Technology Development Corporation (HTDC), Hawaii Alliance for Community-Based Economic Development (HACBED), Maui Land and Pineapple, Castle and Cooke, and several community organizations. The EDS will coordinate service providers, be accessible to rural entrepreneurs and will increase their ability to succeed. The success of rural entrepreneurs will contribute significantly to vibrant sustainable rural communities.

Total project cost is $2 million (three years). Amount of EDA funding requested: $1 million.

Information & Communication Technology Cluster

ICL1 – Dual Use Technologies Resource Center

Dual Use technologies refer to both companies developing technologies for the Dept. of Defense and the technology transfer or commercialization of these and other defense technologies. This is one of the fastest growing segments of Hawaii's technology industry. However, local technology

companies need a great deal more support and assistance in maneuvering in this area. HTTA proposes to develop a comprehensive resource center to provide assistance to current dual use companies as well as the greater need of helping smaller companies to get involved with and take advantage of dual use opportunities. The Resource Center would provide information and assistance about:

- Defense contracts and grant opportunities (timing, resources, contacts)
- Unbundling large contracts
- Building coalitions of smaller companies to go after larger contracts
- Access to the beltway
- Connecting companies with Hawaii's congressional delegates

HTTA is uniquely capable of putting this resource center together, as we have already developed a "Dual Use Industry Group". Delegates from this group have already made a very successful trip to Washington DC in 2002 meeting with all of Hawaii's congressional delegates and key contacts in all of the DoD agencies.

Total project cost is $300,000. Amount of EDA funding requested is $150,000.

ICL2 – Construction Training Tech-Based Warehouse

Nanakuli Housing Corporation (NHC) seeks funding to build a modern, state-of-the-art, fully-equipped, technology-based warehouse on lands leased from the Dept. of Hawaiian Home Lands at Kalaeloa (formerly known as Barbers Point) that will be used, in conjunction with our training center, to prepare low-moderate income individuals for construction and housing maintenance careers. In addition to training, NHC through its own internal and external network, will hire or place persons completing their training, and in some instances, certification, in the construction industry. Job placement includes NHC's own internal hiring through our base yard and home repair operations and our external network with the Native Hawaiian Economic Alliance (35 native Hawaiian owned construction and information technology companies), the Pueo Group (a partnership with an Alaskan 8A company and the NHEA), labor unions and other construction industry companies. Thus, NHC closes the gap between job training and job placement by providing the bridge to connect qualified persons ready to fill jobs in construction.

The privatization of the air force, army, and navy military bases on Oahu have been awarded to two large prime contractors for 50 years that will involve revitalizing the military housing stock through demolition or renovations and the upkeep of these properties with a skilled maintenance workforce. The demand for qualified labor for these military projects is already intense and both labor unions and private contractors are seeking help to fill various construction and maintenance management jobs. Without a ready labor pool in Hawaii, these prime contractors may have to seek labor from the mainland or elsewhere.

Nanakuli Housing Corporation (NHC), the applicant of this project, is a native Hawaiian nonprofit corporation formed 16 years ago, and has three programs: 1) training and education; 2) construction materials reuse; and, 3) home repair/construction. NHC has been involved in planning for the transfer of houses and reuse of salvaged materials with the largest prime contractor, Actus Lend Lease, for the past two years. Along with our partners, we will reduce the amount of materials aimed for Oahu's already over-extended land fills and distribute these to families in need. Additionally, whole houses will be rescued, rehabbed, and will replace homes that are beyond repair owned by low-moderate income homeowners. According to a 1998 HUD housing report on native Hawaiian housing conditions, there are more than 1000 homes needing substantial repair or replacement on Oahu alone.

NHC has site control of five acres leased for five years with an option to renew the lease from the Dept. of Hawaiian Home Lands. The location of this site will serve as a magnet for job preparation and placement for those living in the economically depressed areas of the rural/leeward coast of Oahu that includes Nanakuli, Waianae, and Maile. Kalaeloa is in a rural HUBZone, designated economically depressed by the U.S. Census Bureau. A former naval training center on this site is now being restored and will serve as NHC's primary classroom training hub. A smaller building on-site is being restored to accommodate the job placement center.

The warehouse for which NHC seeks funding will be fully equipped with the appropriate shelving, fork lifts, hydraulic lift trucks, containers, overhead lifts, and will be digitally organized so that incoming materials will be weighed, measured, and a value established so that accurate accounting of inventory can be prepared and reported in a timely manner. After training, workers will be assigned to construction jobs through NHC's external network with the skills to measure, estimate, and apply lessons learned in the classroom taught by native Hawaiian contractors and NHC volunteers. The materials and houses retrieved from military sites will be organized and inventoried on the job and transported to the warehouse and properly stored. Whole houses moved to the Kalaeloa warehouse site or to its permanent site will be assigned to workers for repair. These workers will be assisted by NHEA contractors, volunteers, and graduate students in the School of Architecture at Chaminade University. NHC estimates that 40 individuals will be trained and placed in jobs in the construction industry each year for the next five years.

Over the past 16 years, NHC has successfully provided access to low-interest loans to residents of Nanakuli, a predominantly native Hawaiian community. More than $500,000 in loans were distributed along with home repair technical assistance and inspection support. Since then, NHC has provided homeownership education, financial literacy, access to construction materials

for home repair along with technical assistance, and construction handyman skill training to low-moderate income families.

Management of this project will occur in three phases: 1) Planning and Design; 2) Infrastructure and Construction of Warehouse and Equipment; 3) Job Preparation and Placement. The site is secured, the partners are committed, and non-EDA funds are available for job preparation/training and job placement.

NHC partners include the Dept. of Hawaiian Home Lands (DHHL), the Native Hawaiian Economic Alliance (NHEA with 35 native Hawaiian owned construction and information technology companies), the Pueo Group (a marketing and bonding partnership between NHEA and UIC, an Alaskan 8A company), Chaminade University, and the Administration for Native Americans (ANA). Our training funds are provided by DHHL and ANA with construction and information technology support provided by Chaminade University, NHEA and the Pueo Group.

Total project cost is $3 million. Amount of EDA funding request is $3 million.

Life Sciences Cluster

LSL1 - Hawaii Grand Innovation Cluster Strategy

Building upon the life sciences road map, the Hawaii Grand Innovation and Cluster strategy will be critical in facilitating the growth of the converging knowledge-based industry sectors, whereby the presence of competitive science and innovation, state-of-the-art infrastructure, highly qualified personnel, and availability of capital are key components. In order to bring these components together systematically, development of a comprehensive multiple innovation cluster strategy will identify the inextricable linkages between sectors, will assist in identifying the required supportive infrastructure between sectors and is therefore highly essential for the success of each.

Creation of a Grand Innovation Cluster Strategy will help to accelerate the development of each of these sectors through unified planning efforts that will, for example, aim to raise the innovation profile of the region, and create strategic research and commercial collaborations. Outcomes of this project include creation of a strategic and implementation plan that will focus on leveraging the region's biotechnology, digital media, healthcare, dual use, and information technology assets and developing the resources required for growth, including physical infrastructure for research and development. Total project cost is $300,000. Amount of EDA funding requested is $150,000.

LSL2 – Master Plan for Facilities

Creation of a Grand Innovation Cluster Strategy will help to accelerate the development of the Oahu life sciences sector through unified planning efforts. Commensurate with building the capacity to focus on creating new discoveries, innovative companies and new jobs, as well as competitive training and education programs, is the need to also build the physical infrastructure that will support this growth. To address the development of infrastructure, a Master Plan for Facilities should also be undertaken as an additional project. Hence, in support of the Cluster Strategy will be creation of a Master Plan for Facilities. This infrastructure planning phase will take into account the need for building out dedicated research space centered on the Kakaako region.

Total project cost is $300,000. Amount of EDA funding requested is $150,000.

Support Industry Projects

SIL1 – Chinatown Renovations

The Honolulu Culture and Arts District (HCAD) Association proposes to renovate one block of buildings in the center of Honolulu's Historic Chinatown. Several other blocks in Chinatown have already been renovated as part of the HCAD. The City and County of Honolulu supports these types of projects, as evidenced by the recent passage of an amendment allowing loft apartments in the Chinatown Special District. The proposed site, located on Hotel Street between Nuuanu and King Street, is one of the last sections of Chinatown included in the Culture and Arts District that has not undergone renovation.

Project Building Fronting Hotel Street: The HCD Association proposes to renovate the building with storefronts downstairs, and residential/artist lofts or possibly a dance studio, upstairs. The downstairs storefronts will be used as retail and training space by several of Pacific Gateway's incubator programs. These include the farm processing incubator, the culinary incubator and an expansion of the retail incubator. We envision that other storefronts will house an art gallery, a coffee shop and at least one service-type agency. This agency could be the Native Hawaiian Hospitality Association, the graduate program of the UH Department of Urban and Regional Planning, or a one stop city planning and development center.

A proportion of the upstairs lofts will be reserved for low to moderate income residents. A dance studio or office could be located on the Hotel Street side of the building, which receives noise from the buses that travel along Hotel Street.

Chinatown's crime rate has been recognized as a problem by the Honolulu Police Department. It is part of Kalihi/Palama/Chinatown Weed and Seed District. A major factor in removing criminal elements from Chinatown has been the renovation of buildings and the push to bring residents back to the area. The renovation will also help to restore Chinatown's economic vitality, thus providing economic alternatives to criminal activity.

Pacific Gateway will expand its business incubator projects into this area to ensure that Pacific Gateway entrepreneurs have access to the entire range of production, accounting and retail facilities necessary to successfully market a product. Pacific Gateway's projects target the socially and economically disadvantaged and provide job training and entrepreneurship opportunities to them. The project also responds to the changing demographics of downtown. Retail and small business opportunities for those who cater to residents and tourists from the cruise lines will expand over the next ten years as more cruise lines come into Honolulu Harbor, and as urban infill projects are developed.

Total project cost is $4.9 M. Design (Including all permits) is $500,000. Purchase of building is $2.0M. Renovations ($150/sqf x 16,000sqf) is $2.4M. Amount of EDA funding requested is $2.4 M.

SIL2 – Association of Hawaiian Civic Clubs Facility

In partnership with Chaminade University of Honolulu, the Association of Hawaiian Civic clubs acquire and develop a facility to be used by the civic club movement. The facility will provide services to the civic club members, low and moderate income people and the general community relating to housing, employment, job development, health, education, college courses, video production training, computer training, digital archiving and financial assistance.

Total project cost is $1.598 million. Amount of EDA funding requested is $799,000.

SIL3 – Hawaii Community Loan Fund

The Hawaii Alliance for Community-Based Economic Development (HACBED) in collaboration with existing loan funds will coordinate the purchase of the loan portfolio of the Hawaii Community Loan Fund to facilitate a network of alternative lenders which mutually invest in business opportunities. HACBED is requesting $300,000.00 a year for five years with the remainder of the grant being used for loan capitalization.

Total project cost is $6 million. Amount of EDA funding requested is $3 million.

SIL4 – Building Environment

Appropriately named "Building Environment", the proposed project will aim at educating and preparing students for the many career opportunities available in the construction industry which includes architecture, engineering and the various trades. This program will target students from grades 7-12 through coordinated efforts with the various sectors of the construction industry, Dept. of Education and local communities. The program will include:

1. Construction Camp
   a. We will develop a program where a team of student and teachers will spend a week learning about the different areas of construction as follows:
      i. Day 1 – Learning about Architecture, what does an architect do, how do you become an architect, do an architecture related activity.
      ii. Day 2 – Learning about Engineering, what does an engineer do, how do you become an engineer, do an engineering related activity.
      iii. Day 3 – Learning about the trades, what are the different trades, how do you get into the trades, do a trades related activity.
      iv. Day 4 – Learn about the other areas of construction such as developments, planning, etc. Take a tour of a project site.
      v. Day 4 – Building Environment contest where participants will apply what they learned.
   b. We propose that two camps be held annually – one for 7^{th} & 8^{th} graders and another for 9^{th} and 10^{th} graders.

2. Career Shadowing
   a. To maintain a continuous relationship with the schools and students, this program will coordinate career shadowing for students and the different professionals in the industry.
   b. Career shadowing will focus on students in the grades 11^{th} & 12^{th}.

3. Internship
   a. Hands-on experience is really the best way to learn about their chosen career interest. This program will coordinate internship opportunities for students in the 11^{th} & 12^{th} grades. The goal is to help students gain a better understanding and personal insight of the construction industry.

Total project cost is $2.5 million (for five years). Amount of EDA funding requested is $1.25 million (for five years).

CHAPTER 17 COUNTY OF KAUAI

In early 2004, the Kauai Economic Development Board (KEDB) obtained a subgrant from the State Office of Planning to conduct a study of industry clusters and the infrastructure needed to support growth in targeted clusters.

At the same time, the County of Kauai Office of Economic Development (OED) recognized the need to update the County's Overall Economic Development Plan Update (Comprehensive Economic Development Strategy), which was last done in May 2000.

In the first quarter of 2004, the KEDB and OED launched a joint planning process to accomplish both of their goals. NKN Project Planning and 3Point Consulting were retained to undertake the project.

In the second quarter of 2004, the Kauai Comprehensive Economic Development Strategy Committee (CEDS Committee) was formed to guide the planning process. About 30 representatives of business, government, social service groups, and community organizations agreed to serve on this committee. The CEDS Committee met four times over the course of five months and provided guidance to consultants in the process.

In July 2004, five focus group meetings were held with representatives of six emerging clusters on Kauai. These clusters include:

- Agriculture & Food
- Healthcare & Wellness
- Recreation
- Arts & Culture
- High Technology
- Renewable Energy

A public hearing was held on August 17, 2004 to discuss draft recommendations and to obtain citizen feedback.

For a complete version of the plan, see the report, Kauai Economic Development Plan, 2004-2014.

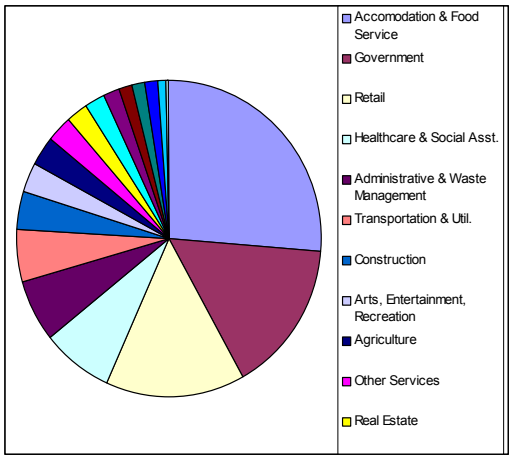
Economy

Economic Composition

The Kauai economy supports a total of approximately 27,000 jobs including government and agricultural employment. Its major sectors of employment are Government, Retail Trade, Accommodations, Food Services, and Health

Care. Like other rural counties of the State, Kauai's economy is dominated by small businesses: 87% of the County's non-farm businesses have fewer than 20 employees, slightly more than the comparable Statewide figure of 85%.[29]

Kauai Economic Composition in 2003



Sector	Jobs	%
Accomodation & Food Service	6,882	26.0%
Government	4,099	15.5%
Retail	3,842	14.5%
Healthcare & Social Asst.	1,976	7.5%
Administrative & Waste Management	1,676	6.3%
Transportation & Util.	1,366	5.2%
Construction	1,030	3.9%
Arts, Entertainment, Recreation	836	3.2%
Agriculture	780	2.9%
Other Services	739	2.8%
Real Estate	602	2.3%
Professional & Technical Svc.	550	2.1%
Manufacturing	412	1.6%
Wholesale	412	1.6%
Finance & Insurance	373	1.4%
Information	359	1.4%
Educational Services	183	0.7%
Management of Companies	89	0.3%

Low Unemployment Rate

As of July 2004, the unemployment rate on Kauai was 3.9%, higher than the State unemployment rate of 3.0%, but lower than the U.S. unemployment rate of 5.7%.[30] A low unemployment rate indicates that the labor market is fairly "tight", with most able-bodied job-seekers employed in some fashion.

Low Household Income

In spite of low unemployment, household incomes on Kauai remain low. Of the 20,201 households on Kauai, 38% of households have incomes less than $35,000.[31] The standard used by many federal government programs to measure economic need is 185% of the poverty level or approximately $39,553 for a family of four on Kauai. Households falling below that level qualify for some government assistance. Based on this standard, it is estimated that 36% of households on Kauai have incomes which qualify them as economically needy.[32]

Few Living Wage Jobs

The best available definition of a living wage for Kauai is the "self sufficiency standard" which uses the actual costs of different household necessities in different locations to calculate the living wage. By this standard, the living wage for a family of four (2 adults, one preschooler and one school-age child) on Kauai is $56,304 or about $28,150 per parent per year.[33] Adjusted for inflation, and taking different family compositions into account, today the

living wage is roughly $30,000 per parent, or $60,000 for a two-earner household of four.

By this measure, none of Kauai's 10 largest occupations (by number of jobs) pay a living wage.[34] Indeed, 65% of all jobs on Kauai pay less than $30,000 per year and 54% pay less than $25,000 per year.

Salaries of 10 Largest Occupations on Kauai

	Salary
Retail Salespersons	$20,060
Waiters and Waitresses	$25,970
Maids and Housekeeping Cleaners	$24,310
Combined Food Prep. & Servers, incl. Fast Food	$16,960
Cashiers	$19,960
Cooks, Restaurant	$24,970
Landscaping and Groundskeeping Workers	$23,590
Janitors & Cleaners, excl. Maids & Housekeepers.	$22,080
Office Clerks, General	$25,440
Dining Room & Cafeteria Attendants	$18,850

Widespread Underemployment

Additional evidence of "underemployment" is provided by data from local service providers. Job seekers received by Workforce Development "One-Stop-Centers" (providing job training and placement) in 2003 exceeded openings by more than 2:1. This suggests that while unemployment is low, even working people may be seeking jobs with better hours, pay, career paths, or benefits.

Pockets of Unemployment & Poverty

In spite of low County- and State-wide unemployment rates, unemployment and poverty continue to be high in many Kauai communities. Some areas like Anahola and Pakala had a double-digit unemployment rate in 2000, while the Statewide unemployment rate was near 6%. Several neighborhoods also had poverty rates that were well above the statewide rate.

Unemployment & Poverty Rates in 2000

	State	Kauai	Anahola	Pakala	Koloa	Eleele	Kapaa
Unemployment	6.3%	5.3%	10.8%	10.4%	7.9%	7.5%	7.0%
Poverty Rate	10.7%	10.5%	14.2%	43.8%	17.8%	13.2%	15.7%

Anticipated Worker Shortage

The current low unemployment rate and high number of baby boomers who will be retiring within the next ten years raises concern about a potential worker shortage on Kauai. Over the next ten years, about 1,930 employees in the labor force, between the age of 55 and 59 years old at the time of the 2000 Census, will retire.[35] Included in this number are over 440 State employees who will retire over the next 10 years.[36]

While there is limited data pointing to a potential worker shortage, anecdotal information shared by several industry experts and company managers points to shortages in service-related jobs in the cruise ship industry, banks, restaurants, construction, and hotels, as well as technical jobs in the high tech and health clusters.

EDUCATION

Another critical issue expressed by many employers is that many entry-level hires do not have basic skills in reading and math. In addition, there are many teens who do not have clear plans for their future while in school and once they depart from school.

Low Student Achievement

Based on one measures of high school student performance, the Stanford Achievement Test, about one-third of all Kauai 10th graders are performing below average.[37]

Percent of 10th Grade Students on Kauai Scoring Below Average on Stanford Achievement Test

		% Scoring Below Average	
Test	**High School**	**Reading**	**Math**
Stanford Achievement	State	36%	31%
	Kapaa	33%	27%
	Kauai	35%	29%
	Waimea	42%	42%
		% Scoring Well Below Ave.	
Hawaii Content & Performance Standards	State	16%	23%
	Kapaa	11%	18%
	Kauai	20%	21%
	Waimea	16%	18%

Higher Education

A low proportion of Kauai's graduating high school seniors plan to go on for higher education. Data from the State Department of Education indicates that only 39% of Kauai's seniors are planning for additional schooling, while Statewide the figure is 51%.[38]

High School Education

About 11% of persons aged 25 and older have less than a high school education on Kauai. This percentage is higher than any other county in the State of Hawaii.[39]

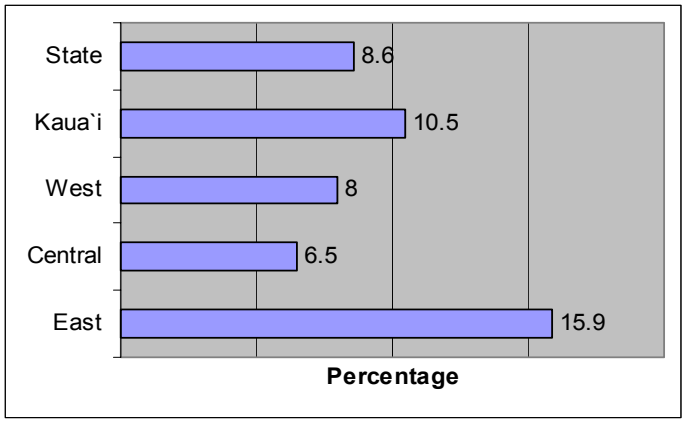
Percentage of persons aged 25 and older with less than a high school education

County	%
Kauai	11.1
Honolulu	7.8
Hawaii	7.4
Maui	9.4

Teens Not in School, Not Working

One out of ten teens on Kauai, between the ages of 16 to 19, are not in school and not working.[40]

Teens, age 16-19, not in school and not working by school complex



HOUSING

What is the definition of affordable housing? The State of Hawaii and County of Kauai both currently use the definition of housing that can be purchased by households earning up to 140% of the median income.

For a household of two, earning 140% of the median income ($63,070), with a 7% interest rate, an affordable home would be about $209,900 in 2004 dollars.

For a household of four, earning 140% of the median income (78,820), with a 7% interest rate, an affordable home would be about $272,200 in 2004 dollars.

Cost of Housing in Relation to Income

In July 2004, the median price of a single-family home on Kauai was $528,000, a 40% increase over 2003.[41] The median price means that half of the homes sold above $528,000 and the other half sold for below this amount. The price of a condominium was $420,000, a 20% increase over 2003.[42]

Yet, the 2004 median income of households (family of four) on Kauai is about $56,300. Given a conventional 30-year mortgage, 5% down payment, 30% loan to income ratio, $250 tax and insurance, and 7% interest rate, this family of four can only afford to purchase a home for $183,100.[43]

As of August 2004, there are very few homes on the market under $200,000. Of the 17 listings, 13 were listings in one leasehold condominium in Poipu with living areas of under 650 square feet.[44]

The average 2003 monthly rent for a single-family dwelling unit was $1,306, while the average monthly rent for a 2-bedrom unit was $885.

The federal government uses a standard shelter-to- income ratio of 30% to determine affordability. Ratios higher than 30% indicate the household is paying more for shelter than the standard. More than 30% of households on Kauai pay over 30% of their income for shelter.[45]

Low Rate of Home Ownership

The percentage of Kauai households that are homeowners is 48%, compared to a Statewide average of 64%.[46]

Limited Supply of Housing

Based on the *Hawaii Housing Policy Study, 2003*, there is currently a demand for 2,824 additional housing units on Kauai as follows[47]:

Housing Demand on Kauai by Tenancy

Preferred tenancy	Count	%
Own, single-family dwelling	1,691	60%
Own, multi-family dwelling	103	3%
Rent, single-family dwelling	857	30%
Rent, multi-family dwelling	173	6%
Total	**2,824**	

According to the *County of Kauai Consolidated Plan*, over the past two years, falling mortgage interest rates and the increased sales of new housing units to non-residents have contributed to an increase in both housing activity and prices. However, "some observers believe that the critical mass of second homes and affordability of second homes in Hawaii will cause a long-range increase in the number of housing units not available to local residents."[48]

Low Vacancies

In 2000, the homeowner vacancy rates were about 1.2%, compared to the State average of 1.6%. Rental vacancy rates were about 6% compared to the State rate of 8.2%.[49]

"Vacation" Homes

The County's *Consolidated Plan* notes that Hawaii is one of ten states with the highest percentage of housing stock classified as "vacant - for seasonal, recreational and occasional use." While 5.6% of the State's housing stock falls in this category, over 15% of Kauai's housing stock is vacant for seasonal, recreational, and occasional use.[50] This further decreases Kauai's housing inventory for resident use.

Crowded Housing Conditions

In 2003, 20% of households on Kauai were overcrowded or doubled-up, exceeding the State average of 18%.[51]

Homeless Population

The unsheltered homeless are families or individuals who have a primary night-time residence that is a public or private place, such as beaches, parks, automobiles, and streets. It is estimated that in 2003, there were 580 unduplicated unsheltered homeless persons on Kauai.[52]

The hidden homeless are households in which more than one family shares accommodations. It is estimated that there are 2,551 households that are the hidden homeless, which translates into 12,969 persons.

At-risk homeless are households in which members would become homeless in less than three months if they suddenly lost their primary source of income. It is estimated that there are 1,956 households that are at-risk, which translates into 6,100 persons.[53]

NEED FOR COORDINATION

While there may be some limited coordination and collaboration within some clusters, there has been little community-wide collaboration on Kauai's economic future. This planning process showed the need for stronger economic development planning and implementation on Kauai.

ECONOMIC DEVELOPMENT GOALS & OBJECTIVES

The top five economic development goals and corresponding objectives are as follows:

1. **To assist new and existing businesses in targeted clusters create new jobs**

    A. To provide access to business planning assistance, including market research
    B. To assist with permitting, licensing, and regulatory issues
    C. To provide entrepreneurial training
    D. To facilitate access to start-up and expansion capital
    E. To develop a business incubator facility

2. **To facilitate career planning for students in elementary school and up**

    A. To expose youth to various career paths
    B. To encourage/require middle and high school students to develop post-high school plans
    C. To give youth "hands-on" experience in the workplace through internships, mentoring, and partnerships with prospective employers

3. **To expand and train the workforce to meet the needs of employers**

    A. To obtain data on the workforce needs of Kauai's employers
    B. To design and provide training to meet specialized needs
    C. To seek new and untapped sources of employment to meet labor needs

4. **To promote affordable housing**

    A. To develop affordable single- and multi-family housing
    B. To promote affordable rental housing and owner rehabilitation
    C. To increase homeownership through self-help housing, first-time homebuyer loan programs, and homebuyer education and counseling
    D. To fund an emergency shelter, transitional housing units, special needs housing, and supportive services

5. **To improve the skill level and work readiness of students entering the work force**

   A. Identify specific ways that families and community can get involved in public education
   B. Ensure full parent and community participation in School Community Councils
   C. Make changes to school curriculum to upgrade skill levels and teach citizenry

Visitor Industry

The visitor industry is the largest industry on Kauai and includes transportation, accommodation, catering, recreation, and services to visitors. The visitor industry workforce are employed in hotels, restaurants, airlines, car rental companies, airport operations, security, retail stores, entertainment, and many other businesses that provide services to travelers.

In a typical year, the visitor industry generates about one-third of the Kauai's real income.[54] One in every three jobs Statewide is generated by the visitor industry.[55] Kauai hotels alone generate 14% of the island's employment.[56]

This plan recognizes that the visitor industry is a mature industry and is a critical component of Kauai's economic future. Statistics, however, show that:

- In the past five years, the number of jobs in the hotel industry has shrunk by 5%.[57]
- Based on statewide projections, the visitor industry is expected to grow slowly compared to other sectors.[58]
- There are many part-time shift work jobs and overall wages are lower compared to other targeted clusters.[59]
- Some industry leaders believe that Kauai's existing infrastructure and natural resources cannot support additional growth in this industry.

There are current and proposed efforts to articulate visitor industry needs both statewide and locally.

At the state level, the Hawaii Tourism Authority has developed a draft *Hawaii State Tourism Plan (HSTP) 2005-2015*. A final plan is expected to be adopted in October 2004.

A Kauai County Visitor Industry Plan will be completed in 2005 and will cover nine strategic initiatives:

Leaders in the visitor industry on Kauai have identified needs that require immediate attention and action. These areas include:

- Improving the condition of State and County parks
- Addressing the issues of safety and security
- Improving directional signage
- Providing improved interpretive signage
- Creating more regional visitor/cultural centers around the island

While this plan recognizes the pivotal role of the visitor industry in Kauai's economy, emphasis is placed on growing niche products or clusters within the visitor industry. These clusters include:

- Healthcare and wellness
- Food and agriculture
- Culture and arts
- Recreation
- High technology

Kauai Cluster Industries Methodology

Cluster analysis requires focusing on those groups of industries that are good investments for the economy. In order to determine which clusters were "good investments," data on 200 Kauai industries and industry groups at the 4-digit and 5-digit NAICS levels[60] were analyzed. Based on this data, each industry was then rated on four criteria:

Four Primary Criteria

- *Historical Growth:* Historical growth in industry employment from 1998 to 2001 (the latest data available at the time of the study) was examined using the Census Bureau's County Business Patterns data. An industry was labeled "high growth" if average annual growth during this period was greater than 3.0% – significantly higher than the Kauai-wide growth rate of 2.0% during these same years.

- *Projected Growth:* Projected employment growth using data from the Hawaii State Dept. of Labor & Industrial Relations and the U.S. Bureau of Labor Statistics was examined. Both had developed industry projections through the year 2010. An industry was considered to have a "strong outlook" if it had an average annual

projected job growth of 1.8% or more. This figure was significantly higher than Kauai's overall projected growth of 1.1% – 1.6%.[61]

- *Competitive Advantage:* An industry was considered to exhibit signs of local strength (or "competitive advantage") if its share of employment on Kauai was 125% or more of its share of employment statewide[62] and it had more than 30 employees.[63] These industries have significantly larger employment than would be expected given their share of statewide employment.

- *Wage Levels:* An industry was considered "high wage" if the average annual wage in the industry exceeded $30,000 – the approximate Kauai living wage for a 2-parent, 2-child household.[64]

Any industry that scored well on 2 or more of the above criteria was considered to be a potentially "good investment" for the local economy. If the data was limited for any industry, interviews with key informants, industry experts, trade publications, and other information was gathered to render judgments on the above criteria.

Secondary Criteria

The additional criteria listed below was considered in identifying target clusters. Because these criteria could not be quantified, they were given slightly less weight than the quantitative measures utilized above.

- *Economic Diversification:* Reflected in many past planning documents is the longstanding goal of diversifying Kauai's economy. It was considered an added benefit if an industry added to the economic diversity of Kauai (e.g, it fell outside the traditional mainstays of visitors and government).

- *Export Potential:* A local economy grows if outside dollars are brought into the region through export activity. Industries with export activity or potential were given preference over those without export potential.

- *Life-Cycle Risk:* Some industries, (e.g., High Tech, Renewable Energy), are in an early stage of development representing high economic risks, but potentially high rewards. Others, (e.g., Healthcare), are more stable and less risky, but also offer more modest growth potential. Clusters were selected with an eye toward creating a balanced mix of risky and stable investments.

- *Inter-Cluster Linkages:* Some clusters had obvious potential for inter-cluster linkages, where the growth of one cluster might benefit

another. For instance, the growth of the Ethanol industry within the Renewable Energy cluster would also promote farm production in the Agriculture & Food cluster.

- *Non-Economic Goals & Priorities:* Resident priorities like preserving the natural environment, respecting history and culture, maintaining Kauai's rural character, and other non-economic goals are effected by different industries in different ways. These priorities and goals were also considered in selecting target industry clusters.

Kauai's Target Clusters

Based on this analysis, there were 60 industries (out of an original 200) that were "good investments" for the Kauai economy. These 60 industries were concentrated in six clusters,[65] which were defined based on horizontal and vertical linkages between them:

- Food & Agriculture
- Health & Wellness
- Recreation
- Arts & Culture
- High Technology
- Renewable Energy

Focus Group Meetings
Having selected six target industry clusters, focus groups were organized and invitations made to companies, government officials, trade associations, industry experts and others to share their insights about the cluster's challenges and opportunities. Participants were also asked to identify programs, projects or action steps which would address challenges and capitalize on opportunities for firms in the cluster.

Individual Meetings
One-on-one meetings and phone interviews were held to supplement feedback from focus group meetings. Findings of both focus group and individual meetings are summarized in *Section 8*.

Kauai's Target Clusters

This section describes six target clusters that are considered "good investments" for the Kauai economy.

- Food & Agriculture
- Health & Wellness
- Recreation
- Arts & Culture
- High Technology
- Renewable Energy

Each sub-section includes a description of the cluster, challenges and opportunities, priority projects that would strengthen the cluster, and performance measures.

Food & Agriculture

The Food & Agriculture Cluster is comprised of Kauai industries involved in the production, processing, distribution, and wholesale and retail sale of food and food products. In 2004 the cluster supported an estimated 5,277 jobs or about 24% of total Kauai non-government employment.[66] More than half of the cluster's jobs are in the Food Services Industry.

Industries Comprising Food and Agriculture Cluster

NAICS	Industry	Jobs	% Tot.
111000	Agricultural Production	620	2.8%
444200	Farm & Garden Supply	66	0.3%
311000	Food Manufacturing	128	0.6%
422400	Agricultural Wholesale	220	1.0%
445000	Grocery & Food Stores	1,034	4.7%
722000	Food Services & Restaurants	3,208	14.6%
Cluster Total		5,277	24.0%

Industries in the cluster exhibited moderate to strong projected growth[67] and potential for increased competitive advantage through integration of the supply chain.[68] Several industries in the cluster also supported living wages: Grain Farming, Aquaculture, and Other (unclassified) Diversified Agriculture each paid just above $30,000 a year on average. In addition to being "good investments" from an economic perspective, industries in the cluster also contributed to non-economic goals like preserving open space and maintaining the rural character of Kauai.[69]

Projects

- Conduct market studies (including data on worldwide demand) and distribute to growers.

- Produce a local farm/crop directory and distribute to buyers and retailers (including local restaurants and markets).

- Create an entity to coordinate marketing and distribution in *collaboration* with growers, following the model being used by KTA, Alluvion, and others.

- Establish a treatment, handling, and packing facility for exports including produce and value-added products.

- Establish a slaughter facility for the Kauai livestock industry.

- Amend current land use ordinance to allow for farm dwellings and address the housing issue for farmers.

- Form a Food Cluster Working Group to coordinate ongoing efforts of stakeholders within the Agriculture & Food Cluster.

Other Projects

- Build a certified, commercial community kitchen for food product development, testing and production by local farmers and new entrants to the food industry.

- Establish a "Made in Kauai" brand similar to KTA's Mountain Apple Brand, and provide market assistance under the label.

- Establish business training and technical assistance programs for farmers, or enhance existing programs to reach more small producers.

- Increase new product research and development in agriculture from the University of Hawaii.

- Build affordable housing (subsidized development, financing, or rent) for farmers and farm workers.

- Upgrade irrigation systems and roads critical to agricultural production.

- Hold food industry events to promote Kauai agriculture and food products.

- Build a "deluxe farmers' market" with retail space for agricultural and value-added products.

- Create a web-based portal for value-added and agricultural products from Kauai.

- Improve recruitment and mentoring for agriculture students and others entering the field.

- Coordinate the use of the harbor for agricultural and visitor use so that neither is negatively affected by the other. Construct a staging area at the harbor for agricultural exports.

- Plan and implement other projects strengthening the Food & Agriculture Cluster as identified in the County General Plan, State Plans, Workforce Development Plans, State Department of Agriculture plans, or other plans.

Health & Wellness

The Health & Wellness Cluster includes a range of health services providers and practitioners, traditional and non-traditional. The cluster includes hospitals, and doctors' and dentists' offices as well as chiropractors, nutritionists, nursing homes, mental health services providers, naturopaths, physical therapists, home healthcare providers and others.

Industries Comprising Health & Wellness Sector

NAICS	Industry		
44610	Health & personal care stores	189	0.9%
62110	Offices of physicians	469	2.1%
62121	Offices of dentists	154	0.7%
62130	Offices of other health practitioners	52	0.2%
62140	Outpatient care centers	43	0.2%
62161	Home health care services	92	0.4%
62200	Hospitals	324	1.5%
62142	Outpatient substance abuse	NA	NA
62151	Medical & diagnostic laboratories	NA	NA
62310	Nursing care facilities	NA	NA
NA	Other Health & Well. (estimated)	682	3.1%
Total Jobs in Cluster		2,005	9.1% [70]

Key strengths of the Health & Wellness cluster include strong projected growth and the fact that most industries in the cluster pay well above the Kauai living wage. For example, Outpatient Care Centers pay an average wage of $44,750; Offices of Physicians, $56, 832; Healthcare & Personal Care Stores, $30,437; and Other Healthcare Practitioners (including non-traditional) $30,029. Industries in healthcare and wellness also draw upon a common pool of skilled labor requiring similar types of knowledge and training.

Priority Projects

- Form Health & Wellness cluster working group.

- Plan and construct a community-based Health & Wellness Retreat Center in a spectacular setting, that integrates traditional and non-traditional healing arts. The retreat center would serve residents and a worldwide audience.

- Provide scholarships for medical training covering a combination of tuition and lost wages for those who must forgo employment to pursue education.

- Create new or expanded programs for middle schools, high schools and KCC to attract students to the healthcare professions, e.g., a summer health academy, academy for future nurses, or health occupation club for teens.

- Create new training program options at KCC, e.g., apprenticeship models; modular courses vs. semester courses, and other nontraditional course structures for those who work while pursuing education in healthcare.

Other Projects

- Apply the "Team Tech" model of mentoring/shadowing to health and wellness cluster jobs.

- Develop a website to link job openings on Kauai with former Kauai residents who want to return home.

- Create inter-industry career path maps.

- Expand Kauai's home health services industry by providing appropriate training and technical assistance to new enterprises in this industry.

- Expand health and wellness career day at schools.

- Ensure that Kauai has access to the best appropriate telemedicine facilities and equipment.

- Build long-term care facilities.

- Plan and implement other projects strengthening the cluster and identified in the County General Plan, State Plans, Workforce Development Plans, the DBEDT's Wellness Tourism Plan, or other plans.

Recreation

The Recreation Cluster includes a range of industries providing recreational services and attractions to residents and visitors. Included within this cluster are industries such as golf courses, recreational instruction (surfing, windsurfing, parasailing, etc.), campsites, recreational sports centers, equipment rentals, and supportive services like tour operators, travel agencies, and others.

Industries Comprising Recreation Cluster

NAICS	Industry		
713000	Amusement & recreation	447	2.0%
713910	Golf Courses & Country Clubs	NA	NA
713940	Fitness & recreational sports ctrs	NA	NA
721210	Recreational, vacation camps	NA	NA
451110	Sporting goods stores	83	0.4%
487900	Scenic & sightseeing transportation	175	0.8%
532292	Recreational goods rental	NA	NA
561510	Travel agencies	57	0.3%
561520	Tour operators	86	0.4%
611620	Sports & recreation instruction	NA	NA
Total Jobs in Cluster		847	3.8%

Recreational services is an area where Kauai is strong relative to other counties. Nearly every industry (with the exception of travel agencies) had employment that was more than 125% of what we would expect given statewide levels of employment. Recreational services industries also showed strong historical and projected annualized growth (4.3% and 4.1% respectively) that outpaced growth rates of Kauai's other industries.

Growth in the cluster appears to be driven by recreational services. Other supportive industries like travel agencies, tour operators, and rental agencies have lower growth rates and would benefit from aligning themselves more closely with recreational services through cross marketing, package deals, and information sharing.

Priority Projects

- Implement Haena State Park Master Plan.
- Implement Kokee State Park Master Plan.
- Create a Recreation Cluster association or working group (e.g., building off of Kauai Agricultural Tour Operators Association).
- Develop the Wailua Reservoir Education Center, combining fishing and camping areas, a native plan reforestation project, and an environmental education center located at the Wailua Reservoir.

Other Projects

- Construct and maintain a bike path from Nawiliwili to Anahola.
- Build and maintain athletic facilities such as gymnasiums, soccer fields, and other arenas to ensure that local residents and visiting sports events have adequate venues to compete in.
- Establish themed visitor centers in each community providing information on recreational activities and services.
- Address safety issues (esp. ocean recreation) with monitoring, community education, additional lifeguards and equipment.
- Improve roads to ensure sustained visitor traffic to recreational areas and businesses.
- Begin charging user fees at parks to support maintenance and improvements.
- Conduct a study of the carrying capacity of Kauai with implications for the Recreation Cluster and other industries.
- Plan and implement other projects strengthening the cluster and identified in the County General Plan, State Plans, Workforce Development Plans, or other plans.

Arts & Culture

The Arts & Culture Cluster includes a variety of industries engaged in artistic and cultural activities. Music, film, writing, publishing, graphic design, hula halau, crafts, photography and performing arts as well as educational and cultural attractions like museums, historical sites, and botanical gardens,

theatres, and cultural education programs are all included. The cluster is comprised of both for-profit and non-profit entities engaged in these activities. The cluster supported 644 jobs in 2002, or 3.1% of total non-government employment on Kauai.

Industries Comprising Arts & Culture Cluster

NAICS	Industry	Jobs	% Tot.
451100	Hobby, musical instrument store	110	0.5%
451200	Book, periodical & music stores	68	0.3%
453920	Art dealers	82	0.4%
711000	Performing arts, spectator sports	76	0.3%
712110	Museums, historical sites	243	1.1%
712130	Zoos & botanical gardens	140	0.6%
711110	Theater companies & dinner theaters	NA	NA
711120	Dance companies	NA	NA
711130	Musical groups & artists	NA	NA
711500	Indep.artists, writers & performers	NA	NA
512100	Motion Picture & Video Industries	NA	NA
NA	Others Arts & Culture (estimated)	59	0.3%
Total Jobs in Cluster		779	3.5%

Firms and industries in the cluster are unified by their reliance on a mix of cultural, natural and historic assets unique to Kauai including a similar workforce of creative individuals. Industries in the cluster also draw upon a common customer base: visitors and residents with an interest in arts and culture. Those cluster companies that draw visitor traffic depend on shared physical infrastructure to maintain attendance. Finally, these industries all play an important role in defining the cultural character of Kauai.

Industries in the cluster showed strong historical growth and strong projected growth. Performing Arts, Zoos, and Botanical Gardens all experienced annual growth of more than 20% between 1998 and 2002. Several of Kauai's industries in this cluster are also strong compared to the rest of the state. Museums & Historical Sites, for instance, supported twice the number of jobs expected given statewide employment patterns.

Priority Projects

- Provide marketing assistance programs targeting arts and culture enterprises with particular attention to marketing overseas to visitors and customers.

- Create an access to capital program or special assistance fund for arts and culture enterprises and projects.

- Acquire land for and establish a permanent fair grounds for cultural festivals on Kauai.

- Establish and provide support to the Niihau Shell Lei Cooperative including technical assistance, capital, and eventually a production facility.

- Establish specialized technical assistance programs for nonprofit organizations engaged in arts and culture enterprises which benefit the local economy.

- Create an Arts & Culture working group to improve communication and coordination within cluster.

Other Projects

- Adapt and use Kauai's Voyaging Canoe for cultural education excursions for visitors and residents.

- Acquire and maintain a mobile facility for cultural festivals.

- Establish community-based, experiential and cultural learning centers on Kauai.

- Acquire, rehabilitate, adapt and re-use existing historic facilities (e.g., Haraguchi Rice Mill) for new commercial purposes.

- Create a consolidated directory of art and culture businesses, programs and attractions.

- Create a consolidated calendar of arts and cultural events on Kauai and distribute to residents and visitors.

- Establish improved rules to guide the use of natural, cultural, and historical resources and for preservation of open space.

- Develop interpretive trails and walking tours in communities across Kauai, highlighting historic and cultural sites, with appropriate Native Hawaiian place names, interpretive signage and protocols.

- Establish a program to teach Hawaiian language, protocol, place names, etc. to workers in Kauai's visitor industry.

- Plan and implement other projects strengthening the cluster as identified in the County General Plan, State Plans, Workforce

Development Plans, DBEDT's Economic Plan for the Creative Economy, or other plans.

- Additional legislative incentives in the form of tax breaks are needed to attract the film industry.

- Additional funding and support for the film industry on Kauai.

High Technology

The High Technology cluster includes firms in information technology, life sciences, ocean sciences, digital media, and related service industries. Kauai firms in the cluster supported an estimated 406 jobs in 2002, comprising just under 2.0% of total non-government employment.

Industries Comprising High Technology Cluster

NAICS	Industry	Jobs	% Tot.
513320	Wireless telecom carriers	272	1.2%
541500	Computer systems design & related	17	0.1%
541900	Othr professional, scientific, tech	55	0.2%
514210	Data Processing Services	12	0.1%
514191	On-Line Information Services	NA	NA
513320	Wireless Telecomm Carriers	NA	NA
511210	Software Publishers	NA	NA
325410	Medicinals, Botanicals, Pharma	NA	NA
339112	Surgical & Medical Instruments	NA	NA
541710	Commercial Physical & Bio Research	NA	NA
NA	Other High Tech (estimated)	50	0.2%
Total Jobs in Cluster		406	1.8% [71]

The industries within the cluster are diverse. Rather than being grouped together due to horizontal or vertical linkages, these industries were grouped because they were all in an early stage of development on Kauai and therefore share many needs and challenges. For instance, biotechnology, information technology, and research companies all would benefit from access to venture capital, assistance with start-up or expansion, and investment in research and development.

Because Kauai had only a few firms in many of these industries, Kauai-specific data on historical and projected job growth was often unavailable. Indeed, only 4 High Technology industries (all within the Information Technology (IT) group) were large enough to register in government-collected data on Kauai's economy. Still, data on Kauai's IT segment showed that it had high levels of employment relative to other counties and had strong historical and projected growth. Evidence collected through interviews, trade

publications, and global industry research pointed to high growth potential in other cluster industries as well and average wages were well above the Kauai living wage.

Priority Projects

- Develop affordable housing for technology workers, live-work space for technology entrepreneurs, and/or temporary housing for visiting scholars/technology experts.

- Create business-education partnerships between high tech companies and Kauai Community College. KCC would supply facilities, equipment, and partial funding, and share curricula with other community colleges. High Tech companies would shall recruit instructors (including retirees) and develop curricula.

- Create business-education partnerships between high tech companies and K-12 schools to strengthen Math & Science curricula. High tech companies should provide training to K-12 teachers.

- Form a High Tech Cluster Working Group to identify shared needs and opportunities, and craft coordinated solutions.

- Advocate for more legislative support on high tech issues, particularly for agricultural biotech which has many opponents.

Other Projects

- Hold technology fairs to showcase products and services of high tech companies.

- Establish IT internships, even with non-IT companies that use technology like hotels.

- Assess the feasibility of and (assuming feasibility) construct a water treatment facility for Waimea/Kekaha.

- Conduct a market analysis of the unmet demand for commercial office space on the West side of Kauai. Assuming unmet demand exists, increase available space on West side (e.g., for PMRF-related businesses).

- Establish technology-related, community-based visitor centers in each region of Kauai, geared toward the education of residents and visitor alike, e.g., an ocean sciences and technology center in Poipu.

- Construct a film center/digital media center and production facility.

- Develop a business incubator and accelerator for home-based and small tech businesses with video teleconferencing capabilities, photocopying equipment, etc.).

- Plan and implement other projects strengthening the cluster as identified in the County General Plan, State Plans, Workforce Development Plans, or other plans.

Renewable Energy

The Renewable Energy cluster includes a variety of industries that generate, distribute, and build technology for renewable energy. Types of renewable energy represented in the cluster include biomass, geothermal, hydro-electric, hydrogen fuel cells, ocean thermal, wave energy, photovoltaic, and wind energy.

Many of the technologies for renewable energy are still under development and therefore renewable energy industries are still in an embryonic stage. Indeed, the federal government does not have separate industrial classification codes for renewable energy industries. Rather, data on these industries are lumped together under headings like "Other electric power generation" (NAICS 221119), "Research & Development in physical, engineering & life sciences" (NAICS 541710), or "Electrical equipment manufacturing" (NAICS 335310).

There is little data available to analyze the cluster or its potential on Kauai. However, interviews with Kauai's industry leaders, and research on global market and industry trends suggests that the cluster may be an attractive investment. Based on interviews and other information, a conservative estimate on the current employment in the cluster is about 50. Because jobs in the cluster tend to be related to research, skilled manufacturing, or engineering, wages are well above the living wage for Kauai.

Priority Projects

- Conduct a study of past efforts on Kauai, best practices from around the country/world, and future needs/market opportunities in renewable energy.

- Create a renewable energy working group to coordinate efforts to promote the cluster, identify opportunities for collaboration, etc.

- Develop a "renewable energy park" to showcase new renewable energy technologies, and commercial and residential installation/use.

- Plan and staff an office/entity to support renewable energy demonstrations (a "renewable energy business accelerator") to: identify/select demonstration projects (e.g., via RFP); assist in proposal development; assist in project siting, policy advocacy; collect info, evaluate, disseminate results.

Other Projects

- Plan, construct and maintain a Kauai biomass facility.
- Plan, construct, and maintain a Kauai H-Power plant.
- Plan, construct, and maintain a Kauai ethanol plant.
- Provide business support and technical assistance for renewable energy spin-off businesses such as those utilizing waste to energy by-products.
- Other projects strengthening the cluster and identified in the County General Plan, State Plans, Workforce Development Plans, the State Integrated Resource Plan, or other plans.

Other Promising Clusters

Based on the industry analysis described above, two additional clusters were identified as good investments for Kauai. Both *Construction & Building Trades* and *Real Estate & Related Services* had a combination of strong growth characteristics (at least for the short-term) and high wages.

However, these clusters were not included in the list of target clusters for the following reasons. In the case of *Construction & Building Trades*, though many industries offered living-wage jobs, they also tended to be highly cyclical and had limited export potential.

In the case of *Real Estate & Related Services*, industries had some export potential (in the form of time-share and vacation home sales), but they, too, were cyclical. Furthermore, the time-share and vacation-home sales which are driving current growth in Kauai's real estate services ran counter to other non-economic priorities such as maintaining affordable housing for residents, and preserving agricultural land.

Still, the data indicate that these are two additional areas where proper investment could create well-paying, skill-building jobs for Kauai residents. Projects that strengthen these clusters should therefore be considered and supported, particularly when they (a) address the County's need for stable, long-term well paying jobs, and (b) when consistent with the goals and priorities articulated in this and other County plans.

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)
COUNTY OF KAUAI PRIORITY PROJECTS LIST-

Food & Agriculture

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
FA-1	Re-establish treatment, handling, and packing facility	Renovation and start-up costs of existing facility that will be used by all farmers to increase exports, including produce and value-added products.	$150,000 – $300,000	10-20	University of Hawaii Farm Bureau	Public Works Technical Assistance
FA-2	Form a Food & Agriculture Cluster Working Group	Continue to build on the foundation established by the Food Industry Forum/Council to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000-100,000	5-20	Foundations University of Hawaii Farm Bureau State of Hawaii	Technical Assistance
FA-3	Conduct market study	Data on worldwide demand for produce will guide growers. Information will also steer and help forge relationships and partnerships with purchasers worldwide. The study would also address the issue of the need for accurate, continuous data and how to sustain information gathering efforts over time.	$60,000	10-20	State of Hawaii	Technical Assistance
FA-4	Create an entity to coordinate marketing and distribution in collaboration with growers	Using the model of KTA, Alluvion, Kauai Food Bank and others, this entity would coordinate marketing and distribution for individual growers.	$50,000	10-20	State of Hawaii	Technical Assistance

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
FA-5	Commercial Kitchen	Food processing and packaging facility to develop value-added products.	$1.5 million	10-20	U.S.D.A. State of Hawaii	Public Works
FA-6	Kauai Fresh Public Market	Centrally located, permanent facility to showcase the fresh produce, value-added products, and prepared meals from Kauai.	$1.3 million	10-20	Kauai Foodbank Foundations U.S.D.A.	Public Works
FA-7	Produce a local farm/crop directory	Directories will be distributed to buyers, restaurants, and retailers to improve communications about products grown locally.	$30,000	2-5	State of Hawaii	Technical Assistance

Health & Wellness

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
HW-1	Form Health & Wellness cluster working group	Convene a working group to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000 – $100,000	5-20	State of Hawaii Foundations	Technical Assistance
HW-2	Health & Wellness Center	Integrate traditional and non-traditional healing in one center.	$4 million	20-30	Private Foundation Government	Public Works
HW-3	Scholarships for medical training	Offer scholarships to individuals who pursue training in medical professions that are in demand.	To be determined	To be determined	To be determined	Not applicable
HW-4	New and expanded programs to attract students to the health care professions	Programs may include a summer health academy, academy for future nurses, and other nontraditional course structures for those who work while pursuing education.	To be determined	To be determined	To be determined	Not applicable

Sports & Recreation

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
SR-1	Complete Haena State Park Master Plan and implement improvements	Improve rest rooms, parking, access, signage, and other amenities at Haena State Beach Park.	$1.1 – 1.5 million	2		Not applicable
SR-2	Implement Kokee State Park Master Plan	Improve rest rooms, parking, access, signage, and other amenities at Kokee State Park.	To be determined			
SR-3	Form Sports & Recreation cluster working group	Convene a working group to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000 – $100,000	5-20	State of Hawaii Foundations	Technical Assistance
SR-4	Develop Wailua Reservoir Education Center	Project includes developing fishing and camping areas, native plant reforestation project, and environmental education center.	To be determined			

Arts & Culture

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
AC-1	Form Arts & Culture cluster working group	Convene a working group to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000 – $100,000	5-20	State of Hawaii Foundations	Technical Assistance
AC-2	Provide marketing assistance	Assist arts and culture enterprises market to overseas visitors and customers.	$60,000	5-10	State of Hawaii	Technical Assistance
AC-3	Provide technical assistance	Assist nonprofit arts and culture enterprises technical assistance to increase organizational capacity.	$60,000	5-10	State of Hawaii Foundations	Technical Assistance
AC-4	Kauai Center for the Arts, Education and Technology	Develop a multi-purpose, community-centered facility that will provide office space for local nonprofit organizations, meeting space and catering facilities, cultural performing arts center, and television production studio.	$6.3 million	20-50	Private Foundation	Public Works

High Technology

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
HT-1	Form High Technology cluster working group	Convene a working group to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000 – $100,000	5-20	State of Hawaii Foundations	Technical Assistance
HT-2	Strengthen grades K-12 and KCC math and science curricula	Develop business-education partnerships to recruit instructors, develop curricula, and provide training to teachers.	$40,000-60,000	5-10	Private State of Hawaii Kauai Community College	Technical Assistance
HT-3	Poipu Ocean Science Center	Develop a facility that will be a source of information and research of marine science technology and enable visitors and residents to learn, understand, and "experience" the importance of preserving Kauai's ocean and marine resources	$1.5 million	5-10	Private Foundation State of Hawaii Federal-HUD	Public Works

Renewable Energy

Reference	Project	Summary	Estimated Cost	Estimated Jobs	Possible Source of Matching Funds	Project Type
RE-1	Form Renewable Energy cluster working group	Convene a working group to develop a database, improve communications, develop business plan, and implement priority projects.	$50,000 – $100,000	5-20	State of Hawaii Foundations	Technical Assistance
RE-2	Renewable energy analysis and market study	Conduct study of past efforts on Kauai, best practices, and future market opportunities	$60,000	1-5	State of Hawaii Federal funding	Technical Assistance
RE-3	Office and staff to support renewable energy demonstrations	Staff is needed to identify/select demonstration projects, assist in proposal development, assist in project siting, advocate policies, collect information, evaluate, and disseminate results	$100,000-$150,000	1-2	State of Hawaii Federal funds Foundations	Technical Assistance
RE-4	Develop renewable energy park	Facility to showcase new renewable energy technologies to demonstrate commercial and residential installation and use.	To be determined	1-5	State of Hawaii Federal funds Foundations	Public Works
RE-5	Ethanol Demonstration Project (Gay & Robinson)	Facility will demonstrate and refine technology to convert sugarcane waste and other sources of waste biomass to ethanol.	$1.5 million (equipment)	300 retained 10-20 new	State of Hawaii – special purpose revenue bond Private	Public Works

CHAPTER 18 COUNTY OF MAUI

In Maui County, the preparation of the Maui component of the Statewide CEDS was conducted in conjunction with an update of the Maui CEDS. The 2004 Comprehensive Economic Development Strategy (CEDS) for the County of Maui provides a regional economic development plan that defines goals, priorities and action steps intended to foster the economic prosperity of the County of Maui.

Incorporation of Past Plans

The report builds upon and incorporates information from several past plans and community processes. Among the plans incorporated are: the *1999 Maui County Comprehensive Economic Development Strategy*; the *Conference on Maui's Economic Future* (July, 2003); the *Maui Mayor's Economic Summit* (January, 2004); and *Focus Maui Nui* (December, 2003). Each of these plans was the result of participatory processes that drew input from, and built consensus among, a broad range of citizens and stakeholders. *Focus Maui Nui* was particularly valuable as a starting point for this CEDS because it was the product of massive citizen participation (nearly 1,700 residents took part) and was recent enough (less than a year old) to provide an up-to-date articulation of community values, goals, and priorities related to economic development. Indeed, the need for a new CEDS was part of the original impetus for the *Focus Maui Nui* process.[72]

Project Team

The Maui Component of the Statewide CEDS was prepared for the County of Maui and the Office of State Planning by the Maui Economic Development Board (MEDB) with the assistance of 3Point. MEDB is a 501(c)(3) nonprofit organization whose mission is *to provide leadership and vision in our community for the responsible design and development of a strong and diversified economy.* 3Point is a Hawaii-based public policy research and consulting firm with a "double bottom line" of creating financial and social return on investment for the communities in which it works.

COMMUNITY PARTICIPATION IN THE CEDS PROCESS

Community input into the development of the 2004 CEDS was achieved through a variety of mechanisms, including the incorporation of past plans and planning efforts, the use of community advisory committees, interviews and community focus groups. Major avenues of community participation are discussed in this section.

Focus Maui Nui (December, 2003)

This CEDS draws heavily from the *Focus Maui Nui* process and report which brought together a diverse cross-section of nearly 1,700 residents to discuss values and priorities in a variety of areas including economic development. Over the course of a 14-week period during 2003, 167 small group discussions took place in neighborhood homes, churches, shopping centers and workplaces, with each group ultimately articulating values, priorities and strategies that should shape Maui County's future. Community leaders pledged to uphold the findings of this process and to make decisions based on the vision that emerged. The sentiments that emerged from these discussions were synthesized and captured in a final report, published in December 2003. Findings and recommendations relevant to economic development are incorporated in this CEDS.

Mayor's Economic Summit (January, 2004)

In January 2004, over 200 participants representing the public, private and nonprofit sectors participated in the "Mayor's Economic Summit." Using the values and priorities identified through the *Focus Maui Nui* visioning process as the starting point for discussion, participants considered countywide needs, issues, and priorities for economic development. They emerged from discussions with a list of priorities for economic action in seven areas: (1) tourism, (2) agriculture, (3) small town revitalization, (4) healthcare, (5) sports and recreation, (6) high technology, and (7) film and entertainment. Discussion and priority actions in these seven areas are incorporated into this report.

CEDS Focus Groups (August to September, 2004)

Nine focus groups were convened during August and September of 2004 with a combined 70 participants to gather input on the economic development challenges, opportunities, actions and projects relevant to formulation of the CEDS. Invitations were extended to representatives from the public, private, and nonprofit sectors with knowledge of the seven areas identified in the Mayor's Economic Summit (see above). Seven focus groups were convened on Maui, one each for agriculture, small town revitalization, healthcare, sports and recreation, high technology, film and entertainment, and tourism. The tourism results were excluded from the state report, as it would be derived from a separate plan. Three additional focus groups were held in Hana, and on Lanai, and Molokai to gather local perspectives from those areas. Focus group participants were presented with an overview of the CEDS process, and asked to identify key challenges, opportunities, and action steps or projects. Input gathered through the focus groups was incorporated into this CEDS.

CEDS Committee (Ongoing)

For ongoing review, comment, and guidance throughout the development of the CEDS, MEDB enlisted a cross-section of community leaders to serve on a CEDS Committee. A full list of members is provided as Appendix A. The Committee was charged with helping to guide the CEDS process, reviewing drafts of the CEDS document, and recommending revisions.

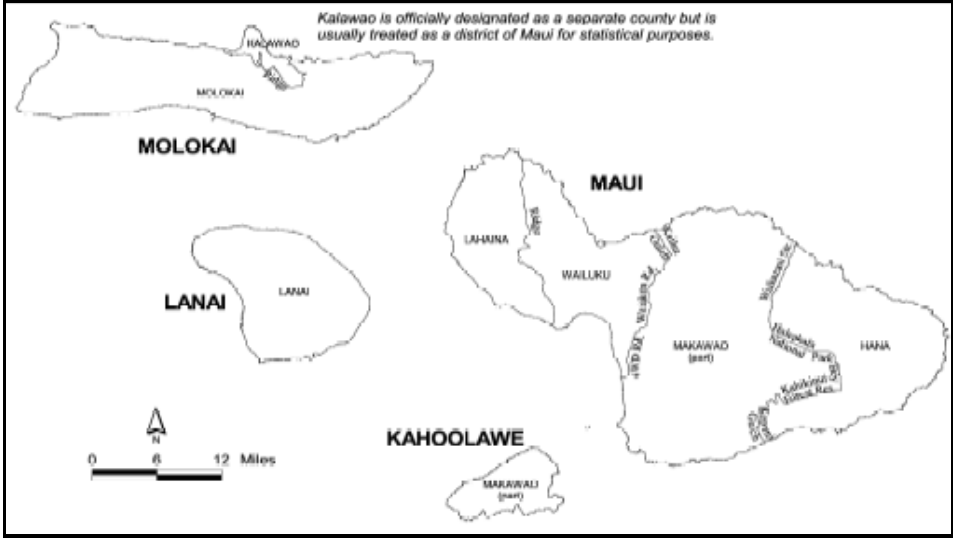
ECONOMIC BACKGROUND & HISTORY

County Profile

The County of Maui is the second largest county, by land area, in the State of Hawaii. It consists of four main islands: Maui, Molokai, Lanai, and Kahoolawe with a combined land area of 1,162 square miles. It is the third most populous county in the state with a resident population of approximately 128,000 representing 11% of the statewide population. Main population centers within the county include Kahului, Kihei, Makawao, Lahaina and Wailuku on Maui; Kaunakakai on Molokai; and Lanai City on Lanai.

The island of Maui is the seat of county government and is home to most of the county's residents and businesses. Roughly 118,000 or 92% of the county's residents live on Maui with 7,300 (6%) residing on Molokai and the remaining 3,200 (2%) on Lanai. Maui also accounts for more than 95% of the county's total jobs and businesses.

Islands of Maui County



Source: State of Hawaii, DBEDT, Hawaii State Data Book, 2003.

Population

Between 1990 and 2000, Maui County saw the largest population growth of any of the counties, with growth of 28% compared to 7% for the rest of the State. The county as a whole has a plurality of Caucasians (34%, higher than any other county), though Asians, Native Hawaiians, and persons of mixed race are also well represented. Each island has a very different racial and ethnic composition: Maui has a plurality of Caucasians (36%); Molokai has a plurality of native Hawaiians and Pacific Islanders (37%); while Lanai has a majority of Asians (53%) with a large Filipino contingent.

	County	Maui	Molokai	Lanai
Caucasian	34%	36%	14%	14%
African American	0%	0%	0%	0%
American Indian or Alaska Native	0%	0%	0%	0%
Asian	30%	30%	20%	53%
Native Hawaiian or Pac. Islander	11%	9%	37%	7%
Other Race	1%	2%	1%	0%
Two or More Races	23%	23%	29%	26%

Source: U.S. Census Bureau, 2000 Census.

Maui County has a slightly smaller senior population and a slightly larger working-age population than other counties. Its population age 24-64 represented 55% of the total population compared to 52%-53% for other counties. In addition, while other counties saw substantial net out-migration from 1995 to 2000 (particularly in the working-age population), Maui saw almost none, losing less than 1.0% of its resident population to net out-migration versus a statewide average of 6.5%.

Economic History

For the better part of the 20th century, the driving economic force on the islands of Maui County was plantation agriculture. The islands' society and economy revolved around large-scale agriculture, with sugar mills, pineapple canneries, productive fields, and plantation camps serving as defining features of the county's landscape. Development of the county's commercial centers was fueled by the growth of the plantation workforce and the household income supplied by plantation jobs.

By the 1980s, though, falling global prices and increased international competition were forcing agricultural companies across the state to scale back operations and explore alternative business strategies. Tourism began to supplant agriculture as the dominant economic force in the islands. The islands of Maui County each wrestled with this transition, adopting different strategies to manage economic change. Today, the County attracts more than

2 million visitors per year, and is home to a variety of recreational, cultural, historic and resort assets.

During the 1990s, Maui County, like the rest of the state of Hawaii, experienced a prolonged economic downturn. A series of events converged upon the islands including the Gulf War, Hurricane Iniki, and recession in Japan, slowing visitor arrivals and causing the county's tourism-dependent economy to falter. Unemployment reached a high of 7.5% in 1997. The county began a steady recovery in the late 1990s and into 2000, with visitor arrivals regaining ground and unemployment dropping steadily to 4.4% by 2003. The events of September 11, 2001 once again brought the visitor industry to a halt, and presented the islands with a short-term economic calamity, but the islands have since recovered and continued their economic expansion.

At the time of the 2004 CEDS, Maui County was experiencing robust growth in employment, income, and tax revenues. The growth was driven mainly by the construction, real estate, visitor and retail industries. The economic outlook for Maui County is rosy as well. While remaining a smaller contributor to the county's economy, the high technology sector which was founded on the Air Force Research Laboratory's optics and astronomy activities is experiencing steady growth with 15-20% growth projections in the next 2 years. For more than 20 years, job growth in Maui County has outpaced that of other counties. This historical trend is expected to continue, with job growth between 2000 and 2020 forecast at 35% compared to a statewide growth rate of 23%.[73]

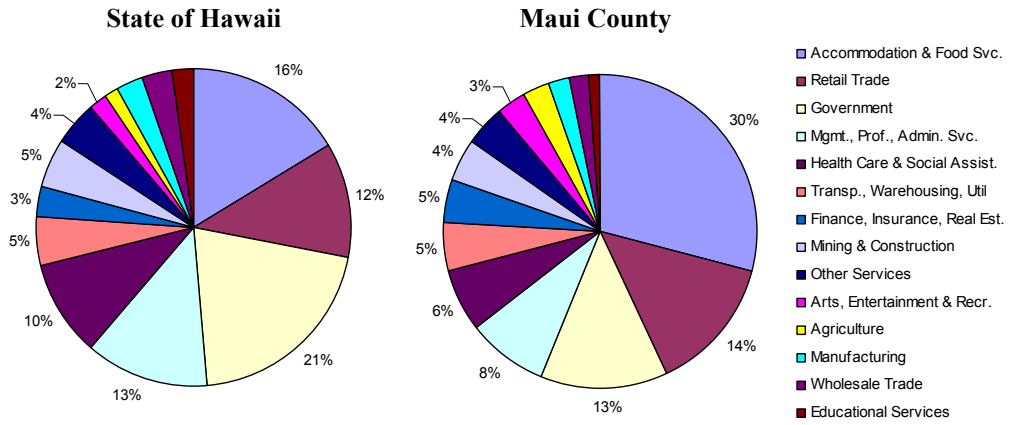
Economic Composition

Maui County's economy is comprised of roughly 4,000 businesses supporting approximately 67,000 jobs. The county has a high concentration of small businesses, with 88% of companies employing fewer than 20 people. It also has a relatively high number of business owners, with more than 1 in 5 people self-employed--the highest proportion of self-employed residents of any county in the state. The county's economy is dominated by firms in the Accommodations, Food Services, Government, and Business and Professional Services sectors. Together, these sectors comprise almost two-thirds of all county jobs. Hotels, Motels, and Restaurants by themselves account for almost 1 in 3 jobs in the county.

Compared to the other counties of Hawaii, Maui has a larger Accommodations and Food Services sector, and smaller Construction, Agriculture, Healthcare and Government sectors measured by employment. As a result of its current industry mix, the county's employment base has high concentrations of visitor-related service and retail occupations. Its five largest occupations by number of jobs are (1) Waiters & Waitresses, (2) Retail

Salespersons, (3) Maids & Housekeepers, (4) Cashiers, and (5) Restaurant Cooks.

Employment by Industry



Source: BLS & DLIR, Current Employment Statistics, 2003.

Employment & Income

As of August 2004, Maui County's unemployment rate was at 10-year low of 3.3%, with Maui and Lanai at 2.9% and 2.3% respectively. At these levels, the labor markets of Maui and Lanai are extremely tight with most able-bodied job seekers employed. Maui County also had the highest per capita income of any county at $22,033 (102% of the statewide figure of $21,525) and a relatively high median household income of $49,489 (99% of the statewide median of $44,820). The poverty rate in Maui County was the lowest of any county except Honolulu at 10.5%. Measured by income and employment, then, the economy of Maui County as a whole was performing well at the time this CEDS was prepared.

ECONOMIC DEVELOPMENT CHALLENGES & OPPORTUNITIES

In spite of very low unemployment and high average incomes countywide, the communities of Maui County face some significant economic challenges. Past plans, focus groups, and the available data point to the following areas of economic need and opportunity.

Economic Diversification

Economic diversification has long been a priority in Maui County, and indeed for the state of Hawaii as a whole. Despite the growth of new industries within the county, the local economy continues to be relatively undiversified.

The county's economy continues to be among the most dependent on the visitor industry in the state with the Accommodations and Food Services (Hotels, Motels, Restaurants, Bars) sector accounting for roughly 30% of jobs, versus a statewide proportion of 16%. Indeed, Maui County has the highest concentration of jobs in Accommodations and Food Services of any county. The lack of diversification means that the local economy is at risk of external shocks to the visitor industry like those experienced during the 1990s and following the terrorist attacks of September 11th.

Residents recognize that the visitor industry will continue to be an important contributor to the county's economic prosperity and that it will continue to require community support. However, residents also recognize the need to invest in other industries to create a more diverse economic base. To date, attention and energy have focused on a handful of growth sectors including: (1) high technology, (2) agriculture, (3) sports and recreation, (4) film and entertainment, and (5) healthcare. Because the county's small towns are viewed as important economic assets, small town revitalization has also been an area of focus. It is hoped that progress and growth in these six areas will fuel diversification of the local economy.[74]

Underemployment

Closely related to the diversification of the economy are concerns over *underemployment*, defined as a having a high proportion of employment in part-time, low wage, and/or low-skill jobs. In 2003, the living wage on Maui for a family of 4 was approximately $57,000 or $28,500 per parent assuming two parents work.[75] Only 2 of Maui County's 10 largest occupations pay a living wage by this standard (see table below). Indeed, an analysis of 2003 job and wage data indicates that 52% of all jobs on Maui do not pay a living wage for a family of four.[76]

20 Largest Occupations	Employment	Wage
Waiters & Waitresses	3,120	$ 22,750
Retail Salespersons	3,030	$ 22,015
Maids & Housekeeping Cleaners	2,070	$ 25,620
Cashiers	1,860	$ 20,657
Restaurant Cooks	1,380	$ 29,209
Combined Food Preparation & Servers	1,350	$ 18,727
General Office Clerks	1,350	$ 24,185
Janitors & Cleaners	1,340	$ 22,043
Landscaping & Groundskeeping Workers	1,290	$ 24,856
First-Line Supervisors of Retail Sales Workers	940	$ 37,241

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics, 2003.

Affordable Housing

The shortage of affordable housing for local workers was identified as a barrier to attracting and retaining the skilled workforce needed by many of the county's growing industries. Single-family home prices in Maui County hit record highs in 2004 with the median home price reaching $620,000 in May. At these prices, homeownership is beyond the reach of many County residents.[77] Contributing to the housing shortage is the fact that a large portion of Maui County's existing housing stock is devoted to vacation or seasonal home use. Indeed, Maui County had the highest vacation homeownership rate of any of Hawaii's counties in 2000 with 17.3% of total housing units dedicated to recreational, seasonal, or vacation use.[78] Accounting for vacation units, the Maui County vacancy rate was only 5.6% in 2000--three years prior to peak of the housing market.

Education and Workforce Development

Improvements to the educational system are needed to ensure that Maui's growing industries can continue to thrive and that local residents are prepared to take advantage of new job opportunities, e.g. in technology-related careers. Employers commented repeatedly on the need for a strong K-12 education system, as well as better connections between high schools, the community college, and industry. New forms of education were often suggested including internships and apprenticeships, on-the-job training, and modular course work (versus standard 2- or 4-year degree programs). Finally, many industry representatives pointed to the need for a 4-year institution of higher education or 4-year programs to address their anticipated workforce requirements. The statistical data lends some credence to the observation that higher education is needed: only 22% of Maui County workers hold a Bachelor's Degree or higher, versus 26% of the statewide population and 24% nationwide.[79]

Infrastructure Development

Infrastructure development is an issue that was highlighted in the 1999 CEDS and which continues to sit at the center of Maui County's economic future. Improvements to airports and harbors, maintenance and improvement of road systems, the generation and transmission of adequate electrical power, and the maintenance and improvement of water systems all emerged as points of discussion in this and other planning processes. In particular, water, roads and air transportation (especially on Lanai and Molokai) were repeatedly identified as areas of concern. Several employers noted that traffic congestion and lengthy travel times reduced productivity and made it difficult to attract or retain workers. Employers and farmers also pointed to water as a top priority, with concerns expressed over its limited supply and the need for maintenance of existing water systems. Improvements to harbors and airports were also

highlighted as an area of need, particularly as they relate to Maui's ability to export products. However, while some favored expansion of such facilities, others cautioned that a prudent approach is required that weighs the risk of greater accessibility such as degradation of local infrastructure and the natural environment (e.g., by invasive species).[80]

Environment and Culture

The County has several national and state parks including Haleakala National Park, Waianapanapa State Park, Kula Botanical Gardens, Polipoli Springs State Recreation Area, and Keanae Arboretum. It also has three Marine Life Conservation Districts at Honolua-Mokuleia on Maui, at Manele-Hulopoe on Lanai, and the Molokini Shoal off the southwestern Maui coast. Finally, the county is also home to several important historic areas and prehistoric sites. These include heiau, petroglyph sites, burial sites, ancient village sites and fishponds. Fishponds on Molokai, the sacred Mokuula in Lahaina, and the Garden of the Gods on Lanai are but a few examples. The cultural diversity of Maui County's people, is in itself, an asset, with the cultural

Maui County and its residents keenly appreciate the beauty and fragility of the islands, and agree that protection of natural and cultural resources is a priority. These values and assets combine to suggest opportunities for research and commercial models in renewable energy and solid waste reclamation. Participants in this and past planning processes have repeatedly recognized the county's scenic beauty, pristine environment, cultural heritage, and historic sites as assets that require thoughtful stewardship. Economic development must therefore strike a delicate balance between growth and protection of these treasured resources.[81]

Community-Specific Economic Needs and Opportunities

As previously noted, the countywide economy was performing well at the time of this CEDS with unemployment down, income up, and job growth steady. However, these countywide trends are largely reflective of conditions of the highly populated western, southern and central areas of the island of Maui, and mask needs and opportunities unique to other areas. Outlying and rural regions of the county including Hana, Lanai and Molokai have unique economic assets and challenges which deserve separate consideration.

Lanai

Lanai's household income is relatively high and poverty rates relatively low compared to other islands and the county as a whole. Unemployment is also extremely low, at 3.4% in 2003. Residents commented on the island's hotels as an economic asset, but also voiced concerns about the lack of homeownership opportunities, constrained farming and entrepreneurship (due

to the limited availability of land), scarce water resources, and a lack of diverse job opportunities outside of the visitor industry. The statistical data point to the following areas of need on Lanai:

- *Homeownership*. Homeownership on Lanai lags the County and the State. Just 49% of householders own homes on the island versus 57% statewide and 58% Countywide.
- *Business Ownership.* Business ownership also lags the rest of the islands with 12% of workers self-employed compared to 15% for the state and 21% for the county. Indeed, Lanai has the lowest rate of self-employment among any of the Hawaiian Islands.
- *Underemployment*. Lanai has the lowest percentage of workers employed in high-wage Managerial or Professional positions of any island, and the highest percentage of its workforce employed in Food Preparation and Groundskeeping positions, both relatively low-wage occupations.[82]
- *Education and Workforce Development*. Lanai's residents have lower overall levels of education than the rest of the state. Only 16% of adults have earned a Bachelor's Degree or higher versus 26% statewide.[83] Much of the island's workforce is also "linguistically isolated"[84], 13% versus 7% of the state.

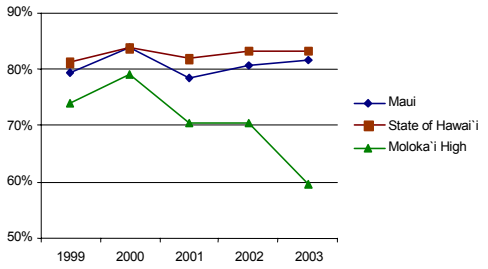
Molokai

Residents pointed to several strengths and opportunities including a strong sense of cultural values and identity; untapped potential in diversified agriculture; unique cultural sites; and new opportunities created by the transfer of Molokai Ranch lands to the community currently in active discussion. They voiced concerns about the need for improved distance learning opportunities; economic barriers created by high transportation costs; the threat of undesired growth/development; and the need for more entrepreneurship training. The available statistical data point to the following areas of economic need for Molokai:

- *Unemployment*. Though unemployment on Molokai has fallen in the past 7 years, it continues to have higher rates of joblessness than other islands. The Molokai unemployment rate in August of 2004 stood at 13.1%.[85]
- *Income and Poverty*. Molokai had a 2000 poverty rate that was more than twice that of other islands at 21% versus poverty rates of under 10% for both Lanai and Maui, and a statewide poverty rate of 11%.[86]
- *Education and Workforce Development*. Just 14% of Molokai's workforce had a Bachelor's Degree or higher versus 26% for the state.[87] More worrisome still is the fact that educational aspirations of the island's high school graduates are declining, while the aspirations of senior across the state and county are improving (see Figure 2, below).[88]

Percentage of Graduating Seniors Planning for Higher Education

	State of Hawaii	Maui County	Molokai High
1999	81%	79%	74%
2000	84%	84%	79%
2001	82%	78%	70%
2002	83%	81%	71%
2003	83%	82%	59%



Source: State DOE, Senior Exit Plans, 1999 to 2003.

Hana

Hana's homeownership and employment rates are comparable to statewide rates with a respectable portion of the population employed in Management occupations. Residents commented on many strengths of Hana including world-renowned cultural and scenic resources; a strong sense of community; and the untapped agricultural potential of native and medicinal crops. However, some segments of the population are struggling economically, and residents voiced concerns about invasive species, the influx of wealthy and part-time residents, and a need for improved telecommunications infrastructure (telemedicine, distance learning) given Hana's remote location. The statistical evidence highlights two areas of need:
Education and Workforce Development. Only 14% of Hana adults have earned a Bachelor's Degree or higher versus 26% statewide.
Income and Poverty Rate. Hana had a 2000 poverty rate of 17% compared to a statewide rate of 11%.

Future Opportunities and Challenges

Some of the key trends that are likely to effect Maui County's economic development over the next ten years include the following.

- **New forms of interisland transportation:** The coming of cruise ships (in-progress) and inter-island, high speed Superferry service with drive-on capacity (expected in 2006) are both likely to dramatically increase the daily census and automobile count on all islands. This, in turn, will put new demands on harbors, roads, and other infrastructure in Maui County. It is also likely to change consumption patters, enabling Maui County residents to shop for goods on other islands (notably Oahu) and enabling Maui County producers to more easily export goods to other islands.

- **New information technologies:** New information and communications technology will continue to shape local and global economies by

enhancing such innovations as telemedicine, distance learning, virtual offices, paperless file storage, and on-line communities. These technologies are particularly relevant to Maui County, which (like other island communities) has limited land area, remote rural communities, and inter-island communication needs.

- **An aging local population:** As baby-boomers retire, Maui County (like the rest of the state) will experience an increase in demand for products and services tailored to the senior population, notably healthcare. The graying of the county's population also points to impending worker shortages in many areas. Though the county's population is graying at a slower rate than that of other islands, the potential for worker shortages is still very real: from 2000 to 2010, projected job growth for Maui County is 21%, compared to growth of the working-age population (18-64) of 17%.[89]

- **Influx of retirees, part-time residents:** As a result of the retirement of baby-boomers on the U.S. mainland and around the world, Hawaii is expected to see a steady increase in vacation home buying and an influx of retirees and part-time residents. The influx of older, more affluent, part-time residents will create new market opportunities for local businesses. However, it may also change the cultural and socio-political landscape of the County, put upward pressure on home prices, and place an increasing proportion of the housing stock into vacation home use. Indeed, vacation home buying is projected to increase for the next 10 years, peaking in 2013.[90]

- **Changing federal funding opportunities:** Maui County, like the rest of the state, benefits greatly from a steady flow of federal dollars in the form of Department of Defense-related spending, other federal contracts and grants. Those funding opportunities will continue to be maximized to seed sustainable community and economic development initiatives.

ECONOMIC DEVELOPMENT VISION & GOALS

Vision Statement

Much of what was articulated in the Vision Statement of the *1999 CEDS* is still largely applicable today. The statement was modified slightly based upon community input gathered through the *2004 CEDS Focus Groups*, the *Focus Maui Nui* visioning process, the *Mayor's Economic Summit*, and based upon needs and opportunities highlighted by the available statistical data.

> By 2014 Maui County commands a diverse and healthy economy, driven by strong industries including tourism, agriculture, high technology, sports and recreation, film and

entertainment, and healthcare. The County's small towns will be revitalized physically and economically, and small businesses will make use of their historic assets and rural ambience to fuel new commercial activity. The presence of a well-educated and trained local workforce supports the growth of new industries, and the high skilled jobs are accessible to the county's residents. Growth has been well managed due to the foresight of the community's investments in roads, alternative transportation systems, and essential service upgrades including water and power systems. Unemployment is low, incomes have increased, and the gap between high- and low-income residents has narrowed. Economic education that starts in early grades enables the county's young residents to make informed decisions to successfully chart career paths and make sound economic choices. Our residents value a strong lower and higher education system which is understood as critical to our economic well-being. A rewarding quality of life encourages our young people to remain or return to Maui County to live and work.

Goals

With remarkable consistency, the *1999 CEDS*, *Focus Maui Nui*, the *Mayor's Economic Summit* and *2004 CEDS Focus Groups* generated discussion of the same broad issues and goals. In many cases, an analysis of the available statistical data helped to strengthen the case for these goals or refine their focus. Economic development goals for Maui County over the next 10 years include the following.

- **Goal 1:** Adopted a focused economic development strategy that diversifies the economy and creates well-paying jobs for residents by targeting sectors including high technology, healthcare, agriculture, sports and recreation, film and entertainment, small town revitalization and by fully exploring growth opportunities in the niche areas of tourism which relate to the aforementioned targeted sectors.

- **Goal 2:** Address the need for affordable housing to ensure that local residents can afford to remain in the county, and to ensure that the county's growth industries continue to attract and retain a quality workforce.

- **Goal 3:** Improve education and training to prepare our workforce for the future and to ensure that the workforce needs of our growth industries continue to be met.

- **Goal 4:** Address infrastructure challenges including, but not limited to, the need for adequate water, power, roads, and inter-island transportation systems.

- **Goal 5:** Pursue growth that is consistent with local vision and values, and which preserves, protects and enhances our natural and cultural resources.

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)
COUNTY OF MAUI PRIORITY PROJECTS LIST

PROJECT	DESCRIPTION	BUDGET	MATCH
HIGH TECHNOLOGY			
New Building in the Maui R & T Park	Develop a new building at the Maui R&T Park.	tbd	tbd
Maui R & T Park Networking/Dining Facility	Develop a venue for dining facility at the Maui Research & Technology Park to foster informal scientific and technical exchanges among companies.	tbd	tbd
Secure (classified) Conference Facility	Create a secure (classified) conference facility at the Maui R & T Park to accommodate existing need and attract new opportunities.	tbd	tbd
Technology Training and Education Enhancement	Strengthen or create multifaceted education/training opportunities and facilities for local residents to facilitate preparation for science and technology-related positions	tbd	tbd
Kamaaina Outreach Program	Create outreach program recruiting and ongoing networking (including internet-based communications) with kamaaina on mainland about business and related job opportunities.	tbd	tbd
High Tech Maui Marketing Campaign	Expand the marketing campaign to local and global businesses to build awareness of High Tech Maui and attract investment.	tbd	tbd
Hana Tech Training Program	Training for youth/adults in Hana in basic use of technology.	$150,000	Community health center; other potential partners include Akaku, MCC, DOE.
Hana Community Tech Center	Community Tech Center equipped with hardware and software for training, community use, and other functions.	$3,000,000	Potential partners include County, State, private foundations.
Redundant Telecommunications Infrastructure	Develop and implement redundant telecommunications infrastructure (for government contracting firms) including an evaluation of current and projected load, architecture, and operations plan.	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
HIGH TECHNOLOGY			
Machinist Tooling Facility	Facility for fabrication and storage of technology equipment	tbd	tbd
IFA Kula Facility	Institute for Astronomy (IFA) facility Kula, with office space, laboratories, and short term housing for visiting scholars and scientists-in-residence (depends, in part, on Advanced Technology Solar Telescope Project).	tbd	tbd
High Tech Workforce Study	Conduct a study to project the future supply and demand re skilled workers to serve Maui's technology-related needs and opportunities.	tbd	tbd
High Tech Resource Catalog	Publish and maintain a catalog of Maui County's high-tech assets and resources.	tbd	tbd
Faulkes Telescope Educational Programs	Educational programs, facilities and/or equipment to make better use of Faulkes Telescope in schools, and for resident/visitor education.	tbd	tbd
Science and Technology Center Museum	Museum for community education about technology with experiential learning exhibits, for visitor and residents.	tbd	tbd
HEALTHCARE			
West Maui Hospital	30-50 bed hospital facility to provide acute and critical care service communities West Maui	$40,000,000	Donated land; private financing; U.S. HUD
Hospital Expansion	Expansion of existing Maui Memorial Medical Center facilities on Maui	$42,000,000	$32,000,000 Gen.Oblig. Bonds; $4,000,000 County lease.
Medical Office and Outpatient Resource Center	Medical office and outpatient resource center servicing Maui County	$150,000,000	Private financing.

PROJECT	DESCRIPTION	BUDGET	MATCH
HEALTHCARE			
Lanai Women's Center	Create a center for women and girls on Lanai to include health and wellness programs and services.	$500,000	Private foundations; donors; federal grants.
Health Careers Academy	Establish a health academy linking high school and MCC with a focus on health careers, medical technology, and science.	$40,000	tbd
Women & Tech + Medical Tech Training	Create linkages between Women & Technology program and training of medical technicians, e.g., for training of Radiology Techs.	$40,000	tbd
Hana Health & Wellness Village	Commercial space for retail health products and health and wellness services/programs in Hana.	$2,000,000	$1,000,000 committed.
Greenhouse for Long Term Care	Project of Maui Long Term Care Partnership to create a long term residential care center with home-like setting, fitted with latest medical technology.	tbd	tbd
Studio Maui	A center for alternative healthcare and wellness, with exercise, yoga, Pilates, women's, and youth programs.	tbd	tbd
Lanai Family Center	Expand Lanai Women's Center to become a Lanai family center.	tbd	tbd
South Maui Acute Care Hospital	100 bed hospital facility to provide acute and critical care service communities	$210,000,000	Planning funds are committed.
Hale Hulu Mamo Expansion	Develop additional senior housing units utilizing State property.	$500,000	Private financing; State property.
Life Fest Event	Capitalize on Maui as a health wellness mecca and health wellness as a diversification sector by expanding LifeFest event which offers workshops and presentations by internationally renowned figures in health wellness arena.	tbd	tbd
Web Health Portal	Web-based portal supplying information on community based health services.	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
HEALTHCARE			
Clinical Trials Projects	Clinical Trials projects on Maui in cooperation with Hospitals and Cancer Research Center, which has a database to develop detailed clinical studies for drug development research.	tbd	tbd
Maui Long Term Care Partnership Expansion	Expand the Maui Long Term Care Partnership Plan to increase community and home-based services.	tbd	tbd
Substance Abuse Treatment Programs	Create more substance abuse treatment centers and programs, for example, Ka Hale Pomaikai – Molokai substance abuse recovery program incorporating rehabilitation, employment, and agriculture.	tbd	tbd
Care for the Homeless & Uninsured	Improve care for the homeless and the underinsured.	tbd	tbd
ARTS, FILM & ENTERTAINMENT			
Performance Venue Improvements	Improvements to lighting and sound systems at performance venues on Lanai, Molokai and Hana to support expanded programming.	tbd	tbd
MACC Market Study	Study to identify new markets and develop a marketing plan for the Maui Arts & Cultural Center and other arts programs/facilities.	$30,000	tbd
Maui Film Festival Expansion	Infrastructure improvements and marketing to expand MFF and enhance dissemination of information across the County.	tbd	tbd
Event Transportation	System for transporting patrons of arts, entertainment or film events (e.g., shuttle or trolley service).	tbd	tbd
MACC Market Study	Study to identify new markets and develop a marketing plan for the MACC and other arts programs/facilities.	$30,000	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
ARTS, FILM & ENTERTAINMENT			
Iao Theatre Restoration Project	Restoration and historic preservation of this landmark theatre including surrounding property.	$5,000,000	County, US HUD, private foundations.
Maui News Show	Leased access channel with/through a partner non-profit, e.g., Akaku as umbrella organization, and create programming including a Local Maui News show.	$2,400,000/year	tbd
Entertainment Complex Project	Mixed use development on a 10-acre site for performing arts, entertainment, events.	$30,000,000	tbd
Maui Film Festival Expansion	Infrastructure improvements and marketing to expand MFF and enhance dissemination of information across the County.	tbd	tbd
Event Transportation	System for transporting patrons of arts, entertainment or film events (e.g., shuttle or trolley service).	tbd	tbd
Digital Media Incubator	Training facility focused on digital technology in media, arts, and entertainment. Combines shared facilities, equipment, technical assistance, and work/live housing for artists (see San Diego, NASA, Portland and New Orleans models).	$1,000,000	tbd
MCC Media Program Expansion	Expand MCC media and performing arts programs at Maui Community College. Develop a 4 year degree program, tied into the UH Academy for Creative Media.	$200,000	tbd
Arts, Film & Entertainment Advocacy Group	Form group to promote investment and public policies that support the growth of arts, entertainment and film industries.	tbd	tbd
Local Broadcast Station	Establish a local broadcast station, licensed as a PBS outlet, with a strong advertising base, including a Lanai station.	tbd	Matching funds from local advertisers possible.
Combined “Master” Feasibility Study	Social and economic impact analysis for the Entertainment Complex, Digital Media Incubator, Iao Theatre, commercial broadcast station.	tbd	tbd
Molokai Culture & Arts Center	Multipurpose facility with, 500-600 seat auditorium, conference rooms, and amenities to host performances and workshops. Accommodations (visitor rooms) may be part of the project.	tbd	Matching funds from private foundations such as Weinberg.

PROJECT	DESCRIPTION	BUDGET	MATCH
SMALL TOWN REVITALIZATION			
Wailuku Municipal Parking Lot	Redevelopment of Wailuku Municipal Parking Lot to expand parking for Wailuku businesses, and allow for increased consumer traffic.	$10,000,000	County land and $1,000,000; private sector 25%
Small Towns as Economic Drivers	Analysis of small towns' contribution to the economy, of commercial redevelopment opportunities, of other market opportunities, and development of a marketing plan.	$100,000 (per town)	tbd
Ooka Supermarket Feasibility Study	Feasibility study of commercial components of adaptive of Ooka's Supermarket as Community Clinic and mixed use space and TK Supermarket Project into mixed use development including grocery store, youth center, and other uses in Wailuku Town.	$50,000	tbd
Molokai Apprenticeship Programs	Apprenticeship programs in construction, clerical, agriculture, basic computer, hospitality, etc. to build capacity that can support workforce needs in these sectors.	$200,000	Rural Development Project.
Lokahi Pacific Trolley Project	Trolley to transport residents and visitors to Wailuku.	tbd	Private foundations.
Lanai Air Transport Study	Analysis of air transportation service and its impact on Lanai economy.	tbd	State and County match possible.
Lanai Office Space Development	Develop affordable office space for small and new businesses on Lanai.	tbd	tbd
Molokai Vocational Education and Entrepreneurship Facility	Molokai facility for vocational education and training in entrepreneurial skills.	tbd	KSBE, QLCC could partner; DHHL for lands.
Small Business Incubator	Small business incubators in small towns including shared equipment, affordable rents, support services and research activities.	tbd	tbd
Hana Highway Plan	Planning for future of Hana Highway, tied to Hana Growth Plan, dealing with signage, speed limits, improvements, etc.	$50,000	County, HTA, Hana Bus. Council, private foundations.
Hana Growth Plan	Develop a comprehensive Hana Growth Plan that with the involvement of the community to include housing, the environment, and other issues.	$50,000	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
SMALL TOWN REVITALIZATION			
Wailuku Streetscape Beautification Plan	Expansion of streetscape beautification to Vineyard and Central Avenue.	$8,000,000	tbd
Iao Theatre Restoration Project	Restoration and historic preservation, including surrounding property, 3-5 years	$5,000,000	tbd
Makawao Town Square Project	Design and construction of town square in Makawao (in planning phase).	tbd	tbd
Hana Hawaiian Cultural College	Establish cultural learning programs that build on Hana's cultural and historical assets and resources. Areas of study could include restoration of land, archaeology, and Hana's arts and crafts training and commercialization assistance.	tbd	Potential match from OHA, UH, private foundations, Hana Marketplace facility.
Public Amenities Project	Design and construction of public amenity facilities (including public restrooms) in small towns to support the burgeoning interest from residents and visitors alike in the quality of life and commercial ambience of these areas.	tbd	County funding committed.
Molokai Streetscape Beautification Project	Acquisition and development of Molokai streetscape beautification project.	tbd	County funded concept and designs.
Lahaina Bypass Road Project	Design and construction of this bypass road near Lahaina Town.	tbd	County match.
Lanai Activities Information Program	Improved public awareness communication system, radio station, calendar of events, internet based information on Lanai activities and events.	tbd	tbd
Lanai Small Business District Project	Utilize 10 acres of land originally designated by Lanai Company for development of commercial space for small businesses; include commercial storage facility.	tbd	tbd
Hana Pier Improvements	Infrastructure improvements to the Hana pier to foster greater commercial and recreational use.	tbd	tbd
Molokai Distance Learning	Improve distance education facilities and systems on Molokai	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
SMALL TOWN REVITALIZATION			
Small Town Cultural Festivals	Enhancement and creation of cultural festivals in small towns highlighting ethnic and cultural heritage.	tbd	tbd
Makawao Paniolo Museum	Development of museum focused on Paniolo history and culture.	tbd	tbd
Paia Youth & Cultural Center Project	Youth center offering recreational, educational and other programming for Paia youth.	tbd	tbd
Paia Town Commons Project	Design and construction of town commons in Paia.	tbd	tbd
Paia Bypass Road	Design and construction of bypass road near Paia Town to relieve congestion and improve ambience of experiencing array of offerings in the town for residents and visitors alike.	$37,000,000	tbd
Wailuku Infrastructure Improvements	Infrastructure improvements including drainage system improvements for Wailuku town.	tbd	tbd
Lanai Desalinization Plant	Facilities and equipment to establish a desalinization plant on Lanai.	tbd	tbd
Rural Affordable Housing	Affordable housing for police force, teachers, and other employees of core service providers.	tbd	tbd
Molokai Transportation Alternatives	Explore new alternatives for transportation (air and sea) to link Molokai to other areas, markets .	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
AGRICULTURE			
Maui County Water Plan	Maui County Water Plan to enable receipt of federal funds and address water issues before specific projects can move forward. Implement plan.	tbd	tbd
Dual Line Water System	Secure additional funding for creation of a dual water line system for untreated water to agricultural operations.	tbd	tbd
Molokai Agricultural Strategic Plan & Implementation	Comprehensive agricultural plan for Molokai and implementation of priority projects.	$500,000	tbd
Ohana Makamae (Hana)	400 acre project incorporating existing greenhouse and agricultural park, to be cultivated by recovering substance abusers – a combined economic development and recovery project.	$250,000	DLNR lease; start-up funding committed.
Maui Food Technology Center	Collaborative venture of the Maui Community College's Culinary Arts program, the Food Products industry and agricultural producers. The Center will engage in new product R&D, assist in market research, and market new and existing agricultural and food products.	tbd	UH CTAHR.
Molokai Agricultural Park	Develop new agricultural park on Molokai possibly using Molokai Ranch lands transferred to community (note water remains an issue).	tbd	tbd
Inter-Industry Linkage Study	Study of how different agricultural industries can use each other's products and byproducts, e.g., sugarcane byproducts for cattle feed and renewable energy.	tbd	tbd
Molokai Refrigeration/Processing Plant Feasibility Study	Analysis of the costs and benefits of refurbishing existing refrigeration and processing plant.	tbd	tbd
Flower shipping facility at Hana airport	Develop facility to offer collection and opportune storage for the export of flower crops like anthuriums, orchids, etc.	tbd	Maui Flower Growers Association and Ohana Makamae are potential partners.
Hana Processing Plant	Hana processing plant for noni, awa, and other value-added agricultural products.	tbd	tbd
Koali Preservation Project (Hana)	Planning and land acquisition for 150 acre parcel for natural conservation and cultural preservation in Hana.	$300,000	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
AGRICULTURE			
Lanai Agriculture Project	Open up existing agricultural lands on Lanai to local growers and value-added agricultural producers, providing technical assistance and training to support business development.	$500,000	tbd
Hana Alternative Fuel Project	Utilize alcohol fuel processor, molasses and/or corn, etc. as renewable energy resource. Have families grow and help process for compensation in fuel or profits.	$1,500,000	tbd
Molokai Agricultural Cooperative	Cooperative providing shared equipment, facilities and technical assistance for groups of growers.	tbd	tbd
Feasibility Study of Lana'i Artificial Reefs	Feasibility analysis of creating artificial reefs to reverse trend of reef damage, preserve marine resources and create new recreational sites (surfing, diving, etc.) for residents and visitors		
Molokai Refrigeration/Processing Plant Improvements	Refurbish facility (site and building already exist, but building is not working). To follow feasibility study.	tbd	tbd
Hana Commercial Fishing Processing Facility	Hana Storage facility, including a refrigerator and processing plant for commercial fishermen.	tbd	tbd
UH Research Greenhouse	Build a state of the art, controlled greenhouse facility, for plant research.	$200,000	tbd
Dual Line Water System	Secure additional funding for creation of a dual water line system for untreated water to agricultural operations.	tbd	tbd
ML&P Multi-Use Agricultural Processing Facility	Maui Land & Pineapple, Co., planned facility to provide processing capacity to multiple growers/crops.	tbd	tbd
Molokai Water Resource Study	Conduct a study to determine capacity of water resources to support economic development on Molokai.	tbd	tbd
Hana Aquaculture Project	Land, facilities, and equipment to support saltwater and freshwater-cultivation of opihi, limu, moi, etc, also freshwater opai and prawns.	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
AGRICULTURE			
Hana Commercial Fishing Training	Apprenticeship, education, and training program for commercial fishermen in Hana.	tbd	tbd
Ag Inspection Expansion	Expand agricultural inspection programs with additional staff to control invasive species.	tbd	tbd
Expand Agricultural Extension Services	Additional resources and capacity to support increased extension services to meet the needs/demands of small farmers, and to assist in applying scientific research and technology to farming.	tbd	tbd
"Made in Maui" Marketing Campaign	Project to include “buy local” consumer education. Development of a coordinated program to promote additional use of local produce in Maui restaurants and hotels.	tbd	tbd
Incentives for Agricultural Development	Expand incentives for capital improvements, and funding of the Agricultural Development Corporation for matching equity investments.	tbd	tbd
Ag in Schools Program	Develop and promote agricultural education within K-12 curriculum, create youth work study programs and internships in agriculture, develop agriculture academies in high schools.	tbd	tbd
Hana Medicinal Plant Project	Equipment and technical assistance for production of medicinal plants and herbs in Hana region, including kawa.	tbd	tbd
Farmers' Markets	Create more farmers’ markets for local producers.	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
SPORTS			
Spring Training Facility Feasibility Study	Study feasibility of multi-field facility for baseball training, including required investment, economic impacts, and financial sustainability, 1-3 years.	tbd	Private investment possible.
Maui Sports Strategic Plan	Develop a strategic plan to evaluate target audiences and facilities, funding opportunities, economic impacts and trends related to sports as an economic development driver; include an inventory of existing assets.	tbd	tbd
West and South Maui Coastline Trails	Feasibility study, Master Plan, and development of trails around Maui (e.g., "Whale Trail" already in process).	tbd	tbd
Sports Director	Designate a Sports Director for the County of Maui to lead implementation of plans.	tbd	tbd
Kihei Gymnasium	Planning, design and construction of a multi-purpose, competition gymnasium in Kihei.	tbd	tbd
Harbor Improvements	Planning, design and construction for improvement to accommodate mixed recreational and transportation uses.	tbd	tbd
Greenways Feasibility Studies	Feasibility studies, coordination plan and implementation of Greenway projects – Paia to Sprecklesville, Iao-Wailuku River Greenway Project (Army Corps of Engineers partners) and Kihei Greenway Project – (still in the planning stages).	tbd	tbd
Makawao Bike Path	Design and construction of offroad path in Makawao for downhill biking.	tbd	tbd
Camp Ground Feasibility Study	Feasibility and impact analysis of developing campgrounds and facilities on State lands (e.g., Kihei Boat Ramp area).	tbd	tbd
Maui Sports Communication Plan	Develop a communication plan to promote sports on Maui.	tbd	tbd
Olympic Training Facility	Establish Olympic-level training facilities, multi-purpose sports facilities, and "sports camps" on Maui.	tbd	tbd

PROJECT	DESCRIPTION	BUDGET	MATCH
TOURISM			
Comprehensive Airport Visitor Greeter Program	Planning for a comprehensive visitor greeter program at airports, partnership with HTA, Maui Visitors Bureau, Maui County; potential components include training, signage, and assisting traffic flow at airports	tbd	tbd
Renovation of Existing Visitor Sites	Renovations and improvements to existing tourist attractions and visitor sites.	tbd	tbd
Feasibility and Impact Study – Inter-Island Ferry System	Feasibility and social and economic impact study of a system of transfers based on an inter-island ferry system	tbd	Federal and State Government
Air Transportation Study	Study of air transportation between Lanai, Molokai and Maui to evaluate impact of the services on those communities	tbd	tbd
Upgrades to Maui County Commuter Terminals	Repairs and improvements to all commuter terminals in Maui County.	tbd	Federal and State Government
Po'okela Program Expansion	Expansion and development of Po'okela programs to train and educate visitor industry management and employees on Hawaiian culture and integrate into visitor industry operations	tbd	tbd
Airport Access Road	Complete the design and construction of access road at the airport	tbd	tbd
Village Concept Development	Development of "village" concept where the host culture is prevalent (eg. New Zealand), including crafts, historical displays, and guided tours.	tbd	tbd

CHAPTER 19 COUNTY OF HAWAII

In Hawaii County, the preparation of the Statewide CEDS dovetailed with the update of the County of Hawaii CEDS. The Hawaii Island Economic Development Board (HIEDB) had begun the update of the County of Hawaii CEDS in coordination with the County of Hawaii Department of Research and Development. Conferences, workshops, and visioning sessions preceded the formulation of the CEDS. The Renaissance Workshop involved community, environmental, social services, business, academic, and cultural leaders in a discussion on values and future scenarios. In formulating the CEDS, HIEDB conducted a series of public workshops in various communities throughout the Island, formed a County of Hawaii CEDS and conducted research and analysis. HIEDB obtained additional public input and coordinated the integration of the county CEDS into the Statewide CEDS. In summary, a large conference (Renaissance Conference), two County of Hawaii CEDS Committee meetings and four public meetings were held.

Please see the Hawaii Island Comprehensive Economic Development Strategy, June 30, 2004, prepared by Hawaii Island Economic Development Board for further details.

The following cluster industries were targeted:

- **Visitor Industry (Heritage Tourism and Cruise Industry)**
- **Agriculture**
- **Science and High Technology**
- **Education**
- **Health and Wellness**
- **Energy Development**

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)
COUNTY OF HAWAII PRIORITY PROJECTS LIST-
Short-Range 1-3 Years
Clusters: Visitor Industry (Heritage Tourism and Cruise Industry), Agriculture, Science and Technology, Education, Health and Wellness, Energy Development

Project Name	Applicant	Meets EDA Criteria	Project Type	Estimated Jobs	Total Estimated Cost	Potential Source of Matching Funds
Renovations for Hilo and Kona Piers	DOT/DLNR	Yes	Public Works	3000-6000 direct and indirect jobs	$12M-Hilo and $4M-Kona	DOT/DLNR/ County of Hawaii
Super Ferry Infrastructure	DOT/Private		Public Works	50+	$8 million	DOT/County of Hawaii
Heritage Corridor	Private		Public Works	4 and 40 related	$100K	HTA/DOT/ County of Hawaii
Innovation Center-NELHA	NELHA/OI	Yes	Public Works	25	$1.65M	USDA/USDOE/ State
Statewide Virtual Business Incubation Program	HTDC	Yes	Public Works	25	$1.75M	USDA/State
Innovation Center-UHH	UHH University Park	Yes	Public Works	20		NASA
Innovation Center-Naalehu	UHM	Yes	Public Works	3-23	$300K	State

Project Name	Applicant	Meets EDA Criteria	Project Type	Estimated Jobs	Total Estimated Cost	Potential Source of Matching Funds
Art and Environmental Ed Campus-II	Volcano Art Center	Yes	Public Works	3 FT 10-15 PT 20 related	$3.35M	Private
Resource recovery facilities	County of Hawaii	Yes	Public Works	10-15 10-40 cottage	$16M	State/County
Kailua-Kona BID	Private		Public Works	16	$4M	
Hale Ho'ola Hamakua (HHH) Expansion Project	State	Yes	Public Works	50	$9.1M	State
North Hawaii Education and Research Center	State		Public Works	30	$5.5	State
Pacific Area Center for Emergency Management (PACEM)	County Civil Defense	Yes	Public Works	45 training and technical field operations	$8-12 million	To be determined

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)
COUNTY OF HAWAII PRIORITY PROJECTS LIST-
Long-Range 4-5 Years
Clusters: Visitor Industry (Heritage Tourism and Cruise Industry), Agriculture, Science and Technology, Education, Health and Wellness, Energy Development

Project Name	Applicant	Meets EDA Criteria	Project Type	Estimated Jobs	Total Estimated Cost	Potential Source of Matching Funds
Ag Products Marketing Facility	Private		Public Works	50-100	$4M	USDA
Water Delivery System-Ka'u		Yes	Public Works		$12M	
Mt. View Agri – Cultural Park	Private			20-30		
Heritage District Center and Infrastructure	Lyman Museum		Public Works	20	$8M	
Bay Clinic, Inc.	Private		Public Works	12-18	$1.5M	
Planning for Pu'uanahulu Industrial Park	County of Hawaii		Planning-Environmental Management	83	$160K	

Description of Projects

1. **Renovations for Hilo and Kona Piers**
   The present infrastructure is a mix of commercial, industrial space used as a passenger facility, which is unsafe and inadequate and does not meet standards of visitor industry satisfaction. The improvements would provide major economic impacts of up to $25 million and provide 3,000 to 6,000 direct and indirect jobs.

2. **Super Ferry Infrastructure**
   The Hawaii Superferry Inc. requires addressing infrastructure needs at all ports. The ferries are currently under construction in Mobile, Alabama with a delivery date sometime in 2006. Expanded port facilities in all destinations will be needed simultaneously. Approximately 50 direct jobs in Kawaihae for construction, as well as ongoing operational requirements. Total cost of project: $8 million estimate.

3. **Hawaiian Heritage Corridor Project**
   Additional projects being requested in Ka'u, Waimea, Saddle Road. Historic preservation project for Hawaiian and other local ethnic cultures as well as sugar plantations and coffee heritage histories. Considered a quality tourism project which would enable visitors and residents to experience and learn about the local lifestyle and traditions in pre-historic and plantation days of Hawaiian history. Qualified for Department of Transportation and National Trust for Historic Preservation funding.

   Employment created uncertain as projects generally done at community levels and according to goals of the community. The County of Hawaii has funded 11 heritage corridor projects to date and will be reviewing this program on an annual basis.

   Total project cost: $100,000 per year.

4. **Innovation Centers – Science and Technology**
   To be located as follows
   a. At NELHA (partnership with Oceanic Institute),
   b. Downtown Hilo Bank of Hawaii office building donated to UHH (value $1.85 million – see also #15),
   c. University Park at the University of Hawaii at Hilo where several telescope support facilities are located, and
   d. Naalehu at the site of the Naalehu Theatre.

The first two outreach/innovation centers have $700,000 state support and matching funds, $400,000 confirmed from USDA and $300,000 and $1 million from EDA.

The third incubator will be oriented towards nano-technology and creating synergies with the University and the thirteen telescope facilities on Mauna Kea. The University has already set aside four acres at the park for this incubator.

The fourth incubator is a state initiative based out of Manoa, a digital arts incubator, and would provide the space, facilities, and services for businesses utilizing digital technology in media production. Training and technical support will be provided for state of the art visual, audio and computer equipment for the production of broadcast quality media. Project will also serve as an interactive distance learning center for residents of the area. Businesses would share clerical assistance and utilities keeping costs minimal for the first few years.

Jobs to be created; 25 Hilo and Kona, 20 at UHH Park site, 3-23 at Naalehu

Total cost of the project: $3,000,000, and $300,000 for Na'alehu

(Ed. note: no matched fund source identified at Na'alehu at this time).

5. Art and Environmental Education Campus, Phase II.
Construction of educational facilities at the Volcano Art Center's new education campus in Volcano Village, at the gateway to Hawaii's Volcanoes National Park. These buildings will provide space for the Volcano Art Center to expand upon its already proven educational programs, and provide a facility for the community to use for special events. The facilities to be built in this phase include a studio building for glass, ceramics and woodworking; a rain shed for outdoor workshops focused on environmental education; and a multipurpose education center building for classes, lectures, small-scale performances, meetings, and special events. The glass program is expected to attract a significant number of off-island students, whose expenditures will help sustain the economic vitality of the community.

Potential job generation: In addition to temporary construction jobs, this project is expected to result in 3 permanent staff, plus increased part-time teaching opportunities for an estimated 10-15 instructors per year, plus cottage industry training which will provide entrepreneurial opportunities for 20-40 within the first 3 years.

Total project cost: $1,350,000, of which $500,000 has already been raised from private sources and from a legislative appropriation. Project is expected to be self-sufficient within three years of completion.

6. Solid Waste Diversion Program

Establish a resource recovery facility at Puuanahulu for organics diversion, biodiesel/biomass production, and scrap metal recovery and move the existing scrap metal processing facility from Kailua Transfer Station to Puuanahulu Center.

Establish an East Hawaii resource recovery park that provides a public recycling drop-off area; areas for recycling vendors to process metals, greenwaste, construction debris, and operate a re-use center; a reload facility to compact, load and haul residual solid waste, once recyclables are removed, to one of the island's landfills.

Work with the private sector to enhance recycling opportunities including computer recycling, backyard composting, and recycling construction debris.

Potential job generation: In addition to temporary construction jobs, these projects are expected to result in 10-15 permanent staff, plus cottage industry development which will provide entrepreneurial opportunities for 10-40 within the first 3 years.

Total project cost: $16,000,000, of which $5,000,000 has already been raised from a County bond initiative in 2003 and a 2002 State CIP allocation.

7. Kailua-Kona Business Improvement District

Establishing a Kailua Kona Business Improvement District will enhance every part of the community, from greater employment to successful businesses and increased property values in the area. The purpose of the Kailua-Kona Business Improvement District is to create, through partnering, a safer, cleaner, more attractive destination which will create jobs and successful businesses in our community. This will provide a solid foundation on which our children can build their lives.

Jobs created: 16 (12 blue collar)

Total cost: $4 million

8. Proposed Hale Ho'ola Hamakua (HHH) Expansion Project

HHH is a fifty (50) bed hospital based nursing home facility in Honokaa, Hawaii operated by the Hawaii Health Systems Corporation (HHSC). The 2004 State Legislature appropriated $9.1 million to increase bed capacity to 110, which is projected to address the growing need for additional nursing home beds in the region and to create approximately 50 new health related employment positions in the community. Start of construction is subject to the release of Capital Improvement Project (CIP) funds.

9. North Hawaii Education and Research Center (NHERC)

The old Honokaa Hospital facility owned by Hale Ho'ola Hamakua-Hawaii Health Systems Corporation has been leased to the University of Hawaii-Hilo to convert into a college, vocational, and special interest Education Center serving the communities of Hilo, Hamakua, South Kohala, and North Kohala. In 2002, State funding of $1.75 million was made available for Phase 1 renovation, which will begin in Fall 2004. The 2004 State Legislature appropriated another $3.75 to complete the project but release of the funds is subject to approval. The offering of college level courses and vocational training will assist residents of the area to obtain better paying employment.

10. Pacific Area Center for Emergency Management (PACEM)

With the advent of Homeland Security and the necessity for appropriate communications and training between law enforcement and civil defense agencies, a regional training center for First Response Initiatives is sought through USDA and EDA as an opportunity to benchmark Hawaii's unique natural resources in natural disaster management and preparedness for hurricanes, tsunami, lava and flood inundation and fire hazards. All training is currently conducted on the U.S. Mainland and this center could provide a regional and international resource.

11. Agricultural Products Marketing Facility

Because of the Big Island's strong orientation toward diversified agriculture, development of a central marketing facility for collection, consolidation, packing, and shipping of products continues to be a priority. A major problem for farmers in Hawaii has always been infestation by fruit flies, which render fruit unsuitable for export. A partnership component with UHH/HCC for research and education purposes should be included as well. At this time a private company operates an irradiation facility, which will enable farmers to export their products to the mainland U.S. The irradiation facility is a stand-alone structure, and the marketing facility will be developed nearby to enable exporters to use the irradiator. Crops available for processing immediately include papaya, awa, taro, ginger, noni, guava, and medicinal herbs, and value-added products can then be exported as well.

In addition, an in-field and vacuum cooling, packing and distribution component may be incorporated (possibly in the Hilo harbor and airport area) capable of serving a hundred or more farmers who presently have difficulty selling their crops. In field and vacuum cooling adds about two weeks shelf life to leaf crops such as cabbage and lettuce. Modest ice-making facilities will enable packing of all vegetables.

The center will also serve as a Terminal Market to allow all distributors and retail markets to shop at a central location. Commercial/military

vendors can purchase by video from the terminal and this has many benefits.

Consolidation/processing/distribution facilities would consist of warehousing, storage, refrigeration, packing technology and development of tracking and marketing systems using high-tech telecommunications.

Anticipated employment within the facility is 30 jobs; jobs created with increased export capability is 50-100 jobs. Distribution by barge and air shipment and truck would employ an additional 20 or more. Plus an increase of the current on-island farmers by 20 to 30 percent on a short term basis and perhaps double over a decade.

Total cost of project: $3,000,000.

12. Water Delivery Systems

Repair, maintenance and installation of water delivery systems is planned for former plantation communities such as Hamakua, lower Puna, Ka'u, Honokahau/South Kona expansion.

Efforts are ongoing to repair the lower Hamakua Ditch and the Waimea Irrigation systems. Findings of the Ka'u to South Kona Water Master Plan 2004 suggest an integrated approach for addressing water needs. Plans include a County Water Extension at Ho'okena, the Honomalino Cooperative well development, storage and delivery system, in conjunction with HOVE Community Well 1 & 2 development and Ag Wells I & 2. The population of Ka'u and South Kona districts is projected to nearly double to 27,000 by year 2020. At present, approximately 6,000 acres of farmlands are located in this area. In addition, a necessity for a water supply in central Puna water is anticipated, possibly from upper Puna.

Estimated cost: $50 million for Hamakua and Waimea.

Job creation: Indirect creation of sustainable enterprises, revitalization of former plantation lands; potential creation in excess of 500 enterprises.

13. Mt. View Agri – Cultural Park

Develop an ag-cultural park in Mt. View on 24 acres just above the 12 mile marker. The park will be centered around the re-emergence of coffee in East Hawaii. Included in the park through 4 to 5 phases will be Hilo Coffee Mill, an incubator kitchen with meeting facility, a cultural pavilion, a café, an art gallery, and a 4 to 6 acre park, as well as numerous other related units. The agricultural park will incorporate

agriculture, land stewardship, education, entertainment, and community partnerships. Phase one completion is scheduled for April or May 2004. Work has begun.

14. Heritage District Center and Infrastructure

Construction and refurbishing of collection storage areas, archives, exhibit and educational facilities, using historical structures where possible, for the Lyman Museum as a core cultural/education institution in a potential Hilo heritage district. (Provision of state of the art archival facility for the county.) Production of an interpretive plan that connects all cultural facilities in the Hilo area as a district plus connects the Hilo cultural facilities to those of the heritage corridors.

Potential job generation: 20 permanent staff within 5 years

Total project cost: $8 million

15. Develop a Hawaii Statewide Virtual Business Incubation Program

According to U.S. Small Business Administration statistics, 50% of small businesses fail after the first year of business and 90% fail in the first five years. Successful business incubation centers across the U.S., including those created and managed by the High Technology Development Corporation (HTDC), have essentially reversed that trend to create a business success rate of 70%-80% by providing business training, education and mentoring services to their clients. HTDC seeks funding for the development and implementation of a comprehensive, statewide virtual incubation services program giving start-up and early-stage technology businesses on the four main Hawaiian islands the opportunity to participate in, and benefit from, HTDC's service and support programs, and greatly increase their likelihood of success.

Entry-level business incubation services include provisioning of virtual offices or labs (mailing address, answering service, office and business machines, and access to teleconferencing facilities, meeting rooms and presentation support services) on any island at any time. Higher levels of business incubation services include access to all of HTDC's Professional Service Provider (PSP) programs, including meetings with and/or mentoring by experienced business consultants (attorneys; CPAs; sales, marketing, business development and human resources professionals; web designers, etc.), participation in entrepreneurial development opportunities (lectures, seminars, workshops, networking events), and reduced cost business services (marketing, accounting, etc.). Virtual incubator clients also will have first choice to become tenants in one of HTDC's physical incubation facilities as space becomes available.

The two key components of the proposed statewide incubation services program are: 1) recruiting additional PSPs and resources that are resident on the neighbor islands, since currently almost all of HTDC's service providers reside in Honolulu on the island of Oahu; and 2) developing and implementing an eCommerce incubation services program to assist any Hawaii business to determine if its business operations have the potential and capacity for web based sales and marketing and, if so, to create a profitable web presence.

16. Bay Clinic, Inc.

Bay Clinic has a 33 year lease on a 2.1 acre property on which the Hilo Bay Clinic is located. An 8,000 square foot two-story building now houses the clinic where medical services have been provided for 13 years. Bay Clinic proposes to construct a new building on the site for medical services and renovate the existing building into a dental service center.

Jobs to be created: 12-18 part-time slots annually

Total cost of project: $1,500,000.

17. Master Plan for Pu'uanahulu Industrial Park

Develop a Master Plan for an industrial park at Pu'uanahulu in West Hawaii on 40 acres of County land at this location. The Master Plan will also include plans for developing satellite centers and the establishment of educational centers to provide technical assistance for new business opportunities.

Jobs to be created: 83

Total cost of project: $160,000

18. Testing and Evaluation Center of Hawaii (TECH)

With the advent of the Pohakuloa transformation, additional testing and evaluation missions can be solicited for foods, supplies, material, equipment and various components of the Soldier Center development at the U.S. Army Center in Natick, Mass.

Joint T&E Center for dual use military and civilian technology for food quality and safety. Approximate cost: $4.5 million

Jobs: 30 construction, 30 operations.

CHAPTER 20 ADDITIONAL STATE/CLUSTER PROJECTS

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS) PRIORITY PROJECTS LIST-
Short-Range 1-3 Years

Project Name	Applicant	Meets EDA Criteria	Project Type	Estimated Jobs	Total Estimated Cost	Potential Source of Matching Funds
Kalaeloa Education Center	HCDA	Yes	Planning & Tech. Asst.	NA	$200,000	Kalaeloa Revolving Fund
Life Science Biotechnology Innovation Center	HTDC	Yes	Public Works	400-500	$4 million	State General Obligation Bonds
Harbor Projects	DOT	Yes	Public Works	TBD	TBD	Dept. of Transportation
Infrastructure Sustainable Technologies	OP/DBEDT EDAH EDBS	Yes	Planning & Tech. Asst.	TBD	$300,000	Utilities, County agencies USDA, USDOE
Hawaii Fisheries Initiative	Hawaii Institute for Public Affairs	Yes	Planning & Tech. Asst.	NA	Phase 1 $260,000	Private Sources, State of Hawaii
Statewide Virtual Business Incubation Program	HTDC	Yes	Public Works	25	$1.75 million	USDA State

DESCRIPTION OF PROJECTS

1. Kalaeloa Endangered Species, Archaeological and Native Hawaiian Education Center

   The State of Hawaii, due to its location and geography, contains the largest diversity of terrestrial and marine ecosystems in the nation and possesses more endangered species than all other U.S. states combined. Native Hawaiians, as the original inhabitants of the islands nearly 1,500 years ago, developed in-depth knowledge of these natural resources and their role in sustaining life in an island-environment. This knowledge was not only past down through the generations through various cultural practices, but was also contained in the location, design and construction of the sites and structures. The preservation and restoration of native Hawaiian cultural sites combined with cultural practices and natural resource knowledge are becoming increasingly valuable in providing insight into the health sciences, biotechnology, resource management, sustainability, education, and public welfare.

   The Hawaii Community Development Authority (HCDA), a State redevelopment authority administratively attached to the State Department of Business, Economic Development, and Tourism (DBEDT), recognizes that a unique opportunity exists within the Kalaeloa Community Development District to advance this knowledge base and cultural practices in a manner that not only provides for the protection of the areas resources, but also provides a means to examine planning strategies for the implementation of State of Hawaii policies for economic development.

   The Kalaeloa Community Development District was established by statute to transfer jurisdiction for the planning and redevelopment of Barbers Point Naval Air Station to the State under the Base Realignment and Closure (BRAC) process. Kalaeloa is situated on the Ewa plain west of Honolulu on the island of Oahu.

   The closing of the 3,698-acre Naval Air Station, announced in 1993, culminated in a landownership plan with the Navy retaining 1,051 acres. The remaining 2,641 acres have been conveyed or are pending conveyance to various federal, state, and county agencies. The largest landowners include the State Department of Hawaiian Home Lands, State Department of Transportation and the State Department of Defense (Army National Guard). Several hundred acres have been identified for the City and County of Honolulu Parks Department, however such lands have yet to be formally conveyed from the Navy.

Kalaeloa is situated on a relatively flat plateau composed of interbedded coral reef and alluvial sediments referred to as the Ewa plain. Although the Ewa plain receives relatively little rainfall, it is unique within the Hawaiian Islands in that it contains sinkholes and solution channels formed by erosion of the coralline substrate. This unique geology has provided a habitat in several locations on the former Naval Air Station for the endangered plant, ʻakoko (*Chamaesyce skottsbergii*), several other endemic and indigenous plants species, and the endangered Hawaiian black-necked stilt (*Himantopus mexicanus knudseni*). Additionally, native Hawaiians utilized the former station as early as 1250 A.D. for habitation, agricultural, resource gathering, and religious purposes. Identified on the base are over 60 archaeological sites containing several hundred features as well as human burials.

Since the closure of the former Naval Air Station, the surrounding community has repeatedly expressed concerns regarding the lack of economic activity and proper preservation of archaeological sites and endangered species.

Project Proposal

The overall proposed project is designed as a multi-year effort with two major objectives: 1) natural and cultural resource stewardship, education, and research, and 2) economic development. For the purposes of this grant application, HCDA proposes to engage consultant services for developing a plan that integrates these two objectives and provides for strategies and action items for implementation.

Project Taskings:

1. Cultural and natural resource inventory and mapping.
2. Consultation with community groups and native Hawaiian organizations to develop strategies and partnerships leading towards a viable and sustainable resource management effort.
3. Consultation with higher educational and research organizations for interest and feasibility of utilizing cultural and natural resources.
4. Engage business and economic professionals for identifying emerging markets and other opportunities for economic development associated with the cultural and natural resources.
5. Integrate community, native Hawaiian, educational, research, and economic development perspectives into a strategic plan with an implementation sequencing that contains specific action items and recommendations.

2. Life Sciences Biotechnology Innovation Center

This project is a technology innovation center in Kakaako, Honolulu, Hawaii, to assist the growth and development of start up technology-based companies in niche areas of biotechnology, bioinformatics, and related medical technologies.

Start up technology companies in Hawaii are disadvantaged when it comes to competing nationally or globally because of the lack of wet lab infrastructure, resources, suppliers, and distance from markets. This project will help to bridge some of the gaps and create a more even playing field for local companies. Also, the close proximity to the University of Hawaii Medical School complex (JABSOM) will enable collaboration and greater information exchange between the school and related start-ups.

High Technology Development Corporation (HTDC) is an agency of the State of Hawaii, administratively attached to the Department of Business, Economic Development & Tourism. HTDC is governed by an 11-Member board of directors appointed by the governor of the State of Hawaii.

Amount of EDA Funding Requested: $2,000,000 (Matching of State GOB Funds)

Source and Amount of Local Match (1 to 1 Match Required): $2 Mil State GOB (2004 SLH Appropriation)

Number and Type of Jobs to be Generated: The estimated number of jobs is between 400 and 500, and this is exclusive of jobs created by JABSOM Phase I project. Type of jobs would be administrative and clerical, professional, scientific, technical, and bio-related building support. Based on State statistics, for every professional and scientific job there are 3 more technical support positions. Some studies have indicated as high as 5.7 jobs. For the combined total of professional, scientific, and technical positions there are an added 10% administrative support positions.

3. Harbor Projects

   The Department of Transportation has proposed the following: Honolulu Harbor Pier 2 Cruise Passenger Terminal, and Pier 21 Ferry Berths; Hilo Harbor Piers 2 and 3 Cruise Ship Berths; Kawaihae Harbor Ferry Berth and Terminal; Kahului Harbor Pier 2C Cruise4 Ship and Ferry Berths and Terminals; Nawiliwili Harbor Piers 2 and 3 Cruise Ship Berths; Nawiliwili Harbor entrance channel modifications; Nawiliwili Harbor Ferry Berth and Wood Chip Berth and Terminal.

4. Infrastructure/Sustainable Technologies

   This planning project would focus on energy, water recycling and waste management infrastructure. Sustainable technologies are especially relevant in an island environment with finite resources and expansion limitations. The study would examine techniques and establish benchmarks for self-sufficiency in renewable energy resources, water delivery systems, recycling and innovative solutions to waste management systems, towards a goal of self-sufficiency by 2025.

5. Hawaii Fisheries Initiative

   The purpose of the Hawaii Fisheries Initiative ("HFI") is two-fold. Phase I of HFI will include the completion of a statewide study on Hawaii's fisheries and seafood industry, including an evaluation of its economic impact; workforce status; import and export characteristics; seafood processing, marketing and quality control conditions; environmental conditions; policy and regulatory framework; industry support and data collection mechanisms; as well as the identification of opportunities, challenges and issues facing the industry. Phase II will involve the convening of key stakeholders, to include fisherman, processors, wholesalers, retailers, consumers, regulators, policy makers and other business, community and government leaders, to utilize the above-mentioned data and research to further the development of Hawaii's fisheries and seafood industry. The desired outcome is to develop a fact-based and long-term economic development strategy. This collaborative and community-based effort will capitalize on Hawaii's competitive markets; address and resolve industry challenges; anticipate economic and industry trends; and provide a strategic vision and action plan for the development of Hawaii's fisheries and seafood industries.

6. Statewide Virtual Business Incubation Program. See County of Hawaii section for details.

STATE OF HAWAII COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)
PRIORITY PROJECTS LIST-
Long-Range 4-5 Years

Project Name	Applicant	Meets EDA Criteria	Project Type	Estimated Jobs	Total Estimated Cost	Source of Matching Funds
Hawaii Institute for Advanced Training in Applied Technology	DBEDT UH	Yes	Public Works	TBD	TBD	TBD

1. The Hawaii Institute for Advanced Training in Applied Technology (HIATAT) constitutes a new paradigm for undergraduate education that melds the interests, capabilities and resources of industry and academe in a high-tech teaching environment. HIATAT would be designed, developed and operated as a joint venture between the University and private industry. These partners would co-design the infrastructure and cost share the development and implementation of HIATAT to create a learning environment that provides training in specific skills of prime interest to technology-based companies, and that employs state-of-the-art teaching tools that would facilitate "hands-on" instruction in key technology areas (e.g., nanotechnology, bioinformatics, advanced optics, dual-use technology).

   Undergraduate students at the University of Hawaii would spend their last two or three semesters enrolled in one or more training modules at HIATAT. Instruction would be provided by both university faculty and industry representatives, and would afford certificates of proficiency in key technology areas to be awarded concurrently with the baccalaureate degree.

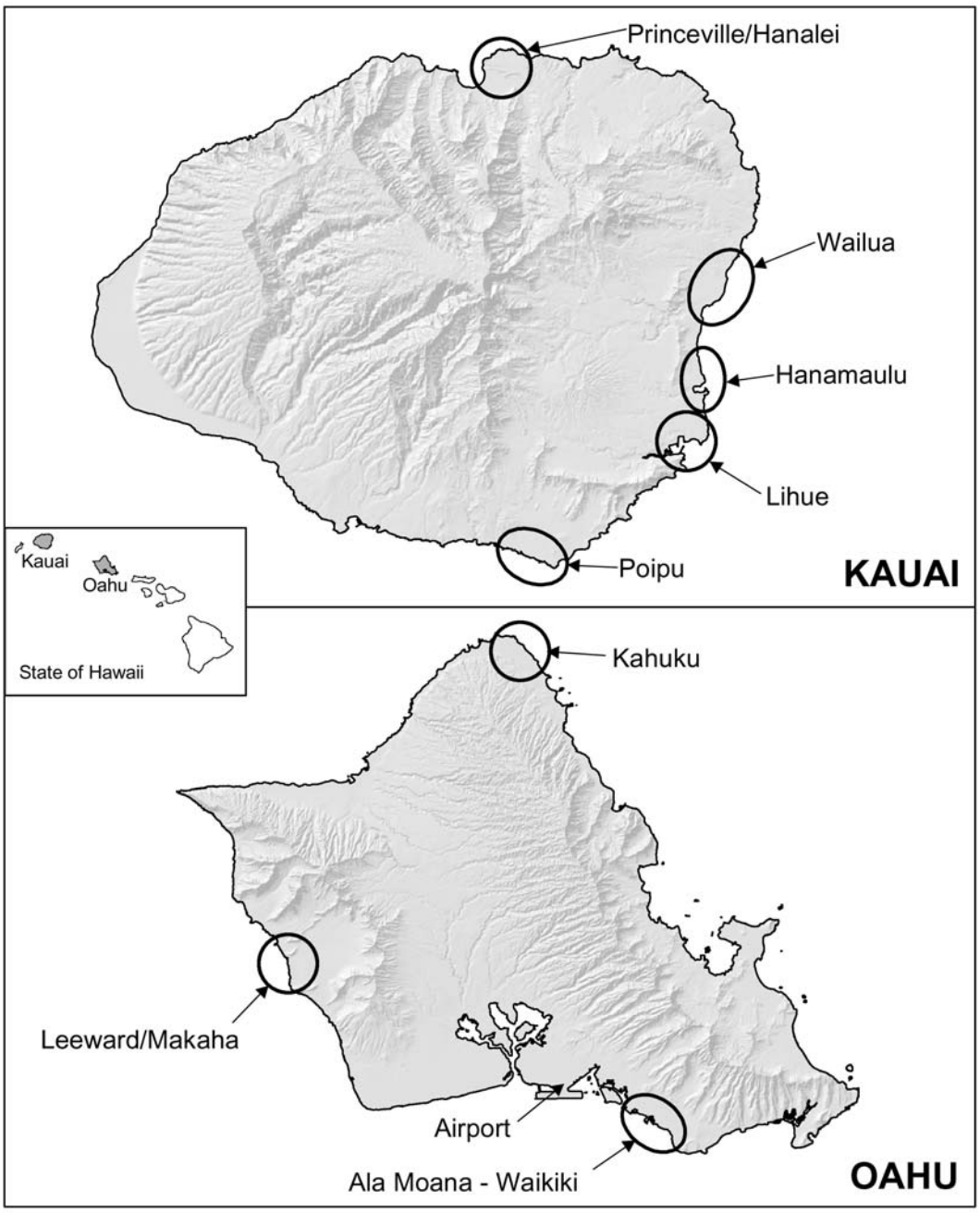
This program would also serve to support workforce retention, allowing local graduates to remain in Hawaii to pursue opportunities for challenging, high-paid employment in cutting-edge, technology-based industries.

CHAPTER 21 PERFORMANCE MEASURES

Performance measures will include increase in the number of jobs, increase in number of jobs in high wage occupations, level of unemployment statewide and for areas which presently have high levels of unemployment, increase in the proportion of electricity obtained from renewable energy sources, and increases in agricultural self-sufficiency.

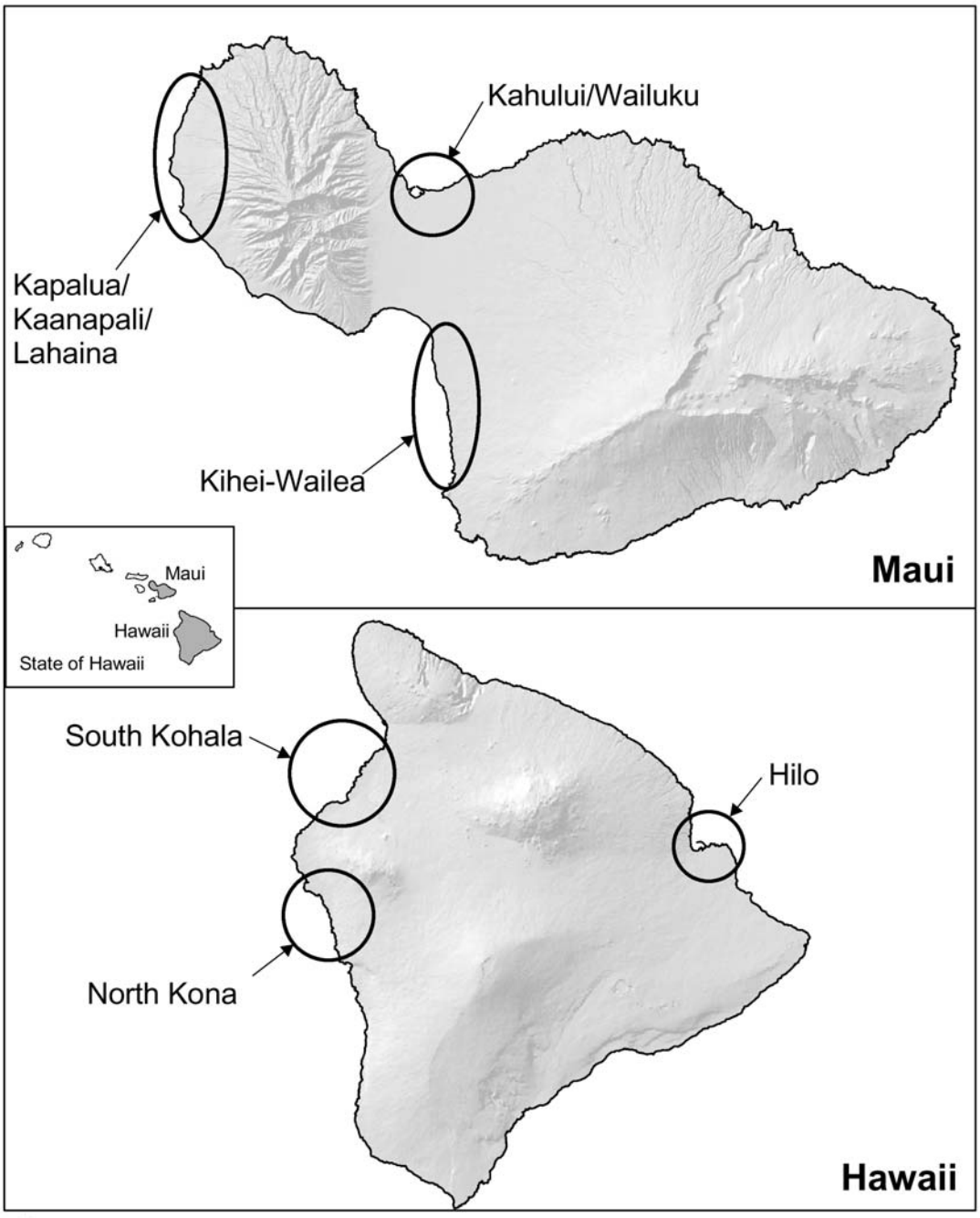
MAPS

Map 1. STATE OF HAWAII - AREAS WITH OVER 500 EXISTING VISITOR UNITS



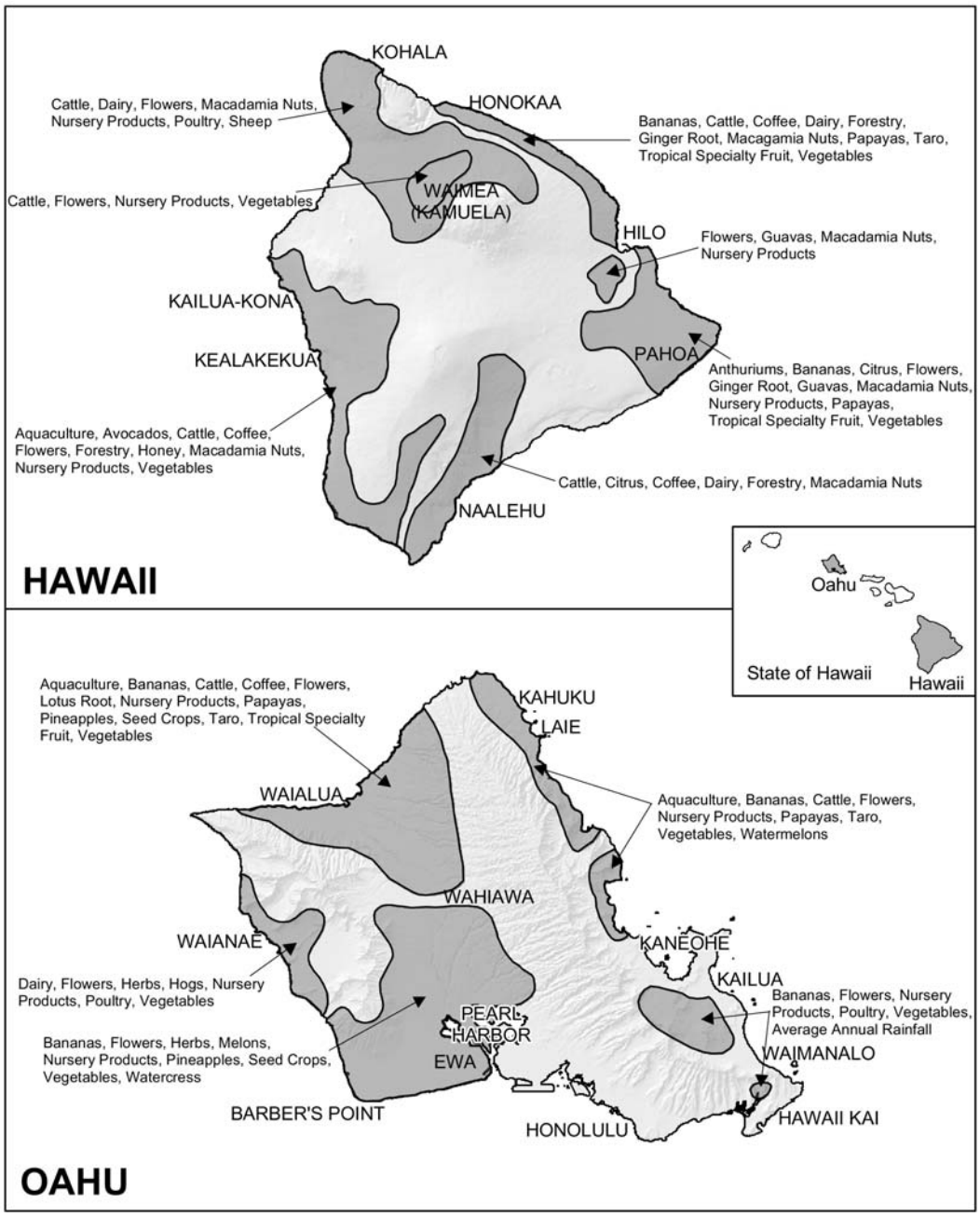
Source: Visitor Plant Directory, Research & Economic Analysis Division, Dept. of Business, Economic Development & Tourism

STATE OF HAWAII
Areas With Over 500 Existing Visitor Units



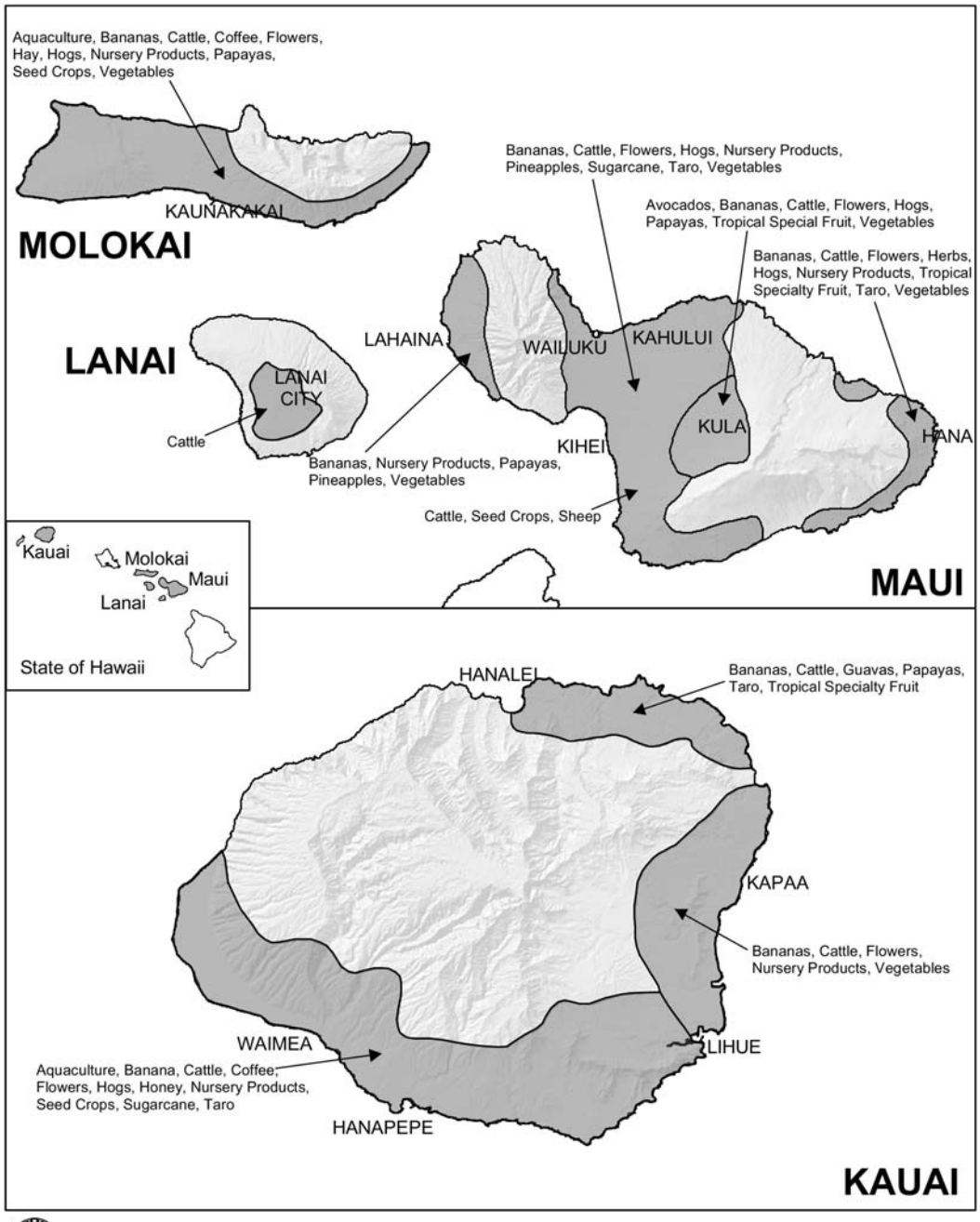
Source: Visitor Plant Directory, Research & Economic Analysis Division, Dept. of Business, Economic Development & Tourism

MAP 2. STATE OF HAWAII MAJOR AGRICULTURAL AREAS



Source: Statistics of Hawaii Agriculture, 2002

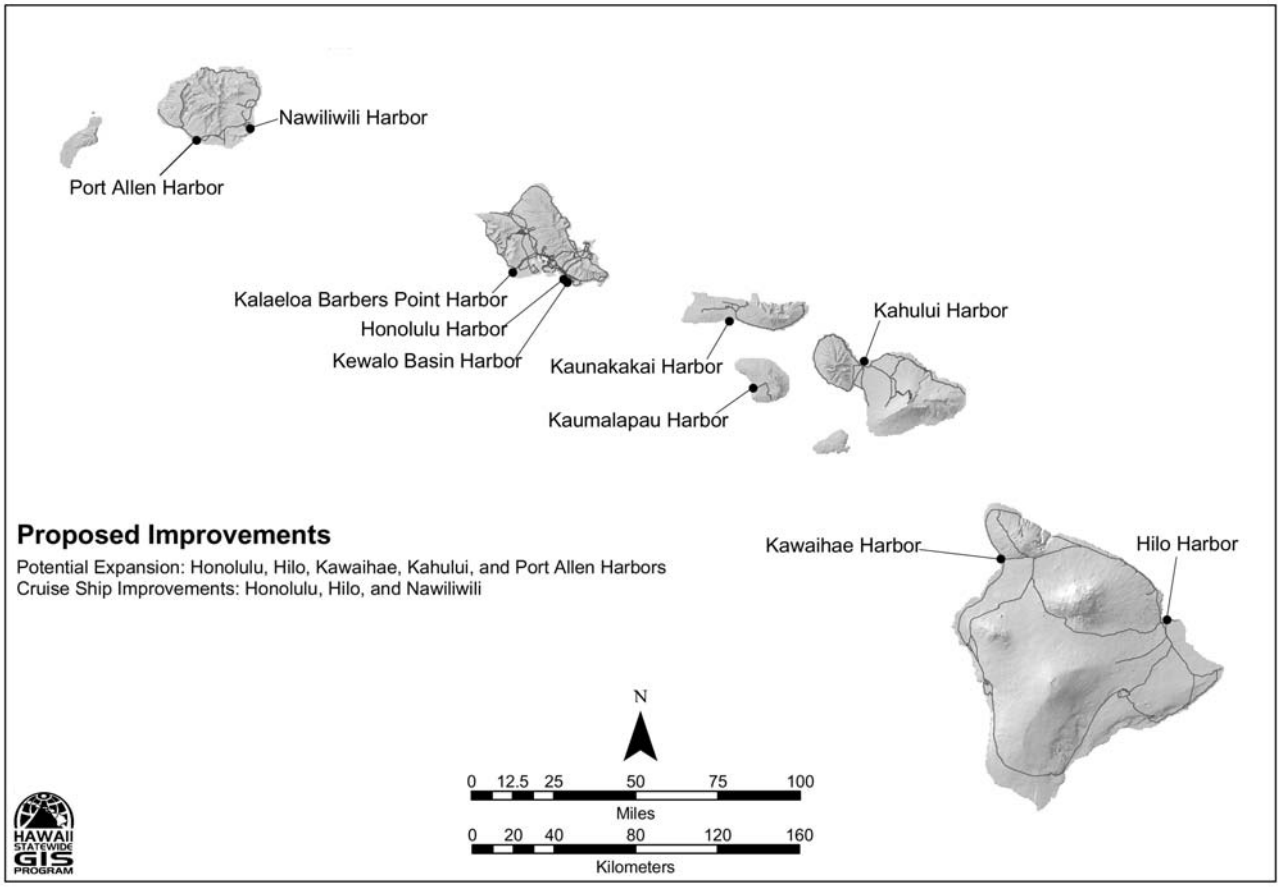
STATE OF HAWAII
MAJOR AGRICULTURAL AREAS



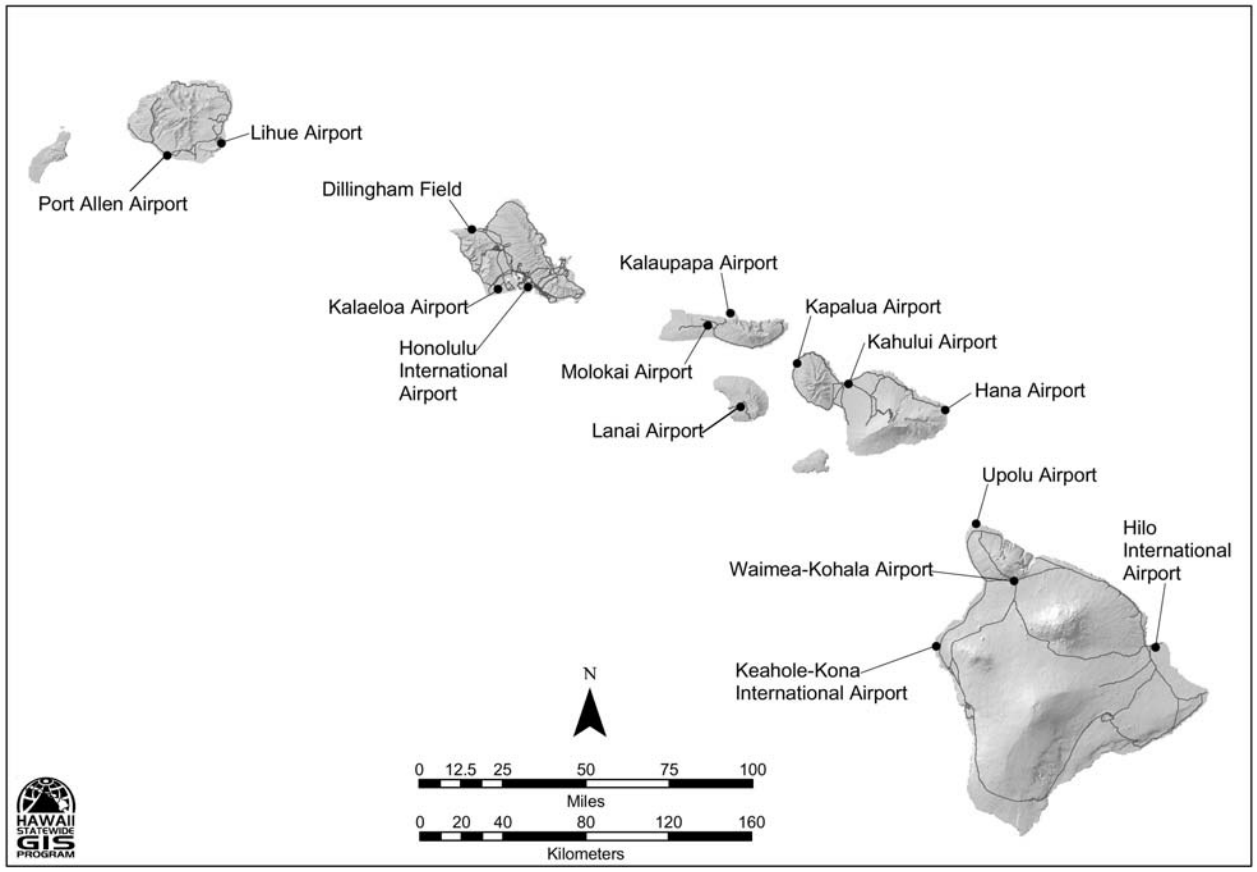
HAWAII STATEWIDE GIS PROGRAM

Source: Statistics of Hawaii Agriculture, 2002

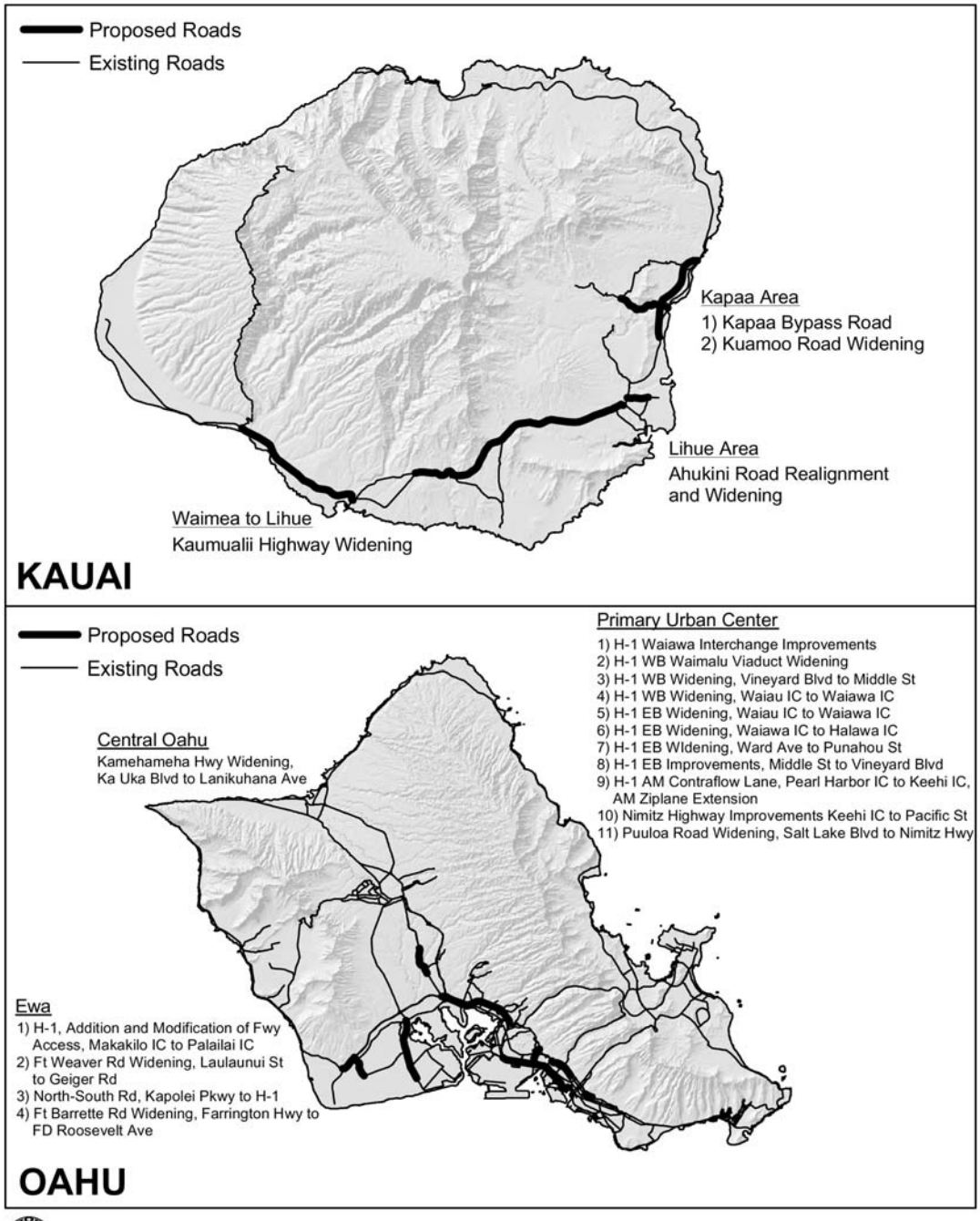
MAP 3. STATEWIDE HARBORS SYSTEM



MAP 4. STATEWIDE AIRPORT SYSTEM

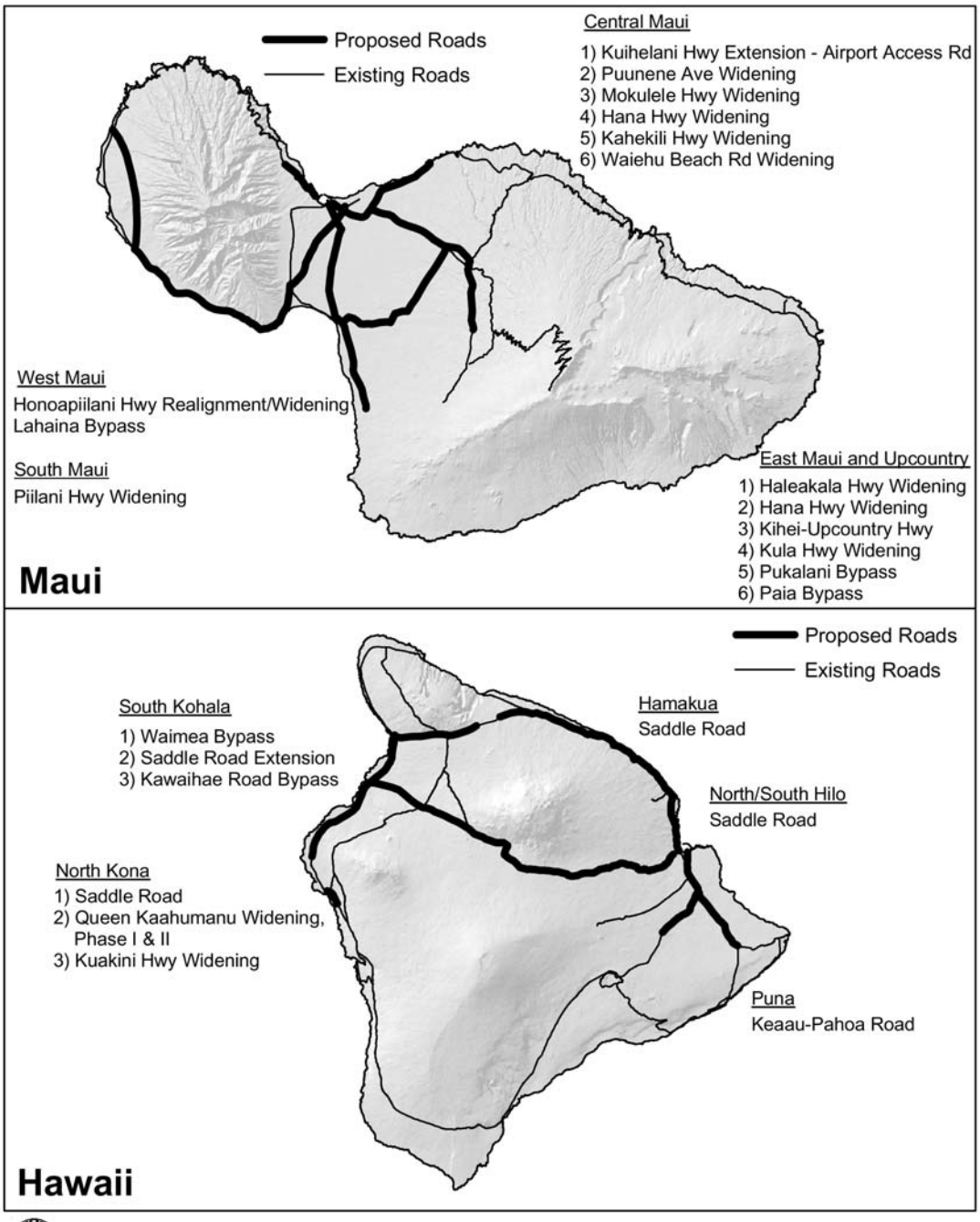


MAP 5. STATE HIGHWAY CORRIDOR PROPOSED PROJECTS



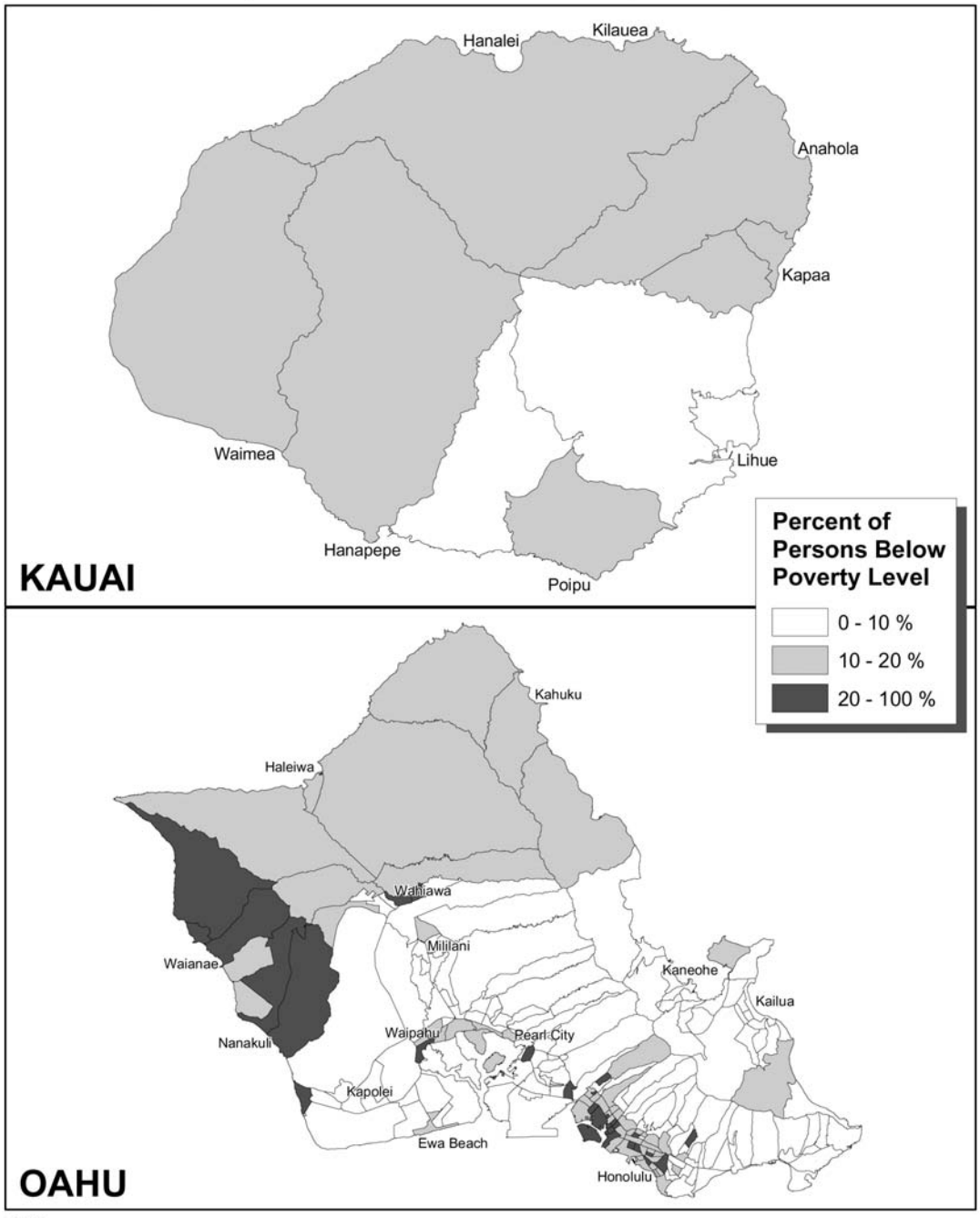
Source: State Department of Transportation

STATE HIGHWAY CORRIDOR
PROPOSED PROJECTS



Source: State Department of Transportation

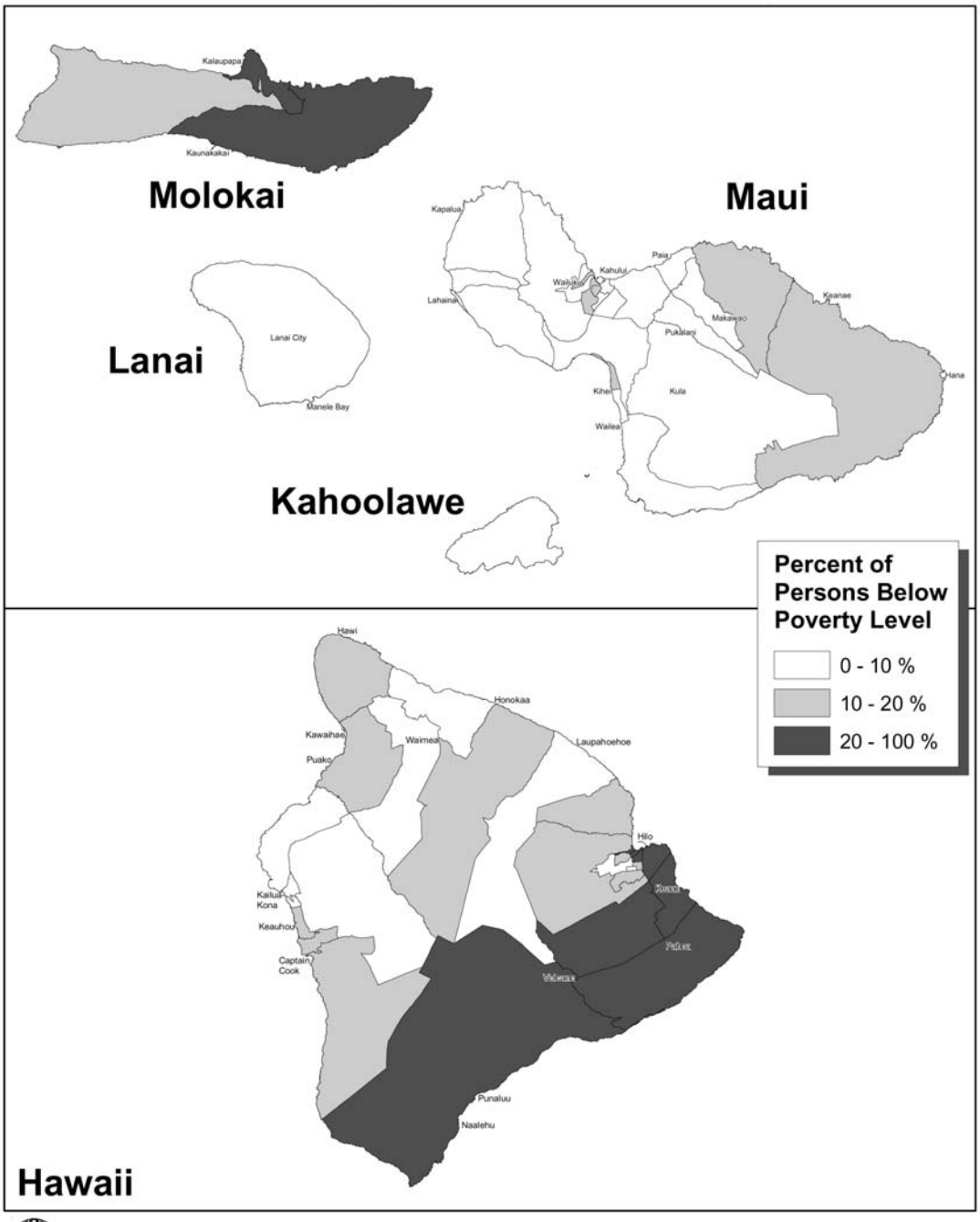
MAP 6. STATE OF HAWAII – PERSONS BELOW POVERTY LEVEL (Based on Income in 1999)



HAWAII STATEWIDE GIS PROGRAM

Source: U.S. Census Bureau, Census 2000 Summary File 3

STATE OF HAWAII
PERSONS BELOW POVERTY LEVEL
(Based on Income in 1999)



HAWAII STATEWIDE GIS PROGRAM

Source: U.S. Census Bureau, Census 2000 Summary File 3

APPENDIX 1: POPULATION TRENDS

The total resident population of the State of Hawaii for 2003 is estimated at 1,261,100 and is estimated to grow at about 1.0 percent annually for the next few years, which is less than 1.2 percent growth for 2001, 1.5 percent growth for 2002, and 1.3 percent growth for 2003. Table 1 shows the total population and percentage growth from 2001 to 2006.

Table 1
Actual and Forecast State Population and Percentage Growth
Years 2001 to 2006

	2001 (actual)	2002 (actual)	2003 (forecast)	2004	2005	2006
Total population (thousands)	1,227.0	1,244.9	1,261.1	1,273.7	1,286.4	1,299.3
Annual percentage growth	1.2	1.5	1.3	1.0	1.0	1.0

Source: Hawaii State Department of Business, Economic Development & Tourism, June 9, 2003.

The resident population by County shows Honolulu as the largest County but slowly declining in percentage growth. During the 2000 census year, Honolulu had a resident population of 876,156 or 72.3% of the total State population of 1,211,537, with Hawaii County's population at 148,677 or 12.3%, Maui County's population at 128,241 or 10.6%, and Kauai County's population at 58,463 or 4.8%. (See Table 2.)

Table 2
Resident Population and Percentage by County, year 2000

State total	1,211,537	
C & C of Honolulu	876,156	72.3% of State
Hawaii County	148,677	12.3
Maui County	128,241	10.6
Kauai County	58,463	4.8

The county-by-county population forecast shows Honolulu County with a 6.1% growth for the 2000-2010 decade, the slowest of any county, compared to growth rates of 9.4% for Hawaii County, 10.0% for Maui County, and 13.1% for Kauai County. (See Table 3.)

Table 3
Percentage Population Growth by County
Decade of 1990-2000 Compared to Decade of 2000-2010

Decade of	1990-2000	2000-2010
Honolulu	4.8%	6.1%
Hawaii	23.6	9.4
Maui	27.6	10.0
Kauai	14.2	13.1

In terms of income and poverty characteristics, the City and County of Honolulu is the most positive, followed by Maui County, Kauai County, and Hawaii County, in that order. Note that the island of Molokai is particularly hard hit in terms of income and poverty. (See table 4.)

Table 4
Income and Poverty Characteristics, for County and Island, 2000
(Data based on sample)

	Income in 1999		% below poverty level	
	Median family	Per capita	Families	Persons
State total	$56,961	$21,525	7.6	10.7
Honolulu	60,118	21,998	7.0	15.7
Hawaii	46,480	18,791	11.0	15.7
Maui	55,227*	22,024	7.7	10.5
Molokai	(na)	15,220	15.8	21.4
Kauai	51,378	20,301	8.4	10.5

*For Maui County, excluding Kalawao County.

Source: U.S. Census Bureau, 2000 summary file 3 (September, 2002), compilation and calculations by State Department of Business, Economic Development & Tourism, Hawaii State Data Center.

APPENDIX 2: INFRASTRUCTURE

STATEWIDE OVERVIEW

ROADS

The primary sources of revenue for the Highways Special Fund are indirect user fees in the form of fuel taxes, weight taxes, and vehicle registration fees. The State Highway fund is required by law to generate the revenues necessary to carry out the operations, maintenance, and capital improvement programs for the Department of Transportation (DOT) highway programs.

The State's transfer of $155 million from the Highways Special Fund into the General Fund over a ten-year period from Fiscal Years 1995 to 2004 has put the State behind on its highway maintenance that will result in higher future costs for deferred maintenance.

Funding sources for future improvements may have to be expanded given the cost for capital improvement projects versus available State and Federal funding. Traditionally, much of the funds for the major elements of the transportation system have come from these levels of government. From Fiscal Years 2000 to 2003, out of $985 million obligated for DOT Highways capital improvement projects, $699 million were Federal funds versus $286 million from State funding. Federal funds made up 71% of the total amount DOT Highways obligated in those four years. However, because the anticipated projects funding requirements are exceeding the available State and Federal funds, other funding options, such as financing projects with a combination of State, Federal, and private funds, may be needed.

CITY AND COUNTY OF HONOLULU

Traffic congestion on Oahu has increased, both in the Primary Urban Center (PUC) and in Central and Leeward Oahu. The roadways within the PUC, which extend from the core of historic downtown Honolulu to Pearl City in the west and Waialae-Kahala in the east, are congested not only during peak hours but often during non-peak hours. During peak hours, incoming traffic from Central and Leeward Oahu bottlenecks at the H-1/H-2 Freeway merge, is congested on the H-1 Freeway through Pearl City, and bottlenecks again near Middle Street. In addition, continuing development in Central and Leeward Oahu will continue to add more traffic on Oahu's roadways. While the bus system on Oahu helps alleviate traffic congestion, expansion of the system through the addition of more buses and routes are needed.

Within the PUC, in the westbound direction, the State Department of Transportation (DOT) has projects to reduce congestion on H-1, especially during the peak afternoon hours. There are plans to improve the Waiawa

Interchange in the westbound direction to alleviate traffic congestion through the Waiawa Interchange and at the Waipahu off-ramp. In addition, plans to improve the H-1 Freeway from Vineyard Boulevard to Middle Street and Waiau Interchange to Waiawa Interchange in the westbound direction are currently being studied. Finally, construction is ongoing on the Waimalu Viaduct Widening in the westbound direction.

In the eastbound direction, within the PUC, DOT has plans to widen H-1 Freeway from the Waiawa Interchange to Halawa Interchange, from Middle Street to Vineyard Boulevard, and from Ward Avenue to Punahou Street. In addition, DOT plans to implement an extension of the existing AM Contraflow Lane from the Pearl Harbor Interchange to the Keehi Interchange.

Other projects within the PUC are the Puuloa Road Widening and the Nimitz Highway Flyover. The Puuloa Road Widening will widen Puuloa Road from Salt Lake Boulevard to Nimitz Highway. This project will help reduce congestion as well as provide improved interconnectivity between Moanaloa Freeway and Nimitz Highway. The Nimitz Highway Flyover will construct a 2-lane reversible flyover (to be fed by an extended AM zipperlane and the High Occupancy Vehicle ramp), widening and other improvements on Nimitz Highway from Keehi Interchange to Pier 16 (Awa Street). This will help reduce both AM and PM congestion for commuters heading into and leaving the downtown area. Construction of the Puuloa Road Widening will start in 2005 while planning of the Nimitz Highway Flyover is currently ongoing.

In the Ewa area, there are projects that will reduce traffic congestion for commuters entering and leaving the Ewa area. Planning of the H-1 Additions and Modifications of Freeway Access, Makakilo Interchange to Palailai Interchange will start shortly. This project will increase capacity and provide additional on-ramps and off-ramps at these interchanges, including a new Kapolei Interchange, to reduce the backups being experienced by commuters. Construction of the Fort Weaver Road Widening, Laulaunui Street to Geiger Road is ongoing. This project will widen Fort Weaver Road from 4-lanes to 6-lanes, reducing the heavy congestion along Fort Weaver Road, especially during the morning peak hours. Construction of the North-South Road, Kapolei Parkway to H-1 Freeway is scheduled to start in 2005. This project, by providing another route for Ewa and Kapolei residents to get to the H-1 Freeway, will greatly alleviate congestion on Fort Weaver Road and Fort Barrette Road. DOT also has plans for the Fort Barrette Road Widening, Farrington Highway to Franklin Delano Roosevelt Avenue. The existing and future development of the Kapolei area requires the widening of Fort Barrette Road from 2 lanes to 4 lanes.

Congestion between Mililani and Waipio Gentry is being experienced along Kamehameha Highway. The Kamehameha Highway Widening, Ka Uka Boulevard to Lanikuhana Avenue, will widen the existing 2-lane road (with a

climbing lane from Kipapa Bridge to Lanikuhana Avenue) to a 4-lane divided facility. This, the only segment of Kamehameha Highway between Mililani and Waipahu that has not been widened to a four-lane divided facility, is experiencing congestion during peak hours. Anticipated development will increase and exacerbate the existing congestion. This proposed project will reduce congestion and enhance safety along this segment of highway.

COUNTY OF KAUAI

Existing traffic conditions on Kauai are poor in the areas from Poipu-Lihue-Kapaa. Major roads in Lihue, west to Maluhia Road and east to Kapaa are experiencing low levels of service. In addition, congestion can be observed in Kapaa Town and during peak hours on Kaumualii Highway leading into Lihue.

The Kaumualii Highway Widening, Waimea to Lihue will address the existing congestion on Kaumualii Highway. This project will be done in phases, with DOT currently in design of the segment from Kipu Road to Rice Street in Lihue. This phase of the project should alleviate most of the congestion west of Lihue. The Kapaa Bypass, Hanamaulu to Kapaa, is currently in the planning phase. This project will look at ways to alleviate the heavy congestion on Kuhio Highway from Hanamaulu to Kapaa Town. Various routes will be studied, including a new route that will parallel Kuhio Highway and bypass Kapaa Town.

Two other projects are currently on the Kauai Long-Range Land Transportation Plan, the Kuamoo Road Widening and the Ahukini Road Realignment and Widening. The Kuamoo Road Widening will widen the existing roadway from 2-lanes to 4-lanes in order to reduce congestion. The Ahukini Road Realignment and Widening will widen the existing roadway from 2-lanes to 4-lanes. As mentioned above, both of these projects are on the long-range plan and will not be implemented until sufficient demand for these projects are realized.

COUNTY OF MAUI

Maui is experiencing traffic congestion at various locations including Kahului, Kihei, and Upcountry. Also, traffic on Honoapiilani Highway between Central Maui and West Maui is heavy, especially during peak hours. DOT has projects that will address traffic congestion at these locations.

In the West Maui area, design has started on the first phase of the Lahaina Bypass, the “mini-bypass”. This “mini-bypass” from Lahainaluna Road to the extension of Keawe Street is a joint effort between the State and Maui County. The “mini-bypass” would serve to alleviate morning and afternoon traffic along the existing Honoapiilani Highway and Lahainaluna Road caused by heavy school traffic. The other phases of the Lahaina Bypass, from

Launiupoko (about 1,000 feet north of Launiupoko point) to Honokowai (just south of Mahinahina Gulch) will be implemented when sufficient funds are made available.

Also in West Maui is the Honoapiilani Highway Realignment and Widening. This project, which realigns Honoapiilani Highway inland and provides 4-lanes from Maalaea Harbor to the Lahaina Bypass, will start planning in 2005.

In South Maui, the Piilani Highway Widening, Mokulele Highway to Wailea will upgrade the interim 4-lane widening project by providing a median, standard width lanes, paved shoulders and other improvements to meet current standards.

In Central Maui, the Kuihelani Highway Extension, also known as the Kahului Airport Access Road, is planned to provide a new 4-lane highway from Puunene Avenue to Kahului Airport, reducing congestion on Dairy Road and Keolani Place, the current airport access road. Mokulele Highway is being widened from 2-lanes to 4-lanes from Kuihelani Highway to Piilani Highway, to provide additional capacity on an already congested route. Hana Highway, Dairy Road to Haleakala Highway is planned for widening from 4-lanes to 6-lanes to reduce congestion in Kahului.

Also in Central Maui are three projects on the Maui Long Range Land Transportation Plan. The Puunene Avenue Widening, Wakea Avenue to Kuihelani Highway, will widen the roadway from 2-lane to 4-lanes. The Kahekili Highway Widening, Waiehu Beach Road to Waihee Valley Road, will widen Kahekili Highway from 2-lanes to 4-lanes. Finally, the Waiehu Beach Road Widening, Kahului Beach Road to Kahekili Highway, will widen the roadway from 2-lanes to 4-lanes. As mentioned above, these projects are on the long-range plan and will not be implemented until sufficient demand for these projects are realized.

In East and Upcountry Maui, Haleakala Highway from Pukalani Bypass to Hana Highway will increase the capacity of Haleakala Highway by widening the roadway from 2-lanes to 4-lanes. The Kihei-Upcountry Highway will construct a new 2-lane road from Kihei to Upcountry Maui. This project, which will start design shortly, will provide a direct route between Kihei and Upcountry Maui, increasing system connectivity and reducing traffic on the other roadways. Planning will be starting in 2005 on the Paia Bypass. This project, which will construct a 2-lane bypass of Paia from Spreckelsville to Hookipa Park, will reduce traffic congestion in Paia by allowing thru traffic to bypass the town.

Also in East and Upcountry Maui are two projects on the Maui Long Range Land Transportation Plan. The first project is the Kula Highway Widening, Pulehu to Kula Junction, will widen the roadway from 2-lanes to 4-lanes. The

second project is the Pukalani Bypass Widening, Haliimaile road to Kula Highway, will widen the road from 3-lanes to 4-lanes. Both of these projects will be implemented when sufficient demand exists.

COUNTY OF HAWAII

Additional roadway capacity is needed in the County of Hawaii. A better connection between East and West Hawaii is needed. Growth in population, resort development and second home developments has increased traffic in the Kailua to Keahole area. In particular, traffic congestion has increased in the peak hours in the area between Kailua Town and the airport. Improvements to the Queen Kaahumanu Highway and county lateral and mauka-makai connector roads are needed to improve traffic circulation.

Interconnectivity between East and West Hawaii will increased with improvements to Saddle Road. Construction is ongoing on this project which begins in Hilo and terminates at the existing Saddle Road/Mamalahoa Highway junction, a total distance of approximately 53 miles, will reconstruct the existing 2-lane roadway to improve safety and increase roadway capacity. In addition, a planning study is ongoing to extend Saddle Road from the Mamalahoa Highway intersection to Queen Kaahumanu Highway, a distance of approximately twelve miles. By providing a direct route to development along the Kona coastline from Saddle Road, travel will be safer and more efficient.

In the Puna area, planning for the Keaau-Pahoa Road Widening DOT will be starting in 2005. This project will widen the existing roadway from 2-lanes to 4-lanes to provide the increased capacity needed to connect the rapidly growing Puna area to Hilo.

In the South Kohala area, planning is ongoing on the Waimea Bypass. This project will provide a 2-lane bypass of Waimea from Mud Lane to the Kamuela Race Track will reduce congestion and increase safety in Waimea by allowing thru traffic, including large trucks, to bypass the town. The Kawaihae Road Bypass, Waimea to Kawaihae, is also undergoing planning. This project will connect to the Waimea Bypass by the Kamuela Race Track and continue to Akoni Pule Highway by Kawaihae Harbor. This project will reduce congestion and increase safety by enhancing the interconnectivity of the roadway, especially the Waimea Bypass.

In the North Kona area, a project that will widen Queen Kaahumanu Highway from 2-lanes to 4-lanes is divided into 2 phases. Phase I is from Henry Street to Kealakehe Parkway (2.6 miles with construction to begin in 2005); and Phase II is from Kealakehe Parkway to Keahole Airport Access Road (5.0 miles). This project will provide needed roadway capacity for the North Kona area. Also in the area is the Kuakini Highway Widening, Henry Street to Kamehameha III Road. This project will widen the existing roadway from 2-

lanes to 4-lanes, providing increased roadway capacity along the alignment as well as relieving traffic congestion on parallel routes.

(Source: The section on roads was provided by the State Department of Transportation.)

AIRPORTS

Current statistics indicate that the majority of passenger airports are underutilized. Expansion of passenger terminals is not a current need. However, maintenance of passenger areas and modifications in organization and physical layout can maximize lease space and minimize passenger congestion and confusion within the airport. The expansion of commuter terminals is also needed.

CITY AND COUNTY OF HONOLULU

Honolulu International Airport (HNL) is the major aviation gateway for the State of Hawaii. It is the primary hub for domestic overseas and interisland flights and is currently one of three State airports accommodating international flights. HNL also functions as a joint military-civilian airport sharing airfield facilities with Hickam Air Force Base.

The airfield consists of two parallel east-west runways, two parallel crosswind runways, associated taxiways and navigational aids.

Kalaeloa Airport is a general aviation facility that uses 750 acres of a former naval facility. The State operates three runways at the airport, the control tower and support facilities.

Dillingham Airfield is a general aviation joint-use facility on the north shore of Oahu. The airfield has one runway, a State-operated control tower, several hangars and a tie down area for recreational aircraft but no other facilities. No major facility improvements are planned.

COUNTY OF KAUAI

In Kauai County, Lihue Airport provides overseas, interisland and cargo service. In addition, helicopter services are centralized at Lihue with heliport facilities located across from the commuter terminal. The Lihue Airport Master Plan Environmental Impact Statement Preparation Notice (October 1998) contained several recommended improvements to the airport. In 2005, DOT-Airports will complete the Lihue Airport EIS addressing future improvements. Other improvements were proposed for the airport's terminal

area, roadways and support facilities. (Source: Kauai General Plan) In 1999, the Governor cancelled plans to extend the runway.

Port Allen Airport is a single runway, general aviation airport with minimal facilities. It serves the needs of west Kauai for general aviation, emergency helicopter operations and helicopter air tour flights. The Department of Transportation has proposed improvements to the airport including the development of four lease lots as sites for private hangars and the construction of aprons for helicopter operations. This has received both public support and opposition. The Kauai County General Plan contains the following policies:

-Support improvements to Lihue Airport as necessary to provide for the desired level of visitor industry development and the export of agricultural crops to the mainland.
-Support centralization of State-owned helicopter facilities and operations at Lihue Airport.

COUNTY OF MAUI

Kahului Airport has two intersecting runways and air carrier facilities for domestic overseas and interisland commercial service. The airport provides commuter/air taxi and general aviation operations including helicopter operations in separate locations.

Expansion of Kahului Airport terminal and commuter terminal will be required to facilitate the projected sixty-six percent growth in overseas and domestic travel through 2020. Currently, there are no plans to extend runway 2-20 although extension has been proposed in the past. A parallel runway may be required at some point in the future to provide sufficient capacity and reduce aircraft delays for projected overseas demand. Kahului is expected to remain the second busiest airport in the State to the year 2020.

Hana Airport supports commuter, scheduled air taxi and general aviation activities. The airport is expected to serve the rural communities of East Maui with commuter service. Development is expected to remain close to current levels.

Kapalua Airport is a commercial service airport that is served by commercial propeller air carriers and commuter/air taxi aircraft only. The facility consists of a single runway, terminal facilities and support facilities. The runway, apron and other facilities cannot be expanded without change to the existing agreement with Maui County. Operations are limited to daytime hours only.

Molokai Airport improvements are constrained by a number of factions, i.e. runway extension is dependent on FAA approval and the acquisition or exchange of easement of DHHL lands.

Kalaupapa Airport occupies 55 acres on the northern peninsula of Molokai. It serves commuter/air taxi operations and some air cargo operations. Facilities include a single runway, a small passenger terminal and airport support areas.

The 1998 Statewide Airport Plan states that aviation demand forecasts for Lanai project aircraft operations to double by 2020 based on continued resort development on the island. Improvements will be needed to accommodate increased demand.

COUNTY OF HAWAII

In Hawaii County, the Hilo and Kona International Airports provide overseas and inter-island facilities. The Waimea and Upolu airports also provide inter-island facilities.

Hilo International Airports overseas facilities are currently underutilized. Proximity of Hilo's airport and harbor may be utilized to economic advantage. Both transportation facilities are surrounded by or are near State owned lands that could be used for support services and facilities.

Hilo is fourth in the State in the amount of cargo handled through both its airport and harbor. There is an opportunity for the development of a centralized cargo distribution center within Hilo that could serve neighbor islands by distributing and marshalling cargo both from and to the mainland.

The County of Hawaii General Plan Revision proposes the following:

- Analysis of future land uses in the vicinity of the Hilo International Airport should have an adequate open space buffer an/or be compatible with the anticipated aircraft noise exposure levels for that vicinity.
- Construction of an Agricultural Processing and packing Center at the old Hilo Airport, the planning of which shall be coordinated with future development plans for Hilo Harbor.
- Construction of a centralized air cargo distribution complex at the Hilo International Airport.

With the expansion of the visitor industry in West Hawaii, the Kona International Airport has and will continue to experience growth in passenger arrivals, aircraft operations and cargo/mail activities. The Department of Transportation master plan for the facility for the period 1998-2020 identifies land use, terminal improvements, access and circulation, and supporting infrastructure needs to accommodate future facility needs. Some of the improvements include an expanded air cargo facility and new overseas terminal, flight kitchen, postal facility and general aviation facilities. A new

heliport is also proposed. Hawaii agriculture would benefit from additional cargo capacity for export of Hawaii products.

The Waimea-Kohala Airport has a single runway, no taxiways and an aircraft parking apron to the west. The apron serves as the passenger terminal and general aviation facilities. The airport provides commuter air service, air cargo and air ambulance service to the residents of North and South Kohala and Hamakua. The airport is underutilized but its use may increase with resort development in South Kohala. Modest enlargements for fixed wing and helicopter hangers are being considered. The Waimea-Kohala Airport Master Plan, Department of Transportation, 1999, recommends various improvements and upgrades to the runway and terminal facilities to improve operating efficiencies and increase aircraft load capacity.

Upolu Airport located in North Kohala is a general aviation airport with a single runway (without taxiways) and two aircraft parking areas to the south. The Upolu Airport Master Plan 1999 concluded that based on forecasted demand, no extension of the existing runway or expansion of terminal facilities will be required through 2020. However, the plan recommends the acquisition of lands adjacent to the airport for runway protection zones and terminal expansion. The widening of the airports existing 1.8 mile access road to a two-lane, paved road is recommended. If demand increases, plans include a parallel taxiway south of the runway and moving terminal facilities away from the runway to provide clearance and additional aircraft parking.

The Department of Transportation is required by law to generate its own monies to fund airport programs and projects. Revenue sources are aviation fuel tax, landing fees, airport use charges, concession fees, rental and miscellaneous earnings and investment income. The DOT relies on reimbursable General Obligation Bonds and Federal aid to help fund programs and projects. Three sources of revenue are:

-Airport Special Fund;
-Federal Grants through the FAA; and
-State Revenue Bonds.

(Source: State Department of Transportation)

HARBORS

The Harbors Division of the Department of Transportation has identified the need for improvements at Hilo, Kawaihae, Kahului, Kaumalapau, Honolulu, Kewalo Basin, Port Allen, and Nawiliwili Harbors. Expansion of Kalaeloa Barber's Point as a commercial harbor will greatly alleviate congestion at Honolulu Harbor. As the cruise ship industry expands, there is also a need to improve and expand cruise ship terminals and facilities.

CITY AND COUNTY OF HONOLULU

Honolulu Harbor is the hub of the State harbor system as the majority of cargo whether bound for Honolulu or the Neighbor Islands passes through Honolulu Harbor.

The 2020 Harbors Master Plan envisions that in the year 2020, Honolulu Harbor will have a second entrance channel, four container terminals, an interisland cargo terminal, liquid and dry bulk cargo facilities, neobulk and breakbulk cargo facilities, backlands and pier facilities for automobile shipments, a domestic fishing village, four cruise ship terminals, two ferry terminals, an excursion vessel terminal, a maritime office building, the Foreign Trade Zone One Stop Shop and adequate berthing and necessary roadways to support these activities.

Kalaeloa Harbor is the second busiest harbor in the State system.

Recommendations for Kalaeloa Draft Harbor include expansion of the harbor with additional piers and yards to accommodate expanded cargo capabilities. Efforts to deepen the harbor and improve the entrance channel will be coordinated with the U.S. Army Corps of Engineers.

COUNTY OF KAUAI

Expansion and cruise ship improvements are planned for Nawiliwili Harbor on Kauai. There are also plans for expansion at the smaller Port Allen Harbor.

COUNTY OF MAUI

Kahului Harbor is the only commercial harbor on the island of Maui. It is the third busiest harbor in the State and the busiest of all Neighbor Island harbors.

Kaunakakai Harbor services Molokai. Approximately 128,400 tons of cargo passes through the harbor annually.

Kaumalapau Harbor is a small commercial harbor serving Lanai.

COUNTY OF HAWAII

Hilo Harbor is a deep draft harbor with a 35-foot draft and three commercial piers. There is limited loading or back-up space. There is also limited land area for the expansion of harbor-oriented industrial uses. The number of cruise ship passengers visiting Hilo has increased dramatically during the 1990's and there is a need to improve the accommodations for these passengers at the harbor. There is a recognized need for expansion opportunities for Hilo Harbor and the need to accommodate increased cargo and passenger volumes. The County of Hawaii General Plan Revision recommends cargo yard acre increases, berthing requirements, roadway improvements, and the construction of a passenger terminal facility at Pier 5 to accommodate the growth of cruise ship arrivals.

Kawaihae Harbor is a deep draft port with two commercial piers with approximately 14 acres of cargo handling and storage areas with room for expansion as needed.

According to the Hawaii Statewide Transportation Plan, financing for water-related transportation comes from two primary sources. The Harbors Special Fund is used to finance the operations and maintenance as well as the capital improvement program for the harbor system. The state also uses revenue bonds to fund its capital improvements program. Harbor revenue bonds are collateralized by a charge and lien on the gross revenues of the program and upon all improvements and funds and securities related in whole or in part from the revenues or from the proceeds of the bonds.

(Source: State Department of Transportation)

SOLID WASTE

(Source: Planning for Sustainable Tourism in Hawaii, Infrastructure & Environmental Overview Study, Carter & Burgess, Inc., 2002, unless otherwise noted. The County of Kauai and the County of Hawaii have recently completed General Plans additional information has been added for these counties based on their General Plans.)

CITY AND COUNTY OF HONOLULU

Approximately 50% of Oahu's waste disposal is handled through incineration at H-POWER. H-POWER converts more than 2,000 tons of waste per day into electricity to power more than 60,000 homes. H-POWER produces 7% of Oahu's electricity and reduces the volume of refuse going to landfill by 90%.

H-POWER is actively engaged in recycling. Virtually 100% of the ferrous and nonferrous metal is recovered for recycling.

The City's sanitary landfill is located at Waimanalo Gulch. A portion of solid waste is also disposed of at a privately owned facility, PVT Nanakuli Construction and Demolition Material Landfill.

The Waimanalo Gulch landfill had a projected life to year 2001. This was recently extended when the City increased the waste level by 30 feet. The State Land Use Commission approved an amendment to the Waimanalo Gulch landfill special permit extending the permit to 2008 but requiring that the City identify a new landfill site prior to closure of the existing site.

The Mayor's Blue Ribbon Committee on Landfill Selection in 2003 recommended the following four sites to the Mayor and City Council as they prepare an environmental impact statement for a site: Ameron Quarry, Maili, Makaiwa, and Nanakuli B.

Challenges include landfill site selection, lowering the per capita production of waste and providing safe, efficient and environmentally sensitive waste-collection and waste disposal facilities.

COUNTY OF KAUAI

According to the County of Kauai General Plan, the County operates a landfill site, four refuse transfer stations and a debris recycling station. The Kekaha Landfill Phase II is the primary disposal site for solid waste on Kauai. The facility also serves as a drop-off point for segregated recoverable waste. The county's four transfer stations are located in Hanalei, Kapaa, Lihue and Hanapepe. The Kekaha Debris Recycling Station was used for Hurricane Iniki debris and stopped accepting solid waste in 1993. In FY99, approximately 404 tons of white goods and scrap metals were received at the station and subsequently shipped off-island for recycling. The station also serves as a recovery facility for segregated greenwaste.

The County currently has in place six stations islandwide that receive newspaper, glass, aluminum and paper products.

-Plastic recycling. This effort is being mounted by Princeville Corporation and volunteers in North Shore communities. Volunteers in Lihue have also made efforts to recycle plastic.
-Glass Recycling. Through a State-subsidized program, the County contracts with a local firm to operate a glass recycling program.
-Kauai Resource Exchange Center. This new facility is intended to serve as a market for discarded materials such as major appliances, furniture, building materials and electronics.

According to the Kauai General Plan, over the next two decades, the amount of solid waste generated on Kauai is expected to increase by nearly 50%. Solid waste generation is estimated at 5.4 pounds per person per day. New facilities needed by 2020 include:
-Additional landfill capacity. A new landfill site should be identified in about one year and the cost is estimated at $37 million.
-New refuse transfer station at Koloa, $3 million.
-Kekaha Debris Recycling Station. This facility will be used less as collection of metals becomes more centralized at the Puhi Metals recycling Center and more conveniently located private facilities divert greenwaste from the station.

The County of Kauai Integrated Solid Waste Management Plan strongly emphasizes recycling as a means of diverting the materials from the island's Kekaha landfill.

Implementing actions contained in the Kauai General Plan include:
-Preparing a long-range Solid Waste Integrated Management Plan and update every five years.
-Commit the necessary funding and staff resources to implement the County Integrated Solid Waste Management plan.
-Increase the effectiveness of the County's solid waste system by maximizing the convenience of reuse and recycling centers for users.
-Establish a set of measurable goals to divert solid waste from the island's landfill.
-Develop a proactive process for siting and designing sanitary landfills and other facilities that incorporates early and detailed consultation and negotiation among the utility, the County government, community stakeholders and the general public.

COUNTY OF MAUI

There are four sanitary landfills and one convenience center in Maui County. Because landfilling is the principal means of disposing solid waste, the useful life of the County landfills is rapidly decreasing. In 1994, land area requirements for a new replacement landfill were estimated to be 129 acres. Environmental implications of developing new landfill sites, costs to close the existing sites and the availability of sites are issues that need to be addressed.

The General Plan of the County of Maui assumes that waste projections for the island of Maui are expected to increase from 669 tons per day in 1990 to 1,064 tons per day in 2010 or 59 percent.

Approximately 30% of the waste stream is recycled. This is an area of opportunity. With proper diversion programs, the anticipated total diversion would be 52%.

Source: Maui County Department of Public Works and Waste Management, Annual Report, 2000-2001.

COUNTY OF HAWAII

According to the County of Hawaii General Plan Revision, there are two active landfill sites—one for east Hawaii in Hilo, the other in West Hawaii at Puuanahulu. The landfill at Puuanahulu was constructed in 1994, the same year the landfill in Kailua was closed. The County also maintains twenty-one solid waste transfer sites throughout the island. Private haulers haul approximately 50% of the solid waste accumulated. The South Hilo landfill, an unlined landfill, will be closing in 2004 or 2005 and a waste reduction facility cannot be built and operable until several years after that.

Both the former landfill site in Kona and soon to be closed landfill site in Hilo offer opportunities for brownfield remediation and redevelopment/reuse.

Existing Facilities and equipment are not adequate to transport the East Hawaii waste stream to Puuanahulu. The Opala Recycling Enterprise has expressed a strong desire for an expanded county recycling program. Recycling has not been highly successful to date in the county due to the geographic disadvantages that make export of recyclable materials expensive and a lack of manufacturing facilities that use recyclable materials.

Illegal disposal of solid waste continues to be a problem throughout the County.

According to the General Plan, six new transfer stations and improvements to existing stations are planned for the near future. A county recycling program is proposed.

The State of Hawaii's Integrated Solid Waste Management Act included waste reduction goals of 25% by 1995 and 50% by 2000. Both the County and State as a whole failed to meet the desired goal of 50% by 2000. To reach the reduction of 50%, the County needs to implement an integrated solid waste management system as follows:
-Continue to encourage programs such as recycling to reduce the flow of refuse deposited in landfills;
-Investigate the possibility of developing new landfill sites on the island;
-Encourage the full development and implementation of a green waste recycling program; and
-Locate well-designed and cost-effective solid waste transfer stations in areas that are convenient to the public.

The General Plan provides and analysis of the long term costs of solid waste management. The findings show that recycling will likely be more costly than waste reduction (incineration, thermal gasification and anaerobic digestion and less costly than landfill disposal.

Tipping fees account for 35% of revenue required to operate the County Solid Waste Division. General funds provide the balance of funds needed. Various revenue options have been studied. The latest is a Pay-As-You-Throw concept. However, the most effective way to make this type of program work is to implement curbside pickup. The question becomes how best to transition from a public accustomed to self-hauling to a transfer station to paying a private hauler or increasing taxes to enable the county to provide this service.

In terms of trends for future waste generation, East Hawaii appears to be stable with no foreseeable increase. West Hawaii should see an increase of three tons per year due to new development.

COMMUNITY REDEVELOPMENT

The Hawaii Community Development Authority (HCDA) works to stimulate the economic development of Kakaako and Kalaeloa by planning and implementing community development programs and facilitating capital investment. HCDA serves as a platform for economic development through its redevelopment activities. For example, HCDA's redevelopment activities in Kakaako supported the development of the new John A. Burns School of Medicine in Kakaako. Kalaeloa also presents significant opportunities with the location of Air Force C-17 transport aircraft in Hawaii and the potential location of an aircraft battle group at Pearl Harbor.

APPENDIX 3: STATE CEDS COMMITTEE LETTER

ECONOMIC DEVELOPMENT ALLIANCE OF HAWAII

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October 29, 2004

To: Theodore Liu
Director
Department of Business, Economic Development & Tourism

Att: Mary Lou Kobayashi
Administrator
Office of Planning

From: Paula Z. Helfrich, Chief Executive Officer for
Admiral Robert Kihune, USN, Ret.
Chairman
Economic Development Alliance of Hawaii

Subject: State Comprehensive Economic Development Strategy

The Economic Development Alliance of Hawaii (EDAH) has served as the State Comprehensive Economic Development Strategy (CEDS) Committee. The CEDS Committee is responsible for overseeing the CEDS process and assuring that the CEDS *Guidelines issued by the Economic Development Administration (EDA) are followed in* the preparation of the report.

The CEDS Committee finds that the process as specified in the CEDS Guidelines has been followed.

1. There has been broad based and diverse community participation. Although each County CEDS employs a format unique to the county's needs, this is to the CEDS Committee's knowledge the first consolidated statewide effort to identify priorities and common interests from the grassroots level.

   Public meetings were held in each of the counties by the sub-grantees. In addition, the Office of Planning held a public meeting at the beginning of the project and held an October 2004 public workshop where the draft findings and recommendations were presented.

2. There was input from local government and public leadership, economic and business development organizations, employment and training programs and community organizations.

These groups were represented on the county level CEDS Committees and participated in focus groups, stakeholder meetings and public meetings. In particular, the Office of Planning invited these groups to participate in the October 2004 workshop which presented the draft plan and solicited input.

3. There was input from women, minorities, the aged and disabled.

   These groups were represented on the committees, focus groups, stakeholder meetings and public meetings. In addition, the Office of Planning invited the following organizations to participate in the October 8, 2004 workshop: Executive Office on Aging; Disability and Communications Access Board, Department of Health; Disability Protection and Advocacy Agency; Office of Hawaiian Affairs; Department of Hawaiian Home Lands; Hawaii State Commission on the Status of Women; Japanese Chamber of Commerce; Filipino Chamber of Commerce; and Native Hawaiian Chamber of Commerce.

4. There have been sufficient and accessible opportunities for public input.

   Numerous meetings were conducted at various locations across the state which gave residents ample opportunity to participate in the planning process.

   - On Kauai County, there were numerous focus group meetings in July/August 2004. Over 45 individuals participated in focus group discussions, phone interviews and one-on-one meetings. A public hearing was held on August 17, 2004 and a presentation was made to the County Council on September 16, 2004. A county level CEDS committee was formed. Four committee meetings were also held.

   - On Oahu, focus group meetings were held for each of the four clusters. A focus group meeting was also conducted for the Enterprise Honolulu board which includes a cross section of Oahu's business community. A CEDS committee was established with 39 individuals representing 33 organizations. A public informational meeting was also conducted.

   - Maui County conducted *Focus Maui Nui* which involved approximately 1,700 residents from Hana, Maui to Maunaloa, Molokai. In January 2004, there was an Economic Summit involving 270 participants. There were focus groups—six sessions were held for each of the six clusters. Sessions were also held in Hana, Molokai and Lanai. There were seventy participants overall with diverse backgrounds. A county level CEDS committee was also formed and provided input.

   - In Hawaii County, 185 community grassroots, business, social service, environmental and Hawaiian community members participated in the Renaissance Conference which involved a wide cross section of the

community. Four public meetings were held in various parts of the island (Honokaa, Kona, Volcano and Keaau) and two county level CEDS committee meetings were held. A committee of 23 community members reviewed the drafts and recommended modifications.

- In addition, EDAH on its own initiative has reviewed the projects in the CEDS and has identified **Areas of Opportunity** which represents a synthesis of priorities with important and unique statewide application for a major cumulative impact. Some of these have EDA applications. Others are the purview of other agencies. Some, such as the priority importance of an overall Workforce Development Strategy, are presented as essential components for sustainable development. EDAH presented these in the form of a handout at the October 8, 2004 workshop. A copy is attached for your review and attention.

We acknowledge the hard work and collaborative effort that went into the preparation of the CEDS by the stakeholders at the grassroots level to the support and oversight of senior business, academic and government leaders. We believe this CEDS document – the first of its kind to incorporate a wide range of opinion and input – has already become a stakeholder document in the counties and at the state level. We especially commend the work product of *Focus Maui Nui* as a model for development. We look forward to continuing to be a partner in this effort and assisting with the implementation of the CEDS.

Mahalo nui loa a pau.

Paula Z. Helfrich
Chief Executive Officer
(by direction November 8, 2004)

Cc: Mary Lou Kobayashi

AREAS OF OPPORTUNITY
ECONOMIC DEVELOPMENT ALLIANCE OF HAWAII PRESENTATION
OFFICE OF STATE PLANNING
COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY WORKSHOP – OCTOBER 8, 2004

BACKGROUND:

The Economic Development Alliance of Hawaii (EDAH) is a registered 501-C3 organization composed of the private-sector economic development advocacy organizations throughout the State. Sustainable and responsible economic progress is a major priority for EDAH's Board, which overseas projects in marine science, environmental management, value-added export products and services, and new initiatives in diversified agriculture.

EDAH METHODOLOGY FOR CEDS:

EDAH was tasked by the state Office of Planning to ensure timely delivery and constructive commentary on a complicated planning and project identification system to ensure inclusivity and compliance with EDA guidelines. At the direction of the EDAH Board, EDAH staff and volunteers have reviewed all four economic development strategies submitted independently at the County level to be integrated at the state Office of Planning. While slightly different methodologies were employed by each component, the resulting summary documents provide an outstanding resource for future planning and project implementation at the EDB/County level.

The following AREAS OF OPPORTUNITY have been identified from all four CEDs for future consideration. Some of these have EDA applications; some are the purview of other agencies. The common denominator is an urgency of opportunity worthy of consideration for innovative partnerships. They represent a **synthesis of priorities with important and unique statewide application for a major cumulative impact.** The individual benefits of these programs have not been researched with specificity as to funding sources, build-out costs or unique challenges. .

In keeping with the CEDS format and supportive relationships at the County level, the following opportunities should be implemented at the EDB/County level unless otherwise recommended by appropriate consultation. No consent by the Office of Planning of federal agencies is implied.

1. AFFORDABLE HOUSING

(Mentioned as impediment in every industry cluster and strategy statewide as well as grass roots sources, community meetings and County strategies.)

Although primarily funded through HUD and USDA, there are a number of cross-referenced housing, land-use and workforce development strategies in all four plans which require urgent consideration of affordable housing strategies as essential to

industry/cluster success. A recent pilot program identifies four elderly housing options to be developed in Maui, Oahu, Hawaii and Kauai. While these are entirely appropriate, all four counties have identified housing costs as a major recruiting challenge, retention challenge, expansion challenge and significant indicator in social service delivery systems.

In most cases, HUD/USDA regulations require consideration of a statewide or islandwide unemployment demographic which is not applicable to the regions which require the greatest attention – affordable housing shortfalls drastically affect retention and recruiting in all visitor industry centers, where employee housing is almost non-existent. By focusing on a multi-agency strategy with federal/state/county/private partners, it may be appropriate to collaborate on new innovative outreach efforts to create needed units in employee rental housing, affordable housing in general, service-worker lodging or permanent housing, and homeless/indigent housing.
Models are based on Section 802 Military housing (lease to own) and several current HUD models which could be developed in EDA approved Economic Development Districts.

Maui, Kauai and Hawaii Counties have established working groups on this vital issue which could benefit from larger discussion and pilot project development. Although disparate initiatives are underway, a comprehensive statewide plan is essential to create synergy and can-do spirit and resolution to this statewide barrier.

Proposed opportunity – HUD/EDA/USDA/HHDC/County Housing & designees from private sector advocacy organizations: Lead: EDBs/County
Cost and funding sources - $400,000 – HUD/EDA/USDA/HHDCC/County Housing

2. TRANSPORTATION INFRASTRUCTURE

DAS1(Oahu), ST2(Hawaii), FA1(Kauai), Maui clusters
Inter Island ferry facility improvements including pier improvements, ramp equipment, and terminal and parking construction.. Agricultural industry needs specific support for roll-on/roll-off containers and unaccompanied freight shipments between islands. Most respondents believe this is in inter-island opportunity and not necessarily dependent on value-added export marketing, but it creates a synergy to develop inter-island market/garden partnerships and additional opportunities for value-added bulk product processing, an increased access to markets, and synergy between producers to impact the continuing rise in imported goods and services.

Project lead is anticipated through U.S. Department of Transportation and State Department of Transportation, and several grass roots/commuter/export opportunities have been mentioned for developing 300+ jobs, at a total project cost of $105,458,400 statewide. A proposed opportunity for Planning and Design of $3 million is suggested because these benefits will primarily impact remote rural communities and centralize locations for future value-added export facilities with the potential to double Hawaii's value-added agricultural value of $2.6 billion.

3. LIFE SCIENCES CLUSTER

LSL1 Hawaii Grand Innovation Cluster Strategy, Maui and Kauai multiple listings. Health and Wellness initiatives are listed under several project designations to include hospital and clinic construction, preventive medicine, workforce training and branding for "Healing Islands" and other opportunities, which require a statewide master planning "Road Map" effort to be successful, and to avoid centralization in one area of the state.

Building upon the life sciences road map, the Hawaii Grand Innovation and Cluster strategy will be critical in facilitating the growth of the converging knowledge-based industry sectors, whereby the presence of competitive science and innovation, state-of-the-art infrastructure, highly qualified personnel, and availability of capital are key components. In order to bring these components together systematically, development of a comprehensive multiple innovation cluster strategy will identify the inextricable linkages between sectors, will assist in identifying the required supportive infrastructure between sectors and is therefore highly essential for the success of each.

Creation of a Grand Innovation Cluster Strategy will help to accelerate the development of each of these sectors through unified planning efforts that will, for example, aim to raise the innovation profile of the region, and create strategic research and commercial collaborations. Outcomes of this project include creation of a strategic and implementation plan that will focus on leveraging the region's biotechnology, digital media, healthcare, dual use, and information technology assets and developing the resources required for growth, including physical infrastructure for research and development.

Total project opportunity cost is $300,000. Amount of EDA funding requested is $150,000. Lead: Enterprise HNL

LSL2 – Master Plan for Facilities

Creation of a Grand Innovation Cluster Strategy will help to accelerate the development of the Oahu life sciences sector through unified planning efforts. Commensurate with building the capacity to focus on creating new discoveries, innovative companies and new jobs, as well as competitive training and education programs, is the need to also build the physical infrastructure that will support this growth. To address the development of infrastructure, a Master Plan for Facilities should also be undertaken as an additional project. Hence, in support of the Cluster Strategy will be creation of a Master Plan for Facilities. This infrastructure planning phase will take into account the need for building out dedicated research space centered on the Kaka'ako region.

Total project opportunity cost is $300,000. Amount of EDA funding requested is $150,000. Lead: Enterprise HNL

4. AGRICULTURE CLUSTER

Value-added export marketing, import substitution, master branding – planning and facilities, workforce development.

Agriculture is mention in more than fifty of the two hundred total project listings primarily with a view towards value-added export marketing at the national/international level, and is seen statewide as a major opportunity for economic benefits at many value-added levels which have never been integrated at a statewide level. A specific Branding program is also noted below.

DAL1 – Entrepreneur Development System

The project is to develop and implement a comprehensive, flexible, and seamless Entrepreneur Development System (EDS) tailored to Hawaii's rural entrepreneurs and distressed communities. The project will coordinate service providers in a one-stop shop format for entrepreneurs, implement proven innovative educational and training programs, provide financial assistance to disadvantaged entrepreneurs, engage entrepreneurs and the target communities in all aspects of the project, create networks for aspiring and existing entrepreneurs, and provide a strong voice for legislative initiatives that will bolster entrepreneurship. Initially, the project will target the communities of Hamakua (Hawaii), North Shore (Oahu), Kekaha (Kauai), and Central Maui. It is expected that the program will be replicated in rural communities throughout the state.

The EDS is a collaborative comprising public, private, non-profit, and community organizations with significant input from the rural entrepreneurs. Dean Andy Hashimoto of the UH College of Tropical Agriculture and Human Resources, is leading this effort and working closely with many entities including Kauai Community College, Maui Community College, UH Hilo, Hawaii Small Business Development Centers, UH College of Business Administration's Pacific Asian Center for Entrepreneurship and E-Business (PACEE), High Technology Development Corporation (HTDC), Hawaii Alliance for Community-Based Economic Development (HACBED), Maui Land and Pineapple, Castle and Cooke, and several community organizations. The EDS will coordinate service providers, be accessible to rural entrepreneurs and will increase their ability to succeed. The success of rural entrepreneurs will contribute significantly to vibrant sustainable rural communities.

Project opportunity UHCTAHR; $2 million over 2 years (Kellogg grant – declined).

DAS3 – Hawaii Seal of Quality (Branding) Program

Establish and promote the Hawaii Seal of Quality (Branding) Program. Two years ago the Hawaii Legislature passed a law that provided for a voluntary branding program for agricultural and food products that are grown or produced in Hawaii. Hawaii products have been known throughout the world for its quality and command a higher prices in the market. Many producers outside of Hawaii have unfairly capitalized on this made in Hawaii image by leading consumers to believe that their products originated in Hawaii. The Hawaii Seal of Quality Program consists of the following three components: origin, content, and quality that will be enforced.

Project Opportunity: Enterprise HNL/state DOA - $500,000 (5 year) of estimated cost of $1 million over 5 years.

Statewide Agriculture Strategic Plan and Workforce Development:

EDAH recommends integration of an existing agricultural strategic action plan with ongoing efforts and recommendations at the EDB and County levels, with support from the

statewide Farm Bureau Federation, USDA, EDA and Bureau of Water Reclamation. In order to create a successful scenario for agriculture, it is essential to consider long-term planning for water delivery systems and export marketing. This particular plan would focus on agricultural production, processing and marketing and make recommendations for project implementation at the EDB/County level in consultation with federal and state agencies.

A workforce development component is noted in every cluster, particularly technology training and science including agriculture. A pilot program could be integrated in any long range planning effort to ensure entrepreneurship training, technical skills, marketing and production for food safety and maximum yield. A potential project (recently declined is listed as an example of integrated skills development:

Project Opportunity – USDA Rural Development/EDA. Estimated cost: $300,000 over two years.

5. SUSTAINABILITY – INFRASTRUCTURE

Energy, water, recycling and waste management

All of these interest areas are mentioned in all CEDS as essential to success for agricultural and quality of life issues. Although not specifically mentioned as a cluster, "sustainable technologies" are particularly relevant in an island environment with finite resources and expansion limitations. EDAH strongly recommends establishing a joint effort between the state Office of Planning, EDAH and EDBs to examine 20-year/40-year strategic planning and implementation efforts. These projects should establish realistic, practical thresholds for self-sufficiency in renewable energy resources (generation and transportation), water delivery systems for all islands (repair/maintenance and new systems), recycling requirements, and innovative solutions to waste management systems. EDAH recommends a capacity building study similar to the recently completed sustainable tourism study to examine "ONE BIG QUESTION – sustainability by 2025). **Project opportunity for OP with support from utilities, county Public Works/Environmental Management, EDA, USDA and DOE with support from EDAH and EDBs. Cost similar to tourism study approximately $300,000; $150,000 federal share and balance from utilities/state and county agencies.**

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[59] U.S. Bureau of Labor Statistics, average annual wages for the industry. Where County level wage data was not available, State or National figures were used to estimate County levels.

[60] NAICS is the North American Industrial Classification System – defining each industry with a unique code, according to which government agencies collect data on jobs, wages, etc.

[61] The 1.1% projection is based on the low-estimate from Kauai's General Plan. The 18% figure is from the Bureau of Labor Statistics, County Employment by Industry 2010.

[62] This measure is called a "Location Quotient" and is used by economic development planners to identify areas of economic strength or competitive advantage. By comparing shares of Kauai employment to shares of statewide employment we get a sense of whether an industry is particularly

strong on Kauai. For instance, if Recreational Services were 5% of statewide employment but 15% of Kauai employment, we could deduce that Kauai may have a competitive advantage in the industry because it was larger than we would expect given statewide employment patterns in the industry.

[63] Not fair to judge based 30 jobs.

[64] Based on D. Pearce, The Self Sufficiency Standard for Hawaii, April, 2003 which found that in 2002, the Kauai self-sufficiency wage for a 2-parent 2-child household was $28,152. Adjusted for inflation, the figure is approximately $30,000 today.

[65] Other attractive or important industries which were not included on this list of target clusters are discussed in a separate section, below.

[66] See data appendices for details on estimates and methodology.

[67] Growth data for Agricultural Production and Food Manufacturing were skewed by the recent loss of Sugar Industry jobs which affected growth figures. Projections were adjusted to account for anticipated growth of diversified agriculture and leveling of job losses in Sugar. See data appendices for details.

[68] At the time of this study, a Kauai Food Industry Forum had formed to get food producers, distributors, and retailers to work more closely together and add value to each other's industries.

[69] The substitution of locally-produced goods for goods that are currently shipped-in. The importance of import substitution, open space, and the rural character of Kauai were all identified in past planning documents including the Kauai County General Plan.

[70] The "Hospitals" jobs figure is estimated based on interviews. "Other" jobs figure was calculated by taking total jobs in Healthcare & Social Assistance Sector and subtracting jobs in Social Assistance Industry Group, and jobs figures for specific health services industries for which CBP data was available.

[71] "NA" is used where an industry had too few firms to register in data collected by the U.S. Census Bureau County Business Patterns (CBP) survey. Estimated figures in the "Other" category represent conservative estimates of total jobs in industries where CBP data was unavailable and are based on interviews.

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[81] A sentiment reflected in virtually all past plans including Focus Maui Nui, December, 2003 and the Mayor's Economic Summit, January, 2004.
[82] Homeownership, business ownership, and occupational employment data from U.S. Census Bureau, 2000 Census.
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