

LĪHU`E, KAUA`I, HI SDAT:
BUILDING A FRAMEWORK FOR A SUSTAINABLE FUTURE

A SUSTAINABLE DESIGN ASSESSMENT TEAM FINAL REPORT

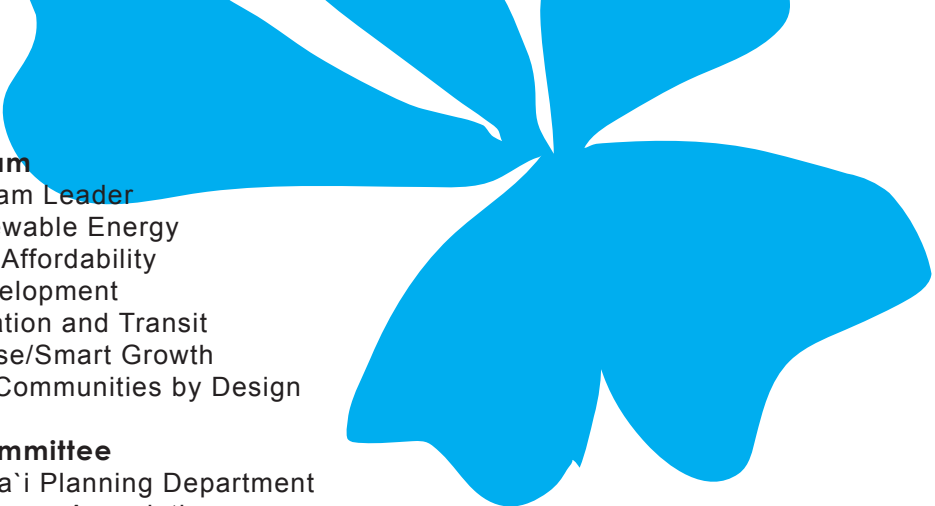
NOVEMBER 12-14, 2008



The American Institute of Architects
1735 New York Ave., NW
Washington, DC 20006-5292
Phone 202.626.7300
www.aia.org



The American Institute of Architects Center for Communities by Design



National SDAT Team

Peter J. Arsenault, AIA- Team Leader
Dennis A. Andrejko, AIA- Renewable Energy
Kerry L. Dietz, AIA- Housing Affordability
Jed Kolko- Economic Development
Daniel Meyers, AICP- Transportation and Transit
Dan Williams, FAIA, APA-Land Use/Smart Growth
Erin Simmons, Director, AIA Center for Communities by Design

Local SDAT Steering Committee

Imai Aiu, Deputy Director, County of Kaua'i Planning Department
Neil Clendennin, MD, Lihu'e Business Association
Pat Griffin, President, Lihu'e Business Association
Palmer Hafdahl, AIA, Palm's Hawaii and Lihu'e Business Association
Karen Ono, Director, Kaua'i Board of Realtors
Shawn Shimabukuro, Project Manager, Grove Farm Company
Diane Zachary, President & CEO, Kaua'i Planning & Action Alliance

Additional Support from the University of Hawai'i, School of Architecture

Clark E. Llewellyn, AIA, Dean, School of Architecture
Alana Boehler, Eric Siwy, Hong Joon Yang, Graduate Students

This SDAT made possible in part through a financial gift from the AIA Board of Directors, Class of 2007 (*SDAT Participants):

*Peter J. Arsenault, AIA, Michel Ashe, AIA, David J. Brotman, FAIA, Jonathan L. Fischel, AIA, *Marion L. Fowlkes, FAIA,

*Clark Llewellyn, AIA, Marvin J. Malecha, FAIA, Clark Manus, FAIA, Linda McCracken-Hunt, AIA, Robin L. Murray, AIA,
Celeste A. Novak, AIA, Leslie J. Thomas, AIA

And grants from the County of Kaua'i and Group 70 Foundation



SUMMARY OF RECOMMENDATIONS

This report captures the Current Assessment, Future Vision, and Recommendations for Action to achieve a sustainable Līhu'e on the island of Kaua'i. The report is based on discussions with local stakeholders, the broader community, and SDAT Team members. While we strove for representation from all parts of the Kaua'i community, we are aware that some voices were not represented in all discussions. This report should be interpreted with that awareness. The text of the report describes each area in some detail organized by an overall assessment, 5 topical issue areas, and things to keep in mind moving forward. The specific recommendations are summarized below and elaborated on within the appropriate sections (*denote similar recommendation across issues).

Overall

- 1 Reinforce Līhu'e as the center or "Gathering Place" of Kaua'i
- 2 Maintain the bonds between the people and the land
- 3 Explore self-sufficiency vs. dependence
- 4 Meet uncertainties head on

Issue #1: Land Use and Open Space

- 1 Create a stronger Town Center Marketplace/Port Redevelopment
- 2 Develop blueways/greenways as open space connections
- 3 Increase housing and civic land use
- 4 Create a skill center/business incubator*
- 5 Initiate natural systems restoration
- 6 Redevelop streetscapes & traffic patterns

Issue #2: Housing Affordability

- 1 Implement a temporary, focused ho'omaha (pause) on development

- 2 Streamline the permitting process
- 3 Provide different housing resources
- 4 Inventory existing affordable housing complexes
- 5 Develop alternative models to the single family house on a lot model

Issue #3: Transportation and Transit

- 1 Improve all forms of mobility
- 2 Adopt Complete Streets designs to accommodate all users
- 3 Maintain infrastructure for the long term
- 4 Greening of transportation and transit
- 5 Maximize public safety
- 6 Build staff capacity of division of planning and sustainability
- 7 Elevate the profile of research in policy and operations
- 8 Create new performance measures to analyze the success or failure of a strategy
- 9 Use web sites to better engage citizens
- 10 Develop a neighborhood transportation study program

Issue #4: Economic Development

- 1 Go beyond "voluntourism" to a learn-and-teach model for visitors
- 2 Develop a new economic gathering place: the micro-business incubator*
- 3 Diversify the local economy through new production and distribution strategies
- 4 Encourage self-reliance through local consumption, not just local production

SUMMARY OF RECOMMENDATIONS

Issue #5: Renewable Energy

- 1 Promote energy conservation
- 2 Develop energy education
- 3 Initiate energy demonstration*
- 4 Facilitate energy transformation

Moving Forward

- 1 Update the Plan, then act on the Plan
- 2 Keep the full community involved
- 3 Focus on Long Term Sustainability
- 4 Build on Aloha 'Aina
- 5 Use the AIA for SDAT Follow-up

In January 2008, the people of Līhu'e, Kaua'i submitted a proposal to the American Institute of Architects (AIA) for a Sustainable Design Assessment Team (SDAT) to assist its citizens in addressing key issues facing the community. The identified issues included land use planning, housing affordability, energy, transportation, economic development/employment base, recycling, and water distribution.

The AIA accepted the proposal and, after a preliminary visit by a small group in July, 2008 the full team of SDAT members arrived in Kaua'i on November 12, 2008. For three days, the team members, working closely with local officials, community leaders, technical experts, and citizens, studied the community and its concerns. During those three days, the team came to understand the issues and used their expertise to frame a wide range of recommendations, which were presented to the community in a public meeting on November 14, 2008.

This report is a more detailed version of the background, findings, and recommendations that were presented to the community on November 14. Following a brief overview of the SDAT program and process, and a short discussion of Kaua'i today, this report covers

- Overall Assessment
- Land Use and Open Space
- Housing Affordability
- Transportation and Transit
- Economic Development
- Renewable Energy
- Moving Forward

A closing section offers some thoughts on how the community can best move forward to address the range of issues and recommendations covered in the report.

WHAT IS THE SDAT PROGRAM?

The SDAT program is an interdisciplinary community assistance program that focuses on principles of sustainability. Launched in 2005, the program represents an exciting new chapter in the AIA's history of supporting communities with volunteer design expertise.

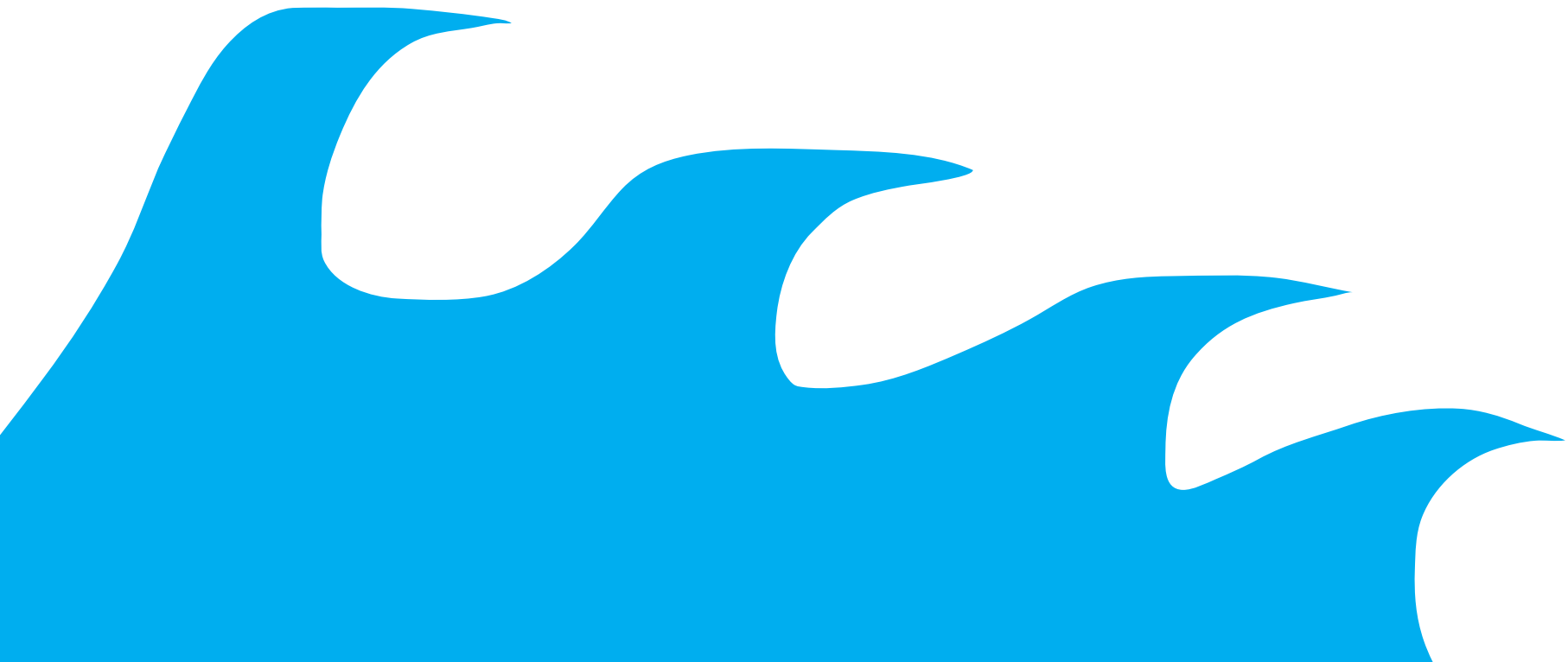
The SDAT program is modeled on the AIA's R/UDAT (Regional and Urban Design Assistance Team) program. While the R/UDAT program provides communities with specific design solutions, the SDAT program provides broad assessments to help frame future policies or design solutions in the context of sustainability and helps communities plan the first steps of implementation. The SDAT program is based on an understanding of design as a process that:

- Is integrative, holistic, and visual
- Is central to achieving a sustainable relationship between humans, the natural environment, and the place
- Gives three-dimensional form to a culture and a place
- Achieves balance between culture, environment, and economic systems.

The SDAT program is grounded in the AIA design assistance team values, which call for a multidisciplinary approach, objectivity of the participating team members, and broad public participation. The key to SDAT success is diversity and participation; the process involves multiple disciplines and multiple stakeholders. The SDAT process includes not only the expert team but also government agencies and officials, private businesses, schools and students, community members, and other parties as appropriate.

On behalf of the Kaua'i SDAT Team and the American Institute of Architects, it is hoped this report will be a useful guide to the Kaua'i community as it charts its future for the coming years and for coming generations.

KAUA'I TODAY



The Līhu'e District is in the process of preparing an updated Regional Development Plan since its current overall plan is based, in large part, on industries and living conditions (i.e., sugar cane plantations) that are no longer in operation. This SDAT is intended to bring the concept of long term sustainability to the forefront of the Līhu'e Development Plan update process and help identify issues that will impact the ability of Līhu'e and the island of Kaua'i to thrive for generations to come.

Northernmost and oldest geologically, Kaua'i is the fourth largest of the major Hawaiian Islands. Nearly circular in shape, Kaua'i's land area encompasses 533 square miles, 25 miles long by 33 miles wide at its furthest points. Only 3% of the land area has been developed for commercial and residential use, leaving the remaining 97% divided between agriculture and conservation. The majority of the island's permanent residents live and work in the coastal areas, leaving the interior of Kaua'i spectacularly beautiful and pristine.

Kaua'i's weather is nearly perfect year-round, with daytime temperatures ranging from the mid 70s to the mid 80s. The northeast trade winds provide refreshing breezes. Rain showers usually fall in the evening and early morning hours, predominantly over the mountain ranges. The temperature of the ocean ranges from 68 to 80 degrees Fahrenheit.

NOTABLE DEMOGRAPHICS

- A permanent population of approximately 63,000 residents is supplemented with a healthy visitor or tourism population that creates a "de facto" population of more than 80,000 that is expected to grow to approximately 110,000 in the next 20 years.
- The ethnicity of Kaua'i is diverse; no race is a majority and the

island boasts a "multi-cultural mix with an international feel."

- While 83% of the population over age 25 is reported to have a high school diploma, the actual graduation rate is lower.
- Median household income is relatively low at approximately \$45,000 per year with 8.6% of all persons below the poverty level.
- The median value of owner occupied housing units was \$216,100 in the year 2000 but is considerably higher now. Of the 27,500 total housing units on the island, 61% are owner occupied and 23% are in multi-unit structures.



FORM OF GOVERNMENT AND PLANNING

The Kaua'i County comprises the entire island, plus the privately owned island of Ni'ihau. Unlike most areas, the County is the only municipal government – other areas like Līhu'e are not separate government entities. The State, however, is a dominant government entity which overrides the County to control the schools, some housing, and has a major impact on land use planning. There is a two tiered or dual land use planning system.

At the State level, the land use law that applies to the island describes four use districts – Agricultural, Rural, Urban and Conservation districts. Any Kaua'i Landowner that wants to change the designation of their land would petition either the State Land Use Commission for redistricting over 15 acres or the County Planning Commission for redistricting under 15 acres.

KAUA'I TODAY

County zoning overlays the State Agricultural, Rural, and Urban districts. The State maintains sole jurisdiction over the Conservation district. Rezoning County Land is done through ordinance change, which must be reviewed by a 7-member Planning Commission and referred to the County Council for final action.

Additionally, the County administers the Special Management Area (SMA) a state overlay rooted in Federal legislation that is administered by the County. Development, as defined by State Law and administrative rule, must apply for, dependant on value, either an SMA minor permit, which is handled administratively, or an SMA Use permit, which is granted by the Planning Commission. The County General Plan and the "regional" plans within the County are implemented through the Comprehensive Zoning Ordinance. Class 1, 2, and 3 permits are handled administratively. Class 4 permits, including Use Permits, Variances, and projects over a certain size

EDUCATION

There are 16 public schools on the island in 3 complexes each with 3 elementary schools, 1 middle school and 1 high school - 800 teachers with about 8000 students plus preschool and charter schools. The local community has stated concerns about the high school graduation rate, which is hoped to be higher than the current 84%. Improvement in reading and math scores are also expressed concerns, although competencies are pretty high in general. Better assessment tools are needed to know if graduating high school students are ready for college. There also seems to be a disconnect between employer needs and graduating students. Most students that go on to college leave the island since there is only one 2-year college on Kaua'i that offers associate degrees.

TOURISM

As the current predominant economic driver, tourism is estimated at 40–60% of island's economy. The increasing cost of fuels and travel have had an obvious impact on this industry. In 2008, some tourism based businesses were doing well but clearly not all of them were thriving. Overall drops in business were estimated between 20–30%- worse than the days and weeks following September 11, 2001. The recent Aloha Airlines collapse and NCL cruise lines limits on cruise ship stops are all adding to the reduction. People are obviously losing their jobs in the tourism industry because of this drop. The high end of the market does not seem to be affected, however. A tourism strategic plan was completed in recent years in order to generate strategies on how tourism could weather the ups and downs of the economy.

AGRICULTURE

Over 90% of the fresh fruit and produce on the island is imported. Prior to WWII, all food for the island was completely produced in state. Many crops in Hawaii have numerous problems with disease or virus, although Kaua'i so far is free from one of the most common viruses. Farming continues year-round, so there is no break that would allow the virus to die off in winter or the like. Labor is a problem since wages are low. Some high-tech agriculture in the form of genetically modified seed crops is flourishing on the island. Cultivation of traditional crops such as sugar cane and pineapple has dramatically dropped compared to prior decades.

ENERGY

The Kaua'i Island Utility Cooperative (KIUC) is the public electricity utility for the island and operates as a cooperative with all of the users as owners. They operate 2 electrical power plants with 94–96 MW capacity in one and 27 MW in another. The range of demand is from a low of 37 MW to a peak of around 90 MW at any given time. There is no larger grid to provide power, although some purchase agreements exist from large industrial plants with co-generation capability. All of the energy on the west side of the island is generated by diesel fuel and on the east side by naphtha; both fuels are shipped in to the island. Current energy cost is around 47 cents per kwh residential. Coal is opposed by the public and heavy fuel is not an option since the 1989 Exxon Valdez incident.

Alternative energy sources include a small amount of existing hydro-electric capability as well as the future potential of island biomass entities and biodiesel. Currently, 1% of peak demand is from Solar Photovoltaic (PV), or ¼% of the daily load. There is an active pursuit for on-site PV by KIUC customers; however, net metering is capped out currently at 1% by the State Public Utilities Commission (PUC). There is a lot of community interest in removing the cap to allow for more renewable energy sources, but the utility is concerned about stability of the total system and the quality of electricity provided.

An abstract graphic consisting of several bright blue geometric shapes. A large, rounded, horizontal shape is positioned in the lower-left quadrant. To its right and slightly above is a smaller, elongated, horizontal shape. Above the large shape is a triangular shape pointing upwards. To the left of the large shape is another triangular shape pointing to the left. Below the large shape is a triangular shape pointing downwards. To the right of the large shape is a long, narrow, curved shape pointing to the right. The overall composition is dynamic and modern.

OVERALL ASSESSMENT

The SDAT process in Līhuʻe / Kauaʻi looked at the overall sustainability of the area and at specific topics related to that sustainability. In the process, four themes for recommendations emerged that seemed to be common across the multiple discussion areas:

1. *Re-inforce Līhuʻe as the center or “Gathering Place” of Kauaʻi:* Līhuʻe is the de-facto historical and functional central point in Kauaʻi. It continues to serve as the commercial center with most of the large business and government facilities and operations located there. It is also the transportation center and connects the commercial port, harbor, and airport to the major roads that circumnavigate the island. There is a real opportunity to build on this functional and historical base to revitalize and promote Līhuʻe as the central “Gathering Place” of the island and improve the center of Līhuʻe as the community’s cultural “heart”.

2. *Maintain the bonds between the people and the land:* There is a strong “love of the land” or “Aloha ‘Aina” evident among many of the people in Līhuʻe and throughout Kauaʻi. This is seen in the popular use of the parks, beaches, and other recreational areas in and around Līhuʻe. But it is also evident in the wishes of the people to have outdoor places to walk or bicycle for the enjoyment of being outside and for the opportunity to connect with and get to know



other people. Beyond enjoyment, there is a strong sense of respect and a desire to have development, energy generation, and transportation that maintains that respect for the natural environment.

3. *Explore self-sufficiency vs. dependence:* There is an evident spirit and desire to see Kauaʻi pursue self-sufficiency to allow greater independence from reliance on goods and services from outside the island. This includes a wish for more local food production, additional local, renewable fuels, and a sense of independence that embraces the unique cultural make-up and diversity of the island.

4. *Meet uncertainties head on:*

There seems to be uneasiness about the future, due in part to the economic downturn, the environmental toll on the island due to development, and concern about the general social welfare of the residents. Overcoming these uncertainties will require not only political leadership, but a willingness of the people to confront these issues and make appropriate lifestyle changes to get past them. In other words, there is a need to recognize the warning signs and be willing to change from a non-sustainable “business as usual” collective mindset.



**ISSUE NO. 1:
LAND USE & OPEN SPACE**

LAND USE OVERVIEW AND BACKGROUND

What is the working definition of land use and growth management? Land use refers to the intended use of land as determined by planning or the lack thereof. Traditionally (from the early 1900s) land use mapping was considered a plan for intended use and growth of same function uses – housing, industrial, commercial, residential, open space to name a few. Present day usage has changed to include agricultural and natural system functions.

Land use patterns derived from planning have a major impact on the future functioning of all lands and communities. The preservation and protection of natural resources – water, soil, plants, animals and ecosystems- is a critical element in land use planning. Land use information, and in this case urban, agricultural and natural land uses, can be used to develop solutions that control erosion, provide development boundaries, and suggest patterns that work as a connected whole.

CURRENT LAND USE ASSESSMENT

The chart at right summarizes the assessment of the strengths, weaknesses, opportunities and threats to land use in Līhu'e and Kaua'i as determined by SDAT participants.

VISION FOR A PREFERRED LAND USE FUTURE

The concept of “smart growth” has raised the bar for the future development of communities. However, Kaua'i communities are experiencing pressure to increase in size. By considering the connectivity between differing land uses, the efficiency of neighboring land use increases and the costs (taxes) decrease. This is a holistic view of land use as it considers everything.

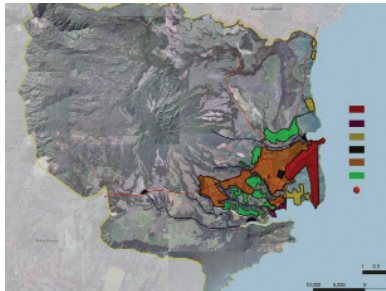
STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
Natural System	Largely import based economy	Smart Growth can preserve rural aspects while still allowing prosperous growth	Strong fixed positions
Harbor	No efficient plan or leadership		Economic budget cuts
Relationships between Islands	Lack of alternative energy	Become more self-sufficient	Drugs and dealing
Strong Sense of Community	Lack of Ag. Production	Visibility	Unsustainable, unworkable land use regulations and permitting
Beauty	Lack of government policy	New training program to implement	Lack of jobs
Open space	Government permitting time	No need to follow existing trends	Heavy dependence on imports- fuel, food, & building materials
Military industry	Heavy dependence on tourism	Green jobs	Agricultural distribution network
Spirit of aloha	Lack of community Center	Land use Smart Growth regulation	Consumer habits
Culture	Resilience	Community based planning	Exceeding carrying capacity
Independence	Desire for sustainable renewable energy use	Shift the tourism paradigm	Haves vs. Have-nots
Self sufficiency	Unsustainable existing infrastructure	Strong medical sector	Housing prices
Resilience	Few jobs	Health and Wellness	Misuse of land
Desire for sustainable renewable energy use	Not In My Back Yard attitude (NIMBY)	Niche tourism	
Agriculture based infrastructure (historically)	Have the ability and determination to make a change	Agri-tourism	

LAND USE & OPEN SPACE

The vision for Līhu'e represents the connectivity between the land and the people, the celebration of people and place, and the dynamic that results from solving multiple problems simultaneously. This is a vision that connects housing, jobs, food crops, and water stewardship while defining a future for the subsequent generations of residents.

RECOMMENDATIONS TO ACHIEVE THE LAND USE VISION

This is a time for change. The typical piecemeal approach will create the very sprawl and congestion nobody wants and no land can accommodate. Though development is an important provider of temporary jobs and permanent housing it cannot, in itself, be a reason to build.



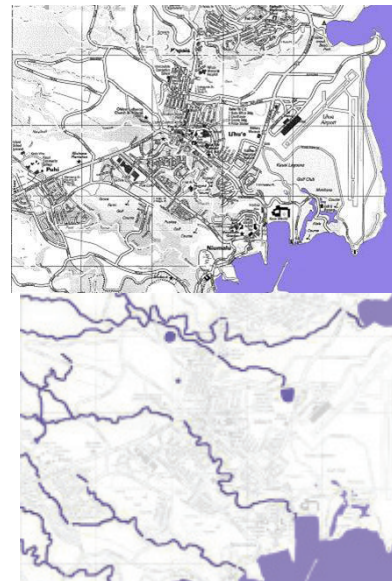
The SDAT land use group recommended concentrating implementation efforts on a few initial model projects in order to focus community attention on visible locations, maximize available resources, and demonstrate the principles and

practices outlined in this report. Since two activities were identified as significant in steering larger scale public redevelopment (namely an anticipated military base closure and the update of the general plan) we have included several projects and ideas that will require long-term efforts. This report summarizes several of these options that were identified by residents during the land use discussions. We suggest that the community continue to discuss these ideas informally for potential inclusion into the Base Realignment and Closure and Līhu'e redevelopment plans.

SIX SPECIFIC LAND USE / SMART GROWTH PROJECTS TO IMPLEMENT

1. Create a Stronger Town Center/Marketplace/Port Redevelopment

A Community Marketplace should be developed at or near the closed Līhu'e Mill site. The market street and square would be aligned on a view corridor connecting to the Līhu'e government center. The development pattern for this district should mirror conditions in Līhu'e (a mix of building types and varied density, respecting the streetfront and each other), and it should be detailed as an extension of the neighborhood and of the rich history of the island and the host culture. While the bulk of new buildings could be designed and renovated in relation to the islands' plantation character, some of the larger buildings could be detailed in the warehouse/industrial vernacular style typical of the existing Mill (which should be adaptively reused). Visitors to Līhu'e would be led through the beautiful ravine up to the lively marketplace



district, with shopping focused on locally produced goods and cultural history. The Community Marketplace would also serve as the entryway to the town of Līhu'e for tourists arriving on cruise lines docked at the port, leading through Līhu'e center to Old Town through a lively maritime-centered workplace district. As platted, buildings could be built by individual business owners over time, or developed as whole blocks on a larger scale. The land use should be mixed-use, creating

the culture of the “gathering place”. Housing land use should promote walkable communities within distance of amenities, culture and natural beauty. This would create a busy workplace and commercial district-apartments above stores, small studios, and other living available and affordable living alternatives to single family detached homes.

The portion of the Līhuʻe Development Plan update that deals with redevelopment should allow a density slightly greater than the neighboring largely single-family area for two reasons:

- To create a busy public space, full of activity and framed by interesting and diverse buildings.
- To allow other parts of the infill land inventory (harbor, greenway, ravine and wetland) to be stewarded as natural areas therefore reinforcing the connectivity between the land, the place and the people. This integrated open space will act as flood protection, increase water quality, and provide ground water recharge while increasing the land value and improving the quality of life.

2. Develop Blueways/ Greenways as Open Space Connections

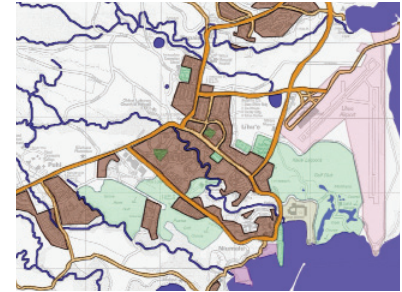
To restore the neighborhood’s connection to the water and from neighborhood to neighborhood, walking and bike paths should be introduced. The Blueway should be developed along the historic creek connecting the harbor with the center of town and the new “Market at the Mill” on the edge of the government center. All neighborhoods would be connected with bicycle and pedestrian routes identified by the stakeholders, and would lead through the Marketplace Square area to the government/commercial town square to provide safe walking connections.

The Blueway would serve as an active buffer along Rice Street between the existing residential neighborhood and the potentially more

intensive government center. It could be used for multiple presentation activities such as the and associated interpretive activities, farmer’s market, and even community garden plots.

3. Increase Housing and Civic Land Use

There are no simple solutions to the affordable housing crisis affecting Līhuʻe and Kauaʻi, particularly with the currently limited permits for new construction and the high cost of land and imported building materials. However, for Līhuʻe residents, key issues include:



- Greening the existing housing and housing opportunities without increasing construction costs and taxes enough to force long term residents out of the neighborhood.
- Capitalizing on “greening” construction as a job creator associated with building new neighborhoods and the renovation of old neighborhoods.
- Providing additional housing opportunities for neighborhood residents and allowing young families and seniors to remain in their neighborhoods. This should include both rental opportunities as well as home ownership.
- Ensuring that new construction within and near the existing neighborhoods follows historically appropriate site planning principles in order to maintain the character of neighborhood streets and facades.

These concerns might be addressed in a series of short-term and long-range strategies, including:

- A coordinated effort to maintain and restore the existing housing

LAND USE & OPEN SPACE

stock. Renovation work should be combined with vocational skills training, particularly for historic houses and historically important natural resources and places as well as organic agricultural methods. Construction skills could be taught as part of an organized program through creating a nonprofit such as a Līhuʻe Community Land Trust, or in conjunction with an apprenticeship program with existing restoration contractors. The latter could be required for any contractors hired to work on city-funded neighborhood redevelopment projects.

- Addressing the risk of displacement due to increased property values and higher by:
 - Enabling existing low-to-moderate-income homeowners to improve their properties with low-interest second mortgages that wouldn't be paid back until the property is sold, and might be forgiven over 15 to 20 years. This funding could be leveraged by doing part of the work through the self-help training program.
 - Developing a program to hold back increases in property taxes for a specified period for targeted properties (low-to-mod income homeowners, long-term residents, etc); improvements would not be considered in assessments.
 - Developing or restoring housing with the land trust model; the development potential of parcels held in trust would be limited, forestalling tax increases based on a property's possible future development.
- Encouraging infill development on some of the remaining vacant properties, again as part of the construction trades training by using the Land Trust model to help with long-

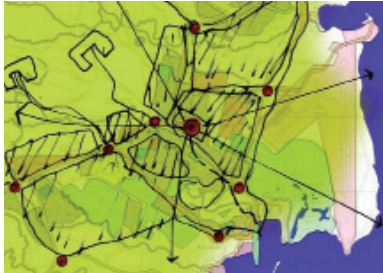


term affordability. Maintain pattern compatibility with existing neighborhood development patterns.

4. Create a Skill Center/ Business Incubator

There is strong community interest in the creation of a Skill Center and Business Incubator. Many of the residents' concerns were focused on entrepreneurial activities, cottage industries, and trade skills that would enable neighborhood residents to take advantage of the slowing tourist economy. This facility could offer skills training and business development support for:

- Construction, restoration, property maintenance and decorative skills focused on enhancing and preserving the character of Līhuʻe. Business spin-offs could include a historic building materials salvage and recycling center; a property maintenance company; a building restoration company, and trained labor crews for other contractors.
- Eco-businesses focused on sustainable development, energy and water conservation, and environmental restoration opportunities such as landscape installation and maintenance using locally appropriate, water-conserving plants; water-conserving plumbing retro-fits; energy conservation retro-fits; environmental restoration skills (recreation of natural systems, planting natural grass, removing invasive species, etc.); repairing and restoring cisterns and historic hydrological functioning
- Support for handicraft and food production, including assistance with regulatory requirements (a central coop kitchen might be appropriate).
- Businesses and skills focused on tourism, including historic interpretive tours (walking, golf cart, pedicab, jitney) and bicycle or watercraft repair and rental. A natural amphitheater could be created in the park or ravine for community events and festivities



to support this.

5. Initiate Natural Systems Restoration

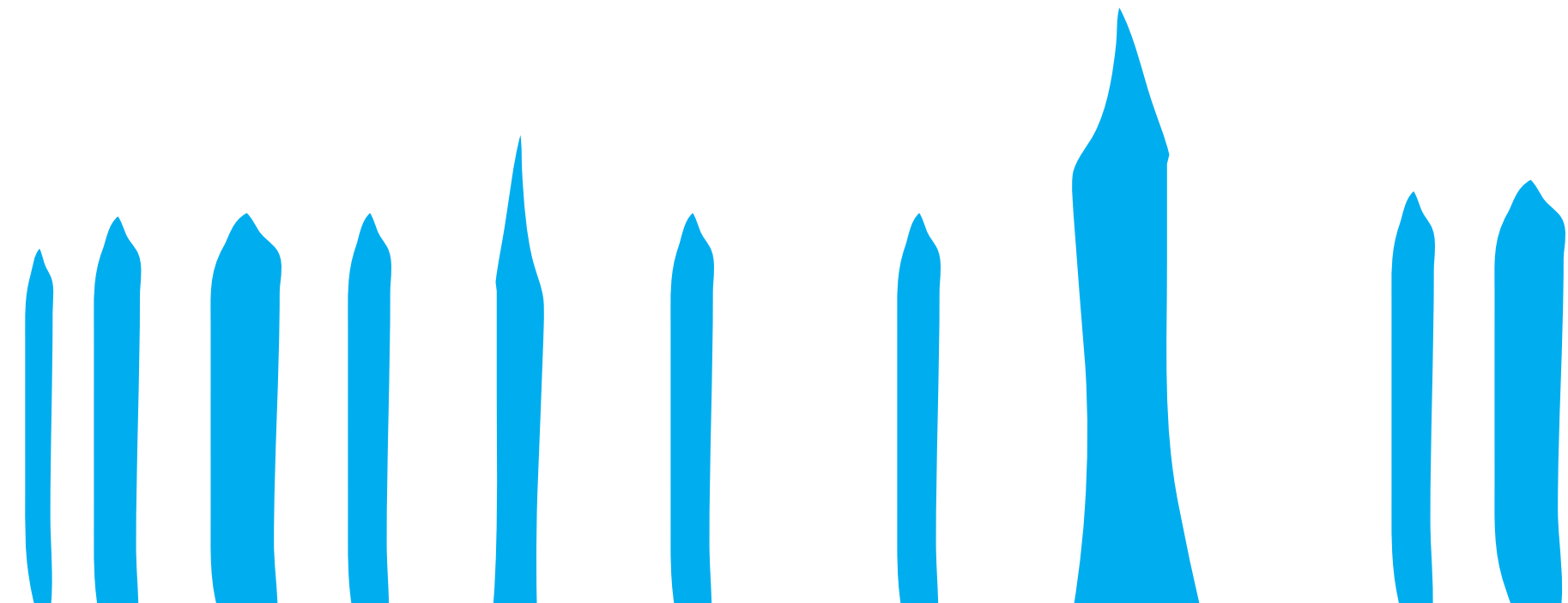
As part of the planned improvements to Līhu'e's green infrastructure, consideration should be given to capturing and cleaning stormwater runoff before it enters the ground and surface water systems. A natural system of waterways and small hydric parks could be created along the greenway and within the neighborhoods. After percolating through a series of small ponds, the restored stormwater would re-enter the system and be part of a civic celebration. Although a man-made system, this recreated wetland would mimic the natural system that existed before the development, cleaning run-off and excess nutrients before entering the sea. This would help protect the fishing industry and help keep the beach and waterfront areas more attractive. The greenway/hydric park system would slow runoff to maximize recharge of the aquifer (underground water storage tapped by wells). Current water is provided by an underground aquifer that is an important emergency and long-term water source. In addition to its usefulness as open space and low-cost water treatment plant, restored saltwater marshes could be used to develop aqua culture farms, raising food for sale to local restaurants.

6. Redevelop Streetscapes & Traffic Patterns

Redevelopment of the Līhu'e Town neighborhoods and contiguous areas should comply with several key principles based on improving the existing neighborhood development patterns, along with current knowledge of what works to make walkable, livable, successful communities:

- Consider the needs and comfort of people on foot over those in automobiles.
- Making traffic move slower but more efficiently is a plus in this type of neighborhood.
- Tourists should be encouraged to meander through the streets and lanes rather than cruise through quickly.
- Decrease the scale and restore the neighborhood activity level at intersections; historically, this included a pattern of neighborhood commercial or civic facilities at alternating intersections. The zoning still allows this. The sidewalks should be widened (bulbed-out) at intersections to allow space for sidewalk vendors, sidewalk dining at restaurants, and allow safer crossing by pedestrians. Concentrate redevelopment activities on key streets at first, to reinforce and build on multiple efforts. A primarily commercial street and a typical residential street should be selected for a case study.
- Add native shade trees along all streets where possible, to protect pedestrians from sun, rain, and off-course autos. Shade trees would help lower overall temperatures and save significantly in energy consumption for air conditioning, while increasing property values. Require appropriate tree plantings at street edge of all new projects.
- Protect the neighborhood pattern by requiring all new commercial buildings to front the street, with parking behind.
- Protect neighborhood character by encouraging historic preservation.
- Protect neighborhood diversity and mix of uses through careful analysis of any proposed zoning changes.
- Purchase of key neighborhood locations (held by non-profit or land trust) to assist in developing local service businesses.

ISSUE NO. 2: HOUSING AFFORDABILITY



HOUSING BACKGROUND AND OVERVIEW

From a participant at the SDAT Baby Lu'au:

"Lots of my friends are worried about affordable housing. They are concerned that their kids won't have the opportunity. When I was in elementary school we would walk home every day. Back then every home had only one car per family. The roads in Līhu'e were developed for horse and buggy. I miss the "old" days. Life was simple and SLOW. I would walk down and around Līhu'e...You cannot stop progress but we can slow it down until we get it right. You can't turn back the hands of time but you can look at Maui and ask ourselves – Is this what we want?"

KEY FACTS FROM THE SMS HOUSING POLICY STUDY, 2006:

- From 2003 to 2006, Kaua'i's population grew 2.7%, sharply up from previous years and the growth rate for production of new housing was 2.3 percent per year.
- Total number of housing units in Kaua'i County in 2006 was about 28,819 units, of which 21,971 housing units were owner occupied. (From other sources, of the balance, approximately 3,000 units are timeshares and 4,000 units are vacation rental homes.)
- Between 1990 and 2006, the housing stock actually occupied by Kaua'i based households dropped from 92.5 to 76.2%. In 2006, 11 percent of Kaua'i's single-family housing units and 20% of condominium units were owned by persons from outside of the State.
- From 2003 to 2006, median sales prices in the County of Kaua'i for single-family homes reached over \$650,000. Condominium sales followed suit, rising to \$430,000 in 2006.
- Among Kaua'i's 21,971 households in 2006, about 65% were homeowners and 89% of them owned their property fee simple.

Eighty-six percent of all households were located in single-family detached dwelling units. Five percent were renting apartments, and about 3.5% were living in condominium units, either owned or rented. Most of the rest were in multifamily units. The average monthly mortgage payment was \$1,460 a month and the average rent was \$1,050 per month.

- Average shelter costs for renter households in Hawai'i rose by 40% between 2003 and 2006. In 2006, 57% of Hawaiian households paid more than 30% of their incomes for shelter each month.
- About 32% of those who expect to move out of Hawai'i mentioned housing prices as their main reason for leaving.

KEY FACTS FROM THE KAUA'I BOARD OF REALTORS, NOV. 2008:

- On Kaua'i in 2007, the median price of a single family house was \$650,000 and of a condominium unit was \$565,000. By October of 2008, these numbers had dropped to \$515,000 and \$520,000 respectively.
- In Līhu'e, in October of 2008 there were 22 single family house listings for a median price of \$611,431 and 110 listings for condominiums at an average median price of \$389,985.

During the stakeholder meetings, participants revealed that the cost of housing is more than just the mortgage. It is common to pay 50-60% of a family's income to own a house. These other costs include:

- Maintenance fees, association fees, or condominium fees can be in range of 30% of the cost of the mortgage, ranging from \$150 to \$450 per month.
- Utilities, depending on the use of solar hot water, range from \$350-450 per month.
- Sewer fees.

ISSUE NO. 2: HOUSING AFFORDABILITY

- Water is approximately \$40 every two months.
- Trash pick up is paid through property taxes.
- Property taxes are low compared to other places since school expenses are paid through state income taxes.
- Excise taxes are 4.16% on all services and products.

The County of Kauaʻi Housing Agency keeps a waiting list for affordable homeownership - 700 residents are currently on the list. The waiting list for rental units is also around 700 – predominately 3 BR units.

CURRENT HOUSING ASSESSMENT

Key Housing Strengths

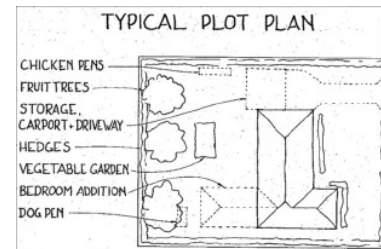
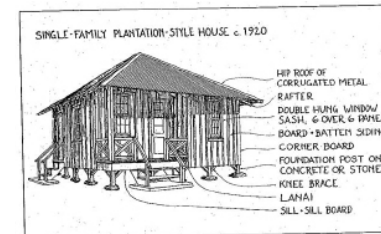
Aloha ʻAina/Community: Kauaʻi residents have a very strong linkage to the land, both in a material sense and a spiritual sense. This connection to the land is seen as inseparable from a connection to the traditions of the local culture and to traditions of the family.

- Tradition and Legacy: The old plantation camps provided worker housing built and owned by the plantations, which charged minimal rent. When the resident workers retired, the plantation would give the housing to the tenants. The housing stock was affordable, child friendly with schools nearby, simple, and all single family. The housing itself was substandard by modern definitions but was designed to be well ventilated with high roofs and big overhangs surrounded by big trees and fruit trees.
- The Island of Kauaʻi: Kauaʻi is SO desirable, that the world is her market.
- Rural Character of Housing: The house lots are generally large; a minimum of 10,000 square feet for lots not served by sewers, yet one can still be within 5 minutes of the Līhuʻe town center. This contributes to the overall perception of the lack of density.

- Līhuʻe Town Center: Līhuʻe is not a “paper city” created by planners or developers; it is a real town with a port, beach, shopping and civic buildings. When the sugar mills served as the generators of the town center, they gave meaning to the location of the town, as well as giving it history and continuity.
- Workforce Housing Ordinance: The affordability mandate structured into new developments is currently creating new affordable units.
- Seniors live with their spouses longer in their houses and are supported by family and outside services with large number of volunteers.
- The Additional Dwelling Unit amendment to the CZO is a useful tool for providing housing, but needs some tweaking.
- The local banks are conservative, so they have survived the current crisis.
- There are many parks, which are located close to the community.

Key Housing Weaknesses

- The Garden Island: Kauaʻi's desirability has left it prey to boom or bust cycles in the real estate market, but generally has led to a lack of affordability for the current residents. Housing originally built as condominiums turn into vacation rentals and therefore comes off the for-sale market. Additionally, the



approximately 3,000 single family units in the vacation rental market are referred to as “chameleon houses” as they switch back and forth depending on the market. Speculative buying just before the current recession dramatically increased prices, putting affordable housing out of the range for over 44% of Kauaʻi’s residents. Ironically, after the last hurricane there was a glut of affordable housing, such that private landlords wanted the County to stop producing housing as it was in competition with their stock.

- Tradition and Legacy: There are not enough model housing options— people want single family residential style housing despite the fact that many are living in a non-single family model, with multiple generations under one roof. Existing master plans and zoning regulations prohibit/discourage multi-family developments. For example, local zoning limits multifamily development and increases cost by limiting the overall height of buildings at 55’ to top of the roof or 40’ to the top of the plate. Mixed use is not a concept currently done in Kauaʻi or easily done within the current regulatory framework.
- Rural Character of Housing: Due to the limitations of the current County sewer system, new single family housing requires a minimum of 10,000 square feet lots, which further consumes agricultural land, and pushes households further and further out from Līhuʻe’s town center. Additionally, the further land is developed, the more commuting time is required, and more burden is placed on existing roads. Since many residents have more than one job, having two or more cars per household is mandatory and carpooling is almost impossible.
- Permitting and Regulation: The existing permitting system is highly complicated and extremely layered in terms of the State and County. There is a perception on the part of developers

that the County officials are suspicious of anything developers propose and the County officials are focused on trying to figure out WHY the developer wants to do things. It was reported that the County officials are scared of approving things because they may face repercussions from the public and other political entities. Additionally, there is a perceived lack of clarity in the current Kauaʻi General Plan and the Comprehensive Zoning Ordinance (CZO), leading to the need for the Planning Department to interpret the documents. Added to that is the perception that there is in-house fighting between the Planning Department and the County Council as to how to interpret and regulate new development. There was also reported inconsistency between various departments (Water, Engineering, Building, Planning, etc.) as to what will be required. The approval process is sequential, so applications move from department to department without overall coordination. Developers feel like each step becomes “What else do I have to fix? At some point it becomes arithmetic, and we just agree to pay for it.” An example was given of the need to do a large scale water study for small scale projects because the water department lacked the data to determine whether they had the capacity for the new development. Lack of in-house expertise for complicated engineering and planning related issues further limits the ability of the County staff to make informed decisions and County employment regulations limit the ability of the various departments to use outside consultants to evaluate the technical adequacy of new developments. However, one participant acknowledged that the slowness of the County responses does create unintended controls on growth. There were several comments on the lack of professionally prepared applications on the part of developers, requiring extra work and processing time on the part of the County – work and time that

ISSUE NO. 2: HOUSING AFFORDABILITY

could be avoided if documents were properly prepared.

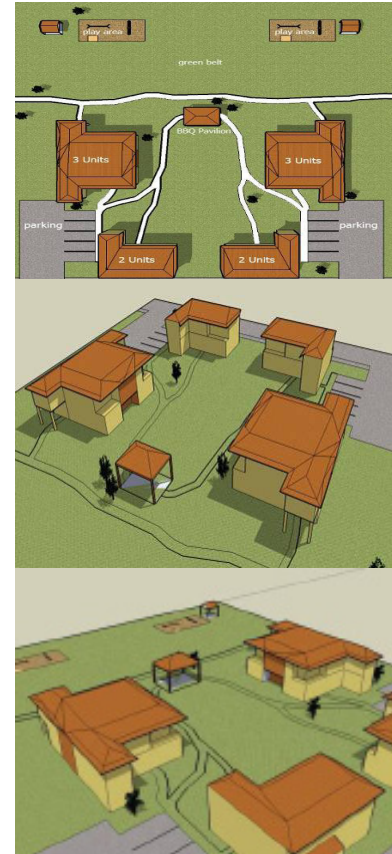
- **Workforce Housing Ordinance:** There is a financial gap created by the affordable housing mandate, which has the effect of pushing the price of the market rate housing up, leaving a gap in the moderate part of the market. The current ordinance also allows for the mandated affordable housing to be done off-site or with a financial in-lieu of payment. This puts additional strain on limited land resources and forces housing further out from the job centers in and around Līhuʻe.
- **Hidden Homelessness:** It is difficult for anyone to determine just how many existing homeless there are, as well as to determine the “hidden homeless.” Due to the climate, it is very easy to live just about anywhere. Additionally, many potentially homeless individuals are living with family members and friends, and live “just an argument away” from homelessness.
- **Other weaknesses include:** a shortage of senior housing, as the tradition of taking care of a family’s elders in their homes may be fading away; expiring use units that had originally been created as affordable but may have lost their designation as such; a conservative local bank that makes obtaining mortgages difficult; and Legislation to provide for impact fees on new development that was slated to go to the County to help out on infrastructure was not passed, so the County now looks to larger scale developers to fix the infrastructure problems.

Key Housing Opportunities

- **Kauaʻi’s Desirability:** Kauaʻi is a resource in and of itself and has incredible value. However, it is a limited resource. There will be no more land once it is all consumed. The residents of Kauaʻi have both the responsibility and the opportunity to protect this resource.
- **Līhuʻe Town Center:** Because it is already perceived as the heart

of the region, there is strong support for seeing the town center as an opportunity for a mixed use, walkable center. Since the majority of the jobs are in Līhuʻe and concentrated in the town center, there is an opportunity to strengthen existing small businesses with the addition of housing above the first floor retail levels. This influx of activity after traditional work hours could bring a new focus to Līhuʻe and lessen some of the rush hour traffic burdens.

- **Grove Farm Land:** With ownership of over 40,000 acres, some of which already zoned for residential, Grove Farm could be the model for sustainability.
- **Sustainability:** The Ahupuaʻa model of community is recognized as an idea whose time has returned. There is a real desire to embrace sustainability in a number of ways, including recognition of the limitation of resources of all types.
- **Willingness to Look at New Models for Housing:** With the current economic pressures on households due to rising costs of housing, there seems to be an interest in looking at solutions other than the typical “single-family-house-on-a-lot” model.



Additionally, the strength of the past and current community models for multi-generational living arrangements further lends itself to exploration of new models, such as grand-families developments, co-housing, land trusts, etc. Also expressed was a strong desire to integrate elderly and special needs populations into the community, rather than building separate facilities.

- Reducing the Cost of Housing: People expressed a willingness and enthusiasm for the recycling of building materials, deconstruction, waste management plans, and other sustainable construction practices. There were also some suggestions of utilization of local materials to eliminate the need to import from off island. Other modes of construction, such as modular housing and panelization were also discussed as options. Additionally, there is a potential employment base on the island; lots of people want to work, making a labor force available for construction.
- Additional opportunities include the existence of organizations such as the Kaua'i Planning Action Alliance to provide for cross sector conversations about the linkages between jobs, economy, affordability, development and sustainability; the Kaua'i Board of Realtors partnership with the County of Kaua'i Housing Agency to do a presentation on housing options; the creation of elderly housing near Walmart and connected to the hospital.

Key Housing Threats

- Decrease in average income levels: Low income levels relative to the cost of housing increase the likelihood of limited housing choices or homelessness. There is a sense of hopelessness about this issue. Parents lament, "Our kids don't live like they can buy a house; they choose a car over a house. They don't understand that 1 car = \$50,000 worth of mortgage and that they have choices."
- Maintenance of the Status Quo: Just slowing growth by slowing

down the process of obtaining permitting does not translate into smart growth. A Not in My Backyard mindset does not provide a sustainable model for the community and encourages divisiveness.

- Ownership concentrations and uncertainty of future plans: The State of Hawai'i and Grove Farm Co. own the majority of the land in the Līhu'e district, which means there is a lack of local control, especially for the state-owned property. The fragmented ownership along Kuhio Highway will make it difficult to implement a unified plan for the Līhu'e town center. Additionally, the Weinberg commercial properties need to be upgraded.
- Cost of Construction: Current per unit infrastructure costs range from \$60,000 to \$100,000, plus the cost of the land. The price of local oil/energy/utilities plus the costs of importing all construction materials adds tremendously to the cost of housing.
- Increasing Disparity between the Haves and Have-Nots: The increasing rate of consumption of former agricultural land for single family homes, especially gated communities, has meant that land that was traditionally available to all is now largely inaccessible. Permitted as agricultural uses, these residences are thinly disguised single family houses with "palm farms."
- Additional threats include the lack of controls on real estate speculation, resulting in a need to insulate housing affordability from market volatility. The ADU law, along with State law, allows for the condominiumization of the ADU, driving prices to market levels.

VISION FOR HOUSING IN THE FUTURE

Based on the assessment above plus the discussion and input from the residents and stakeholders during the SDAT process, a preferred vision for sustainable housing emerged that includes the following

ISSUE NO. 2: HOUSING AFFORDABILITY

characteristics:

- Develop a more inclusive definition of affordability
- Allow for a broader range of housing models
- Develop a system for more efficient use of resources
- Capitalize on sustainability opportunities

HOUSING RECOMMENDATIONS

In order to achieve the vision of sustainable housing, 5 specific recommendations are presented below:

1. Implement a Temporary, Focused ho'omaha on Development:

A temporary and highly focused pause in the granting of new permits seems to be in order to allow for the opportunity to hire a consultant to work with the Planning Department staff and a citizen's advisory committee to update the General Plan and re-write the CZO, Workforce Housing and ADU ordinances into a single document. This re-writing could also allow the community to look at incorporating different models of housing and mixed use into the revised ordinances. Coordination with some of the suggested plans for allocation of land use as included in the Land Use portion of this report is also warranted. In essence, this is a recommendation to plan first, then build, rather than start building and wish for a plan.

2. Streamline the Permitting Process: Once the General Plan and ordinances are updated and revised, there will be a need for training the planning and permitting staff. Additionally, public trainings for developers, citizens, and design professionals would help bring the new system into place. Part of the re-writing of the ordinances should be the restructuring/redesigning of the permitting process to create a system of transparency and accountability to the public. This should include developing performance standards for County agency permitting staff and the provision of integrated GIS and tracking software management

systems for permitting. Sustainability requires a holistic approach to land use planning, utilities infrastructure, transportation planning, building construction methodologies; putting all parties at the table ensures that synergies and tradeoffs can be reviewed simultaneously. In order to ensure that sustainability can be incorporated in future developments, as well as to provide transparency/accountability for the development process, staff technical reviews (roundtable meetings) should be held during the early planning processes of projects with all departments at the table.

3. Provide Different Housing Resources or Incentives: Look at different methods of providing the resources or incentives for production of affordable housing, including impact fees. Additionally, there should be a tightening of regulations around the ability of the purchaser of affordable housing to benefit from speculative growth or to condo existing rental units, essentially taking them off the rental market. The Planning Department should be allowed to hire, at the developer's expense, outside third party expertise to evaluate proposed permit applications for technical adequacy and compliance with regulations. Additionally, the Workforce Housing ordinance should be reviewed relative to provisions allowing for housing to be provided off-site and whether the payment-in-lieu-of-taxes dollar amounts are appropriately scaled to the current market.

4. Inventory Existing Affordable Housing Complexes: Review the existing multi-family affordable housing complexes, with particular scrutiny of their ages and affordability triggers, in order to discern the potential expiration of affordability clauses and to develop prevention strategies.

5. Develop Alternative Models to the "Single Family House on a Lot" Model: The housing stakeholder group recognized that there was a need to develop an alternative model that would still retain the

character and feel of housing that their families had come to expect. A possible model below was developed to address these concerns:

We also developed the following acceptable unit size standards:

HOUSING TYPE	UNIT SIZE	NET SQUARE FOOTAGE PER UNIT
Individual (elderly)	1 BR/1 BA	550 SF
Individual (singles, students)	1 BR/1 BA	650 SF
Family	2 BR/1.5 BA	800 - 825 SF
	3 BR /2 BA	950 - 1000 SF
	4 BR /2.5 BA	1200 - 1400 SF

Additional housing models were also discussed, including co-housing, which is defined as "... a type of collaborative housing in which residents actively participate in the design and operation of their own neighborhoods. Cohousing residents are consciously committed to living as a community. The physical design encourages both social contact and individual space. Private homes contain all the features of conventional homes, but residents also have access to extensive common facilities such as open space, courtyards, a playground and a common house." (from www.cohousing.org). Another model is the grand families concept, which provides housing for grandparents raising children or allows for housing for the grandparents of a family in the same complex as the family.

CONNECTIONS TO OTHER ISSUE AREAS

Housing affordability is intrinsically connected to many other issues, some of which were discussed as listed below and should be considered in the context of this larger discussion:

- 10,000 sf lots are the norm due to the need to accommodate

septic systems. Reduced lot sizes could be achieved with alternative solutions to waste water treatment.

- Revitalization of Lihu'e town center
- Creation of linkage between Lihu'e town center and harbor
- Jobs
- Environment
- Walkable communities and greening of transportation
- Consumption of local goods and materials and self-sufficiency
- Support, nurture, and embrace local culture

RESOURCES

Affordable Housing Resources

- <http://www.knowledgeplex.org>
- <http://www.designadvisor.org>
- <http://www.chapa.org/>

Permitting

- <http://www.cs-graphx.com>
- <http://www.prowestgis.com>
- http://www.townofgreenfield.org/1planoffic/pdfs_planoffice/2008%20Guide%20to%20Development%20Permits.pdf

Alternative Housing Models

- <http://www.cohousing.org>
- <http://www.krausfitch.com/portfolio/cohousing>
- http://www.treehousecommunities.org/easthampton_tem.htm

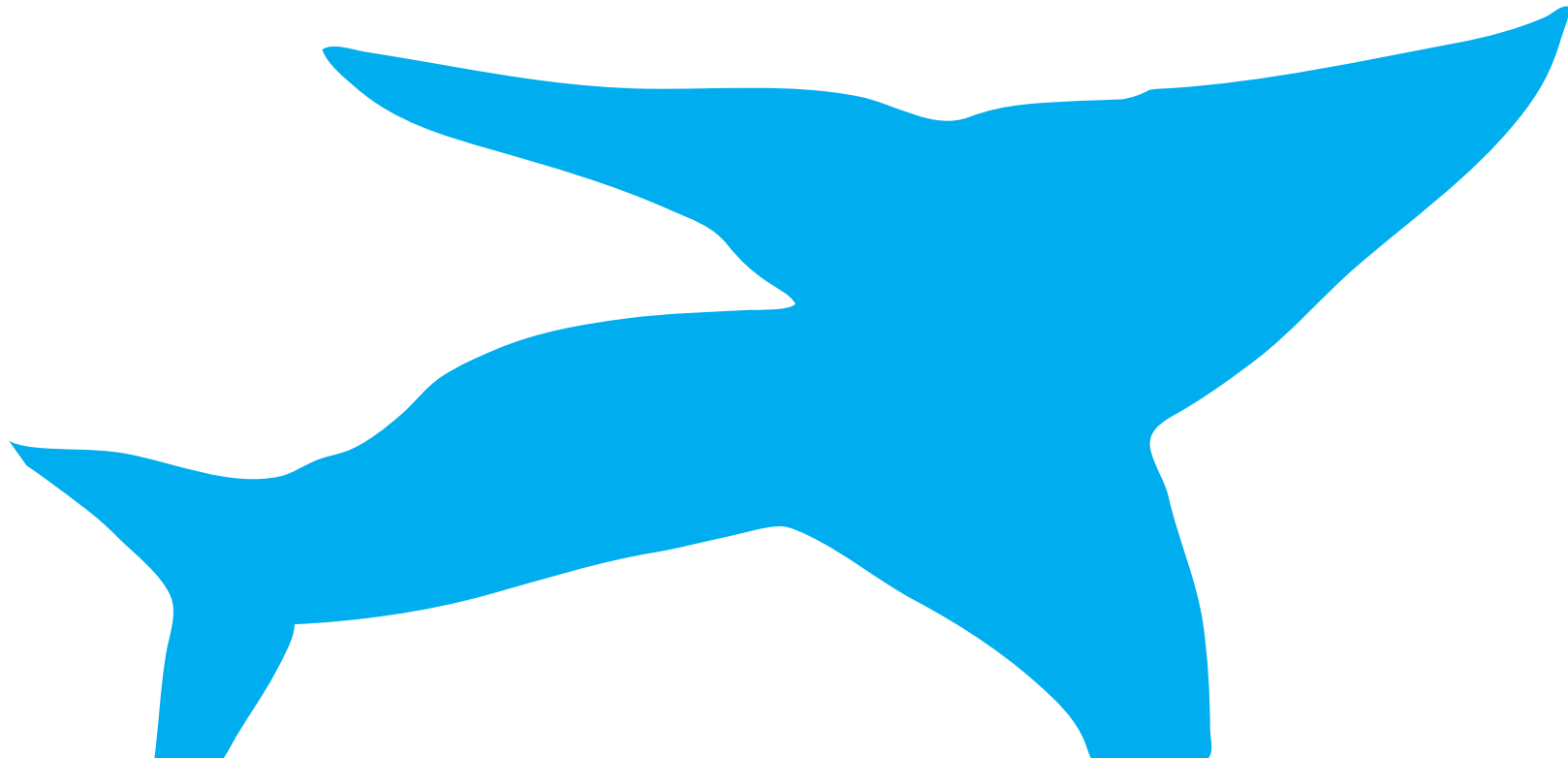
Zoning Ordinance Re-write

- <http://www.eatonplanning.com>
- http://www.chapa.org/pdf/Final40Bregseffective_2_22_08.pdf

Sustainable Growth/Green Housing

- http://www.pvpc.org/val_vision/index.html
- http://www.pvpc.org/val_vision/html/toolbox/index.html

**ISSUE NO. 3:
TRANSPORTATION & TRANSIT**



TRANSPORTATION BACKGROUND AND OVERVIEW

A background assessment of the existing transportation and transit system in the Līhuʻe District was examined in order to understand its strengths and weaknesses. The Līhuʻe District's current major transportation system is composed of:

- State highways and a local roadway system
- Kauaʻi Transit (the Kauaʻi bus)
- Shared use pathways
- Līhuʻe Airport
- Nawiliwili Harbor

Roadways / Bridges

The State of Hawaiʻi highways that travel within the Līhuʻe District include:

- Route 50, Kaumualiʻi Highway, Ahukini Road (Route 570) to Mana
- Route 51, Kapule Highway, Rice Street to Kuhio Highway (Route 56)
- Route 56, Kuhio Highway, Ahukini Highway (Route 570) to Princeville
- Route 58, Rice Street to Kaumualiʻi Highway (Route 50)
- Route 583, Maʻalo Road off of Kuhio Highway (Route 56)

Other State of Hawaii highways on Kauaʻi not operating in or through the Līhuʻe District include:

- Route 540, Halewili Road off of Kaumualii Highway (Route 50)
- Route 541, Waialo Road off of Kaumualii Highway (Route 50)
- Route 550, Waimea Canyon Drive off of Kaumualii Highway (Route 50)
- Route 560, Kuhio Highway, Princeville to Haena
- Route 570, Ahukini Road Kuhio, Highway (Route 56) to Kapule

Highway (Route 51)

The local roadway system is mostly made up of commercial corridor roadways and neighborhood collector streets that provide access to the State highway system. These roadways follow historic transportation routes and only a few of these roads connect one place with another; many roads dead-end into residential or commercial subdivisions with only one access point to the regional network. Existing traffic counts on the State highway system range from 12,000 to 15,000 vehicles per day and on the County roadways from 500 to 1,500 vehicles per day. Traffic congestion does exist in the peak AM and PM periods and there are traffic management solutions on many of the State highway routes in order to manage traffic efficiently without expanding the roadways.

KAUAʻI TRANSIT

Kauaʻi Bus operates between Kekaha and Hanalei with the major hub for the system in Līhuʻe. Currently, there are eight mainline routes, a number of circulator shuttles, and a paratransit system for the elderly and handicapped. The fare system for the mainline routes is \$1.50 per trip for the general public, \$0.75 per trip for senior citizens (60+), and \$0.75 per trip for youth (7 to 18). Children under 6 ride for free but must be accompanied by a paying passenger. The circulator shuttle fare is \$0.50 for the general public and \$0.25 for seniors and youth. Additionally, there is a monthly pass available for \$15.00. Transit ridership during 2008 on the entire transit system ranged from 26,000 riders per day during January through March to 33,000 riders per day from April through August. Most of this ridership is destined to or originated in the Līhuʻe District.

ISSUE NO. 3: TRANSPORTATION & TRANSIT

Shared Use Pathway

Currently, there is a shared use pathway in various forms of completion from Kapa'a on the north to Līhu'e on the south. Some of this pathway is complete at this time and other portions of the pathway are in different phases of planning and implementation.

Līhu'e Airport

Līhu'e Airport occupies 870 acres about 2 miles east of Līhu'e. The airport provides passenger and aircraft facilities for domestic overseas carriers, interisland carriers, commuter/air taxi, air cargo, and general aviation activities. Airfield facilities include two runways (6,500' x 150'), taxiways, aprons, eight (8) gates, navigational aids, airport traffic control tower, and helipads. Vehicular access to the airport is provided by Ahukini Road, which extends from Kapule Highway. The passenger terminal is served by a one-way loop roadway branching off Ahukini Road and encircling a public parking lot. The remaining facilities are served directly by Ahukini Road. Currently, the annual enplanements at Līhu'e Airport are 1.3 million passengers per year.

Nawiliwili Harbor

Nawiliwili Harbor has been the official port for Kaua'i since 1930 when George Wilcox donated the funds to build it. Currently, two cruise ships per week visit the harbor and the harbor is the major point of entry by sea of goods from other parts of Hawai'i. No information on the tonnage of goods imported and exported was available.

CURRENT TRANSPORTATION ASSESSMENT (SWOT ANALYSIS)

An analysis of the Transportation and Transit System Strengths, Weaknesses, Opportunities and Threats was conducted. These terms are defined as follows with respect to the SWOT analysis: Table 1 on the right provides a summary of the SWOT analysis

conducted with the Transportation and Transit Stakeholder Working Group.

TRANSPORTATION VISION FOR A SUSTAINABLE FUTURE

Based upon what was heard as part of the current assessment analysis, the Transportation and Transit Stakeholder Working Group initiated a visioning process into their belief of where the transportation system should be over the next 3 generations. Detailed below are the sustainable vision concepts developed by the working group.

- The "Complete Streets" philosophy is needed throughout the Līhu'e District as well as throughout Kaua'i. This means adopting design templates emphasizing safety and pedestrian accommodation for different types of streets, ranging from walking-only streets to major bus and truck routes. Roadway reconstruction projects will be subject to these design templates. Another essential effort in this vein is a proactive "main street" initiative to develop people-friendly grand boulevards in key commercial corridors.
- Initiate the development of guidelines for traffic calming devices in appropriate areas.
- Link land use and transportation, especially with shared use pathways, bike lanes, and transit corridors.
- Use other cities in the world as examples of what can be brought to the Līhu'e District as well as Kaua'i.
- When a developer proposes a project, their expectation should be "where do the pedestrian and bike facilities go"....it should



ISSUE NO. 3: TRANSPORTATION & TRANSIT

POSITIVE NEGATIVE

STRENGTHS: Public transit • Good base system • Overall convenience and acceptance of the system • 8 mainline routes with feeder lines as well • Paratransit routes Shared use pathways • Good start on east side – continue to leverage funds • One element of a complete street system • Extend shared use path to other parts of the district and island Roads/Bridges • Inventory of roads and bridges complete • Current administrative powers to make changes to transportation policies and projects • Past earmarks/funding for special projects especially at airport and harbor • Entrance channel to harbor is limited for size of ship – no large cruise ships meaning limited number of people coming to island • Good access to the ocean and other recreational areas • Extremely courteous drivers	OPPORTUNITIES: Electric vehicle grid for Hawai'i and Kaua'i Implement sustainable master plan with a long term vision Fleet vehicles with other fuel sources including transit, county, state, etc. Rideshare program Unused resources available on Kaua'i that can be used for bio-fuel and other elements of transportation Reduced transit fare system for young transit users – build support early and often for transit use Navigable waterways – harbor is an asset Solid waste landfill in Līhu'e – may mean money for bypass route Implement Complete Streets Traffic calming
WEAKNESSES: Public transit • Need to improve transit stops and amenities • Need to make stops accessible to all riders • Need to have formal process for transit planning • Safe routes to nodes that are ADA compatible • Improvement of transit literature and marketing Linkage of land use to transportation • More localized land uses so not everyone needs to come to Līhu'e for business Pathways • Construction cost overruns • Political will to move forward with expansion • Not sure if pathways will be funded in next STIP • Protecting other pathways – river, animals, etc. Lack of funding for projects Roads/Bridges Maintenance cost issues Delays during accidents Use of bypass roads Inventory shows that status of many roads and bridges are substandard Circuitous roadways and some bad access to land uses Farm to market roads needed to diversify farming system Fleet vehicles should use alternative fuel sources Unrealistic plans for airport and harbor – not following master plans that have been developed Noise of vehicles – airport, trucks Speed on some roads are excessive	THREATS: Increased costs for projects due to regulations Ease of implementation of projects/policies Need to work with regulatory agencies Lack of scientific methods by mode and travel time Lack of cooperation from key land holders Vulnerability in emergency situations throughout the transportation system Commercial vehicles and interaction with pedestrians and shared use pathways

INTERNAL

EXTERNAL

ISSUE NO. 3: TRANSPORTATION & TRANSIT

be an automatic mindset from the outset of the project, not an afterthought or a condition/punishment.

- Build sidewalks with permeable pavers/asphalt instead of curb and gutter systems.
- Residents should be able to walk to a destination without the fear of slipping and falling into the street. Trees should be planted on the curbside for shade and as a shield. Complete streets and complete pathways.
- Create a mixed use roadway where vehicles and a shared use path will be intermingled because residents need access to their homes.
- Develop a toolbox of strategies and ideas to improve communities with the maximum benefit with the smallest amount of resources. Using appropriate methods depending on the area and its needs.
- Follow the Nawiliwili stream from the harbor to the mill or to the town core for an opportunity to provide pedestrian connections.
- The vision of a “Green Hawai‘i” should be used on Kaua‘i. Each community should become self-sufficient for energy.
- Goals for transit: aim high, hope for the middle. There is already a good base for public transportation. There is a need to convince people that transit is a better alternative to jumping in a car, and that other ways are better, more convenient, and



FUN. Create a tourist oriented bus shuttle from Hanalei to Haena State Park.

- Discuss the possibility of implementing the idea of Cyclovía that has been successful overseas. On Sundays, barricade some streets so that vehicular traffic is confined to certain areas, leaving other streets open for pedestrians and socializing. A motivated community organization could potentially sell the concept to communities that are already doing it to a limited extent. During lunch, only buses could run down Rice Street. Convince visitors that it is a cultural experience of the visit.
- Bridge the gap between the generational mindsets. Current generations are at least exposed to transit; older generations only know cars. Focus on kids and getting them used to the bus system so that it becomes more a part of life with each successive generation. Fuel prices have prompted a spike in ridership, but not to a great extent. Institute a slow paradigm shift.
- Fund transportation planner positions through the federal side. To get someone specifically for Kaua‘i, adequate need would have to be demonstrated to prove additional necessity beyond the state positions. Sustainable transportation and land use planners could be funded through DOTs. To push through “Complete Streets”, someone needs to actively promote and push.
- Visitors need to share the transit system as much as possible. Branding the transit system, routes, and buses to visitors and residents alike is important. Make it easy for the visitor, before they get here, to use the buses. Buses currently do go to the airport and to the harbor, but the airport bus is not viable given space constraints for luggage. There is a need to encourage resorts to fund more shuttle routes.

- In the future, virtual workspace could potentially impact the need for transportation.
 - What nodes need better connections/complete streets? Where are the linkages?
 - Manage the current roadways and bridges
 - Town Center (wherever it might be)
 - Līhuʻe Airport
 - Harbor
 - Kauaʻi Community College
 - The Golf Course/Prison
 - Lydgate State Park
 - Kauaʻi High School and Chiefess Kamakahelei Middle School
 - Industrial areas
 - Create a centralized downtown. There is a desire to create a downtown area around the historic county building, but that area is not currently a destination. A true town center needs to be developed. The state might tear down the vacant police station to build a parking lot, putting a priority on vehicular traffic once again. Given its connection to the main green space in town, there could be a better use of that space.
 - The historic Līhuʻe downtown, where the county offices now are, was once a proper downtown (stores, markets, etc) until strip development came. There may be no space to bring back that type of retail currently, but plans to do so in the future should be actively discussed.
 - Transit solutions need to respect the culture and rural nature of the island. Any future transit development needs to find a balance between respecting that culture and accommodating the needs of the residents. The community will need to make a decision between the two opposing forces.
 - Helicopters are not a viable regular transportation mode. This is largely a tourist attraction. It is a large industry however... buses could deliver tourists to the heliport to reduce road traffic.
 - Encouraging the use of alternative fuels including bio-fuels and hybrids is critical; exploring the potential for using bio-mass for electricity should be explored.
 - Consider legislating and limiting the number of cars on the island. If you send a car to Kauaʻi, take one or two off.
 - Create a dedicated program for ride sharing, smart jitneys, walking, bicycling as added mobility forms in addition to transit options.
 - Fleet and rental vehicle should use alternative fuel. Buses are beginning to transfer already. There should be less duplication of fleet vehicles (school buses, resort shuttles, transit buses, tour buses). Timesharing should happen on a commercial scale as well as the personal/individual scale.
 - Roadway design should incorporate bio-swales.
 - Bike lanes are needed since the pathways meander and take the scenic route. Bike commuters need direct routes that will allow them to reach a destination in a timely fashion. A vehicular route with a safe bike lane is needed. Bike boxes should be placed at intersections and signals should be activated by bikes as well as cars.
 - Context Sensitive Design should be practiced for Kauaʻi.
 - A strong sense of preservation is necessary. The transportation aspects that provide heritage and history, particularly the bridges, need to be preserved and celebrated.
- TRANSPORTATION RECOMMENDATIONS
(IMPACTS AND PROCESS)**
- Based on an understanding of the current issues and the

ISSUE NO. 3: TRANSPORTATION & TRANSIT

sustainable transportation visioning workshop, the Transportation and Transit Stakeholder Working Group has developed the following recommendations to be brought forward for further refinement and implementation.

1. Improve all forms of mobility

- Implement increased transit usage strategies to the transit system (queue jumps, transit signal priority, more frequent service, shuttle systems to assist in mitigating traffic/parking congestion, operations plans [hop – skip - jump operations], etc.).
- Improve streets for existing bus network – implement bus stop improvements – create safer, more comfortable bus stops.
- Manage parking to control congestion through fees to park.
- Make bicycling and walking safer and more convenient by developing a linear park pathway and using it as a transportation, environmental, and interpretive element
- Improve freight movement.
- Use technology to fight congestion – transit signal priority and traffic engineering solutions for improving traffic signal systems.
- Follow and implement master plans that have been developed for airports, harbors, and other transportation and non-transportation systems.

2. Adopt Complete Streets designs to accommodate all users

Adopt design templates emphasizing safety and pedestrian accommodation for different types of streets, ranging from walking-only streets to major bus and truck routes. Roadway reconstruction projects will be subject to these templates. Initiate a pro-active “main street” initiative to develop people-friendly streets in key commercial corridors. Continue rapid progress towards full ADA compliance on pedestrian ramps at street corners.

3. Maintain infrastructure for the long term

- Bridge and roadway preventive maintenance – increase roadway maintenance and resurfacing program.
- Maximize pavement recycling.

4. Greening of transportation and transit

- Better manage storm water run-off from streets – increase the use of permeable surfaces and porous pavements to decrease runoff.
- Reduce vehicle emissions from fleet vehicles – include clean fuel/high MPG/clean engine technologies in all fleet vehicle procurements and retrofits.
- Maximize energy efficiency of all street lighting and signals.
- Maximize the use of recycled asphalt and used glass aggregate in concrete pavement.
- Begin to locate essential land uses (services, shopping, business) outside of the Līhu`e commercial center so not everyone needs to come to Līhu`e.

5. Maximize public safety

- Reduce traffic fatalities
- Implement Safe Routes to School and Safe Streets for Seniors
- Implement traffic calming / road diet programs in neighborhoods

6. Build staff capacity in a Division of Planning and Sustainability

7. Elevate the profile of research in policy and operations

8. Create new performance measures to analyze the success or failure of a strategy

9. Use web sites to better engage citizens, especially through ridesharing and transit use

10. Develop a neighborhood transportation study program that will review the strengths and weaknesses of current and recent neighborhood efforts to improve the land use and transportation connection

Working Groups as well as the general public statements reveal that improved mobility and accessibility on the district's roadways and bridges are some of the top issues. Additionally, there is a continued effort to stress the importance of land use policies that are reflective of sustainable growth and livable communities.

Understanding that mobility is important but is not at the ultimate expense of accessibility will be a key connection to other issue areas within the LThu'e District and on Kaua'i. By viewing mobility as an end in itself, many forget that most trips are taken for the purpose of reaching destinations; access, rather than movement per se, is the most fundamental purpose of travel. Taking accessibility seriously demands attention to the intersection of the land use and transportation systems. This frequently involves hard choices and tough decisions. Ultimately, such decisions contribute either towards a sprawling form that is unfriendly to accessibility, or towards more compact growth that does not demand ever-increasing vehicle miles of travel.

TRANSPORTATION CONNECTIONS TO OTHER ISSUE AREAS

Transportation and transit are connected directly to land use and housing decisions, especially in the areas of how access is managed and maintained. The need for improved Mobility and Accessibility in the LThu'e District and on Kaua'i to combat traffic congestion, provide alternatives to the automobile, and help create a more sustainable and livable pattern of land use is receiving greater recognition and support at the local, regional and state levels. The Stakeholder

An abstract graphic composed of several blue shapes. At the top left, a wavy line descends into a thick, curved band that arches over the text. Below this band is a solid blue rectangular block with a jagged, mountain-like top edge. At the bottom, three horizontal blue bars of varying lengths are positioned. A long, thin blue line starts from the right side of the jagged block and curves downwards towards the bottom right corner of the page.

ISSUE NO. 4: ECONOMIC DEVELOPMENT

ECONOMIC BACKGROUND AND OVERVIEW

The district of Līhu'e and island of Kaua'i face a challenging confluence of economic pressures. The immediate pressure is the prospect of a recession of unknown depth and duration, affecting every part of the U.S. and much of the world. This immediate pressure comes on the heels of several years of rapidly increasing housing and energy prices. These recent constraints exacerbate the longer-term pressures of the Kaua'i economy. Even prior to the recent run-up in energy and housing prices, Kaua'i has long had to pay more for these necessities than mainlanders. Kaua'i's dependence on tourism heightens its vulnerability to high energy prices and to recession: high energy prices raise the cost of travel, weakening the tourism industry, and a general economic slowdown hits tourism harder than other industries since households under financial strain cut back on discretionary travel before cutting back on necessities.

The current economic slowdown throws into clear relief the fundamental economic issues facing Kaua'i. The recommendations here, though, respond to these fundamental issues, with the goal of achieving long-term economic sustainability on Kaua'i. The economic slowdown lends extra urgency to these issues without changing the essence of the challenges and of the recommendations.

ECONOMIC ASSESSMENT

The economic situation of Kaua'i today reflects a balance of unique strengths and inherent fragility. Kaua'i's economic strengths begin with the exhilarating beauty and diversity of the land and a climate that allows enjoyment and appreciation of the land year-round. By design, the people of Kaua'i have preserved these natural gifts by maintaining a rural society, valuing stewardship of the land, exhibiting a collaborative spirit, and welcoming visitors. Kaua'i is a

model of cultural exchange, with a contemporary local culture that is grounded in the Hawaiian host culture while embracing elements of Japanese, Chinese, Filipino, Portuguese, mainland American, and other cultures. Yet Kaua'i aspires toward self-reliance and takes pride in finding local solutions and having local control, even relative to the rest of Hawai'i.

Economic Strengths and Opportunities

These natural and cultural strengths are obvious advantages for tourism. Even a first-day visitor is struck by the island's climate and rugged beauty, and the rural nature and cultural depth mean that the "the type of people that we draw are the ones that want to know about the place and tradition," as one local stakeholder put it. Kaua'i's strengths have the potential to benefit other industries as well. Abundant land and the legacy plantation irrigation system could support expanded agricultural production. The Pacific Missile Range Facility (PMRF) supports research and development activities in science and technology; there is also active agricultural R&D for seed corn. The Wilcox Health Bone and Joint Center attracts orthopedic patients from neighboring islands. Kaua'i's location, although isolated, is equidistant from the mainland U.S. and East Asia, and its workday overlaps with the half of the world between New York and Bangkok. With a world-class telecommunications infrastructure,



ISSUE NO. 4: ECONOMIC DEVELOPMENT

Kaua`i is geographically and culturally positioned to be a broker between East and West and can support businesses needing strong virtual connections.

Economic Weaknesses and Threats

The fragilities of the Kaua`i economy are, in many ways, the flip side of its strengths. Kaua`i's geographic isolation and small size leaves it vulnerable during natural disasters like hurricanes and human-made crises like shipping strikes. Kaua`i's small size and distance from larger markets severely limits the viability of many goods-producing industries: viable industries must be profitable in small scale production (for the local market) or have low shipping costs relative to value (for export).

Traditionally Kaua`i was heavily dependent on sugar production, and today Kaua`i is heavily dependent on tourism: 26% of Kaua`i's employment was in the hospitality sector in 2006, higher even than for Hawai`i overall but a decline from 32% in 1993. Dependence on any one industry naturally makes a place vulnerable to that industry's fortunes, and economic research shows that diversified local economies grow faster than specialized ones. The discretionary nature of tourism means that it grows faster than the overall economy in good times and slower than the overall economy in bad times: this heightens Kaua`i's vulnerability to booms and busts. And, despite the welcoming nature of local culture, tourism is often perceived to be in conflict with economic self-reliance and local control.



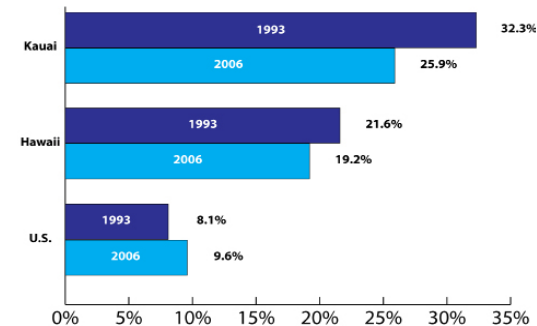
Other challenges to the Kaua`i economy are housing and energy prices, which are high relative to other places and relative to historical norms. Recent increases in both prices are driven primarily by national (or global) forces and exacerbated by

Kaua`i's geographic isolation (in the case of energy supply) and by the limited supply of and high demand for buildable land (in the case of housing). Other chapters in this report examine housing and energy in depth.

A final threat to the Kaua`i economy is visible wealth disparities that threaten social cohesion. Our discussions revealed strong feelings among some local residents about newer, comparatively wealthier residents whose fortunes are not tied to the local economy and who are perceived to consume what Kaua`i has to offer without giving back to the community. Developers catering to these new residents are accused of "selling this place out." Of course, these new wealthy residents spend money locally, which benefits some locals. The deeper threat may turn out to be that local resentment of new, wealthy residents leads to a backlash against the visitor industry generally; if tourism is seen simplistically as "the problem," then any hopes of bringing locals more control over – and benefitting more from -- the tourism industry could be lost.

Employment Share in Hospitality

Source: National Establishment Time-Series. "Hospitality" refers to NAICS 71 & 72

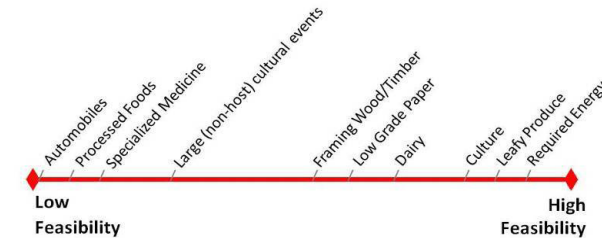


ECONOMIC VISION FOR A SUSTAINABLE FUTURE

Economic development should be sustainable, should weigh social and environmental considerations heavily, and should nurture the least fortunate and the host culture: these principles arise naturally out of the tight-knit Kauaʻi community that is strongly aware of the limited capacity of the island and its valuable natural resources. From these principles, a two-part vision emerges:

- **Leverage tourism.** As one stakeholder said, “we should direct tourism rather than let it direct us.” The visitor industry is an integral part of the island economy and plays naturally to Kauaʻi’s comparative advantages. While individual tourists may be transient, tourism as an industry, over the long-term, is not. The current economic recession must not obscure the fact that the long-term trend in nearly all countries is to grow wealthier, and wealthier societies spend disproportionately more on tourism. While excessive dependence on tourism would be a threat to Kauaʻi’s economy and desire for local control, tourism can be leveraged to insure that the island and its locals benefit economically, socially, and environmentally.
- **Diversify to increase self-reliance.** Increasing self-reliance would improve survival in the face of natural disasters and other crises and would offer longer-term economic benefits. Kauaʻi is already diversifying away from tourism, with hospitality’s share of Kauaʻi employment falling from 32% in 1993 to 26% in 2006. Continued diversification would bring greater and more varied employment opportunities to residents and would give new opportunities for local control. Complete self-reliance is of course infeasible: a small island cannot, on its own, produce all the goods and services that a modern society

Feasibility of Self-Sufficiency



needs and wants. Heavy manufactured goods like appliances and automobiles, many basic grains like wheat and rice, and processed foods would be very difficult to produce locally because their production is more efficient at a larger scale and their transport is too costly for Kauaʻi to produce at large scale and export what the island doesn’t need. Yet energy, produce and many other foods, and some building materials could be produced locally much more so than at present.

Diversification does not only mean manufactured goods. Kauaʻi has strengths, such as its communications infrastructure and its multicultural medical and healing traditions, that naturally support diversification into services and other non-goods-producing industries. In the U.S. overall, manufacturing, food production, and other goods-producing industries account for a small and continuously shrinking share of employment. Diversification must embrace a variety of service industries, not just goods-producing industries.

ECONOMIC RECOMMENDATIONS

Based on the discussion above, four specific economic recommendations have emerged as described below:

ISSUE NO. 4: ECONOMIC DEVELOPMENT

1. Go beyond “voluntourism” to a learn-and-teach model for visitors. Voluntourism is a good first step to encourage visitors to “give back” to the island with their time and money. The island, however, can leverage its visitors for longer-term economic development benefits with a learn-and-teach model, where visitors learn about local culture and sustainability principles from residents and, conversely, bring their own knowledge and skills to residents. Kauaʻi is blessed with a visitor population that comes to the island with unusual curiosity and respect for the land and culture; Kauaʻi’s visitors also tend to be older and more professionally established than in most other tourist destinations. Kauaʻi should develop additional programs to teach visitors, similar to the Kauaʻi Community College’s (KCC) music program that brings together locals and visitors in a more authentic, direct way than most tourist experiences. Kauaʻi should also identify pilot projects in waste recycling, sustainable agriculture, and other areas that can be models and organize official visits from delegations around the world. To learn from visitors, Kauaʻi should develop a regular venue for visitors to talk about their professional work with students and other residents; KCC could be instrumental in facilitating, for instance, a weekly afternoon workshop where visitors and locals can exchange ideas about business ideas and career paths. For a small island, Kauaʻi has the extraordinary advantage of a continuous flow of educated, successful professionals, many of whom want to give something back, and Kauaʻi should strive to develop mentoring relationships between visitors and locals.

2. Develop a new economic gathering place: the microbusiness incubator. A risk-averse culture and bureaucratic and legal barriers both contribute to a low level of entrepreneurship on Kauaʻi. While culture and bureaucracy are slow to change, a feasible step to

encourage entrepreneurship is to develop a microbusiness incubator, where people wishing to start local businesses could share office space, infrastructure, and informal networks. All micro-businesses share basic needs like accounting, information technology, and planning for growth. A microbusiness incubator could also host presentations and workshops led by visiting entrepreneurs. Visitors could be encouraged to extend their stays on Kauaʻi and work remotely from the incubator, providing another forum for informal networking and mentoring with local would-be entrepreneurs.

3. Diversify the local economy through new production and distribution strategies. For goods and services that are feasible to produce locally, such as agricultural products and waste recycling, distribution networks are essential, and centralization can help. The island’s diversity of communities, spaced along the perimeter of the island, and its small-scale production preserve local culture and reflect the diversity of the environment, but centralizing distribution can make the difference for local production of goods. For instance, one of the barriers to greater local food production is that an individual small-scale farmer cannot produce enough to supply a large customer like a restaurant. A centralized distribution system for local agricultural products could provide larger customers with a sufficient, dependable supply and would make it easier for households to buy local food for their families.

4. Encourage self-reliance through local consumption, not just local production. Local production of goods doesn’t arise only from appropriate economies of scale, natural resources, and transport costs; local production of goods also depends on demand. Consumer tastes are slow to change, and moral persuasion to buy local may not convince an economically struggling family to spend extra on locally

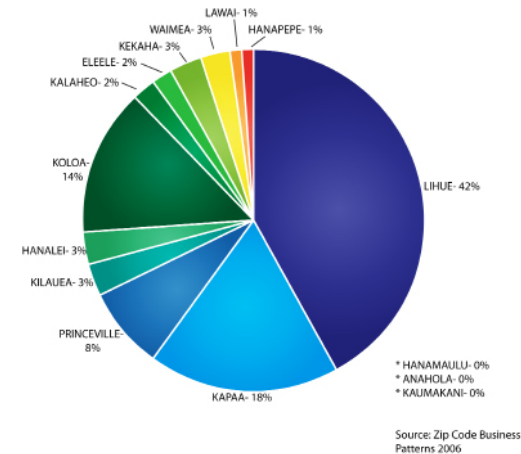
produced goods when the imported version can be bought for less at Wal-Mart or Costco. But marketing efforts still matter. Events like the annual “Taste of Hawai`i” and retail strategies to highlight names and backgrounds of local producers can raise demand among locals for local goods. More extensive information at hotels about menu items, locally-made souvenirs, and local art – with links to producers of these goods at the Kaua`i website – could raise demand among visitors for local goods.

ECONOMIC CONNECTIONS AND LINKAGES TO OTHER ISSUES

Sustainable economic development for Līhuʻe and Kauaʻi is thoroughly integrated with all aspects of sustainability. Two of the barriers to economic development are unaffordable housing and expensive energy. And our focus throughout these chapters on Līhuʻe as Kauaʻi’s “gathering place” applies to economic development as well. Līhuʻe is clearly the economic center of Kauaʻi, with 42% of Kauaʻi’s employment. The remainder of Kauaʻi’s employment is split relatively evenly between jobs to the east and north of Līhuʻe and jobs to the south and west of Līhuʻe, and the bulk of jobs outside Līhuʻe are in the Kapaʻa and Koloa areas, the zip codes closest to Līhuʻe’s. Thus, Līhuʻe is clearly Kauaʻi’s economic center.

Two of the recommendations in this chapter call for gathering economic functions. The first is the microbusiness incubator, the value of which increases exponentially with its size. The potential for informal networking and the efficiencies from sharing inputs are highest with a single incubator, and the natural place for this incubator is Līhu'e, where locals and visitors at the incubator have the best chance of being able to walk to restaurants and fulfill other workday needs. The second is more centralized distribution for food and other locally produced goods. A wholesale/retail market that brings local

Kauai Employment by Town



producers, local consumers, and visitor-consumers together would also naturally be in Līhuʻe. Although farms, homes, and hotels are located through the island, the intra-island and outside transportation networks are centered on Līhuʻe, and a centralized market could reinforce Līhuʻe's position as a gathering place both economically and socially for the island of Kauaʻi.

A NOTE ON REPRESENTATION

This chapter is based on discussions with local stakeholders, the broader community, and our own assessments. While we strove for representation from all parts of Kauaʻi's community, we are aware that some voices – including locals who are not in leadership positions, farmers, and real estate developers – were not as strong in our economic development discussions as other voices. This report should be interpreted with full awareness of which voices were less well heard.



ISSUE NO. 5: RENEWABLE ENERGY

ENERGY OVERVIEW AND BACKGROUND

For decades, the energy supply for Hawai'i in general and Kaua'i specifically has been predominately petroleum based and imported. At a state level, nearly 90 percent of the energy comes from imported oil. Overall petroleum use within the state is split 55% for transportation (air, marine, and auto), 34% for buildings and 11% for other uses.

Within Kaua'i, the percentages and profiles are approximately the same, with nearly all of the energy for buildings on the west side provided by diesel and on the east side by naphtha. Kaua'i's power is provided by the Kaua'i Island Utility Cooperative (KIUC), a community wide cooperative which has a combination of conventional and renewable energy projects. Presently it operates 2 power plants, a 94 – 96 MW facility and a 27 MW plant, resulting in approximately 90 percent of the supply, with the remaining 10 percent provided by a variety of small scale hydro facilities. There is no larger grid to get power from, and the island is not connected to other islands. Coal is adamantly opposed, and heavy fuel is not an option.

Since the beginning of the decade, electrical cost for building use has averaged around 30 cents per kWh, and has recently peaked at near 50 cents per kWh. (During the SDAT visit the prevailing rate was approximately 47 cents). This rate is several times the national average or prevailing rate. Commercial and residential end use energy consumption is shown in the accompanying charts.

Energy usage for the typical Kaua'i residential customer is primarily Domestic Hot Water (DHW), lighting, and cooking – averaging around 500 – 700 kWh per month. Solar DHW now is required for new construction (commencing January 2009), unless gas /

propane is used. The largest commercial energy users are County, State, large resorts, and PMRF. A demand side management program is in place for commercial and residential users with rebates available.

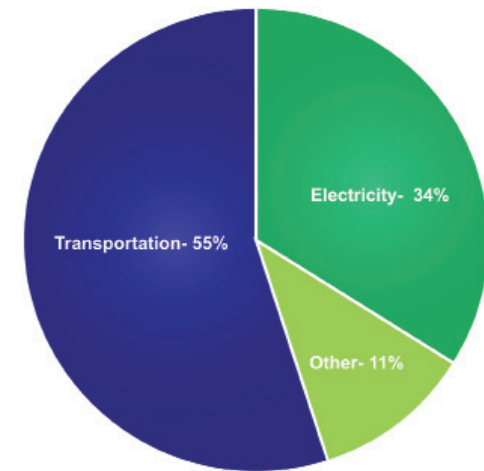
With regards to renewable-energy sources, some small hydro projects are in place and operational.

KIUC is negotiating with biomass entities and bio diesel is being investigated and negotiated. Currently 1% of peak demand is from Solar Photovoltaic (PV) or ¼% of daily load. There is an active pursuit for on site PV by KIUC customers; however, net metering is currently capped currently at 1% by the State Public Utilities Commission (PUC).

There is significant community interest and commitment in advancing renewable energy sources and removing the cap; however, the utility is concerned about the stability of the total system and quality of electricity provided. The State Renewable Portfolio Standard suggests – 20% renewable by 2020, while the KIUC has stated goal is 50% by 2023 for renewables.

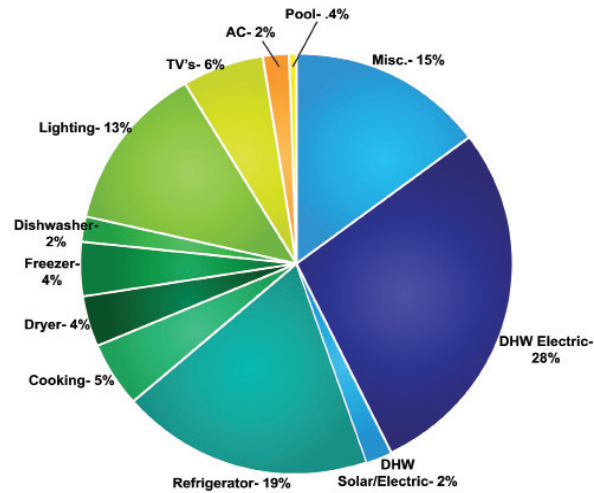
ENERGY ASSESSMENT

During the SDAT, approximately twenty stakeholders and community members held a focused discussion on the island's present energy situation, current trends, anticipated outlook and future projections.

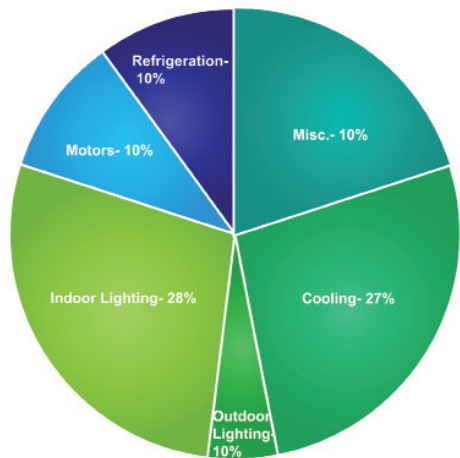


STATE ENERGY USE

ISSUE NO. 5: RENEWABLE ENERGY



RESIDENTIAL ENERGY USE



COMMERCIAL ENERGY USE

While clear perspective on traditional energy is clouded in uncertainty, it is clear that the need for energy will remain, and dependence on imported and fossil fuel based energy supply is limited and nearing its end. In addition, non-renewable based fuels are a major contributor to greenhouse gas emissions (GHG's). It became clear that redirecting Kaua'i's course relative to both production and consumption patterns is vital to its future.

ENERGY STRENGTHS AND OPPORTUNITIES

Kaua'i is a beautiful island blessed with an abundance of natural resources. The community is generally aware of both the value and importance of energy as a key sustainable element. In addition, several clear strengths relating to energy matters emerged. These included:

- A benign and accommodating climate
- A singular utility (KIUC) as the community electricity co-op
- Abundant natural resources
- Advantage of small scale

There is significant community interest in advancing renewable energy sources and removing the cap on selling energy back to the utility. However, there is concern by the utility regarding the stability of the total system and quality of electricity provided. The State Renewable Portfolio Standard suggests 20% renewable by 2020, while the KIUC has stated a goal of 50% by 2023 from renewable energy sources.

ENERGY WEAKNESSES AND CHALLENGES

All of the above notwithstanding, there are some unique challenges and weaknesses related to the current energy situation on the island, including:

- Various policy and political encumbrances
- No interconnection to state grid
- Grid (in)frequency
- Regulatory structure
- “Imported” design execution
- Limited staff in crucial areas of support
- No clear, succinct, comprehensive sustainable goal or vision
- KIUC

ENERGY VISION – TOWARD A SUSTAINABLE FUTURE

The Kauaʻi vision for a sustainable energy future is grounded in, and committed to, the transformation from a carbon based fuel arena to a renewable and regenerative based energy supply. It utilizes renewable energy which is from and about the island, its history and culture. At island scale, it connects to air - capturing trade winds from the north-east; reaches for fire – harvesting solar energy at the south and west side of the island; connects to water – utilizing the ocean swells and currents on the island’s north and west shores; and is grounded to the earth – capitalizing on surface water for hydropower, and plant and animal matter for various bio-fuel opportunities.

In order to become a sustainable energy model for buildings and transportation, Kauaʻi needs to “arrive early”, meeting its energy goals by being proactive and setting standards for renewable energy. Its vision is intended to balance demand and supply through conservation and efficiency (demand reduction), with supply [transition from a fossil fuel (carbon) base to a renewable (carbon neutral) base – with the ultimate goal of achieving and meeting (if not exceeding) a carbon neutral, energy balanced, renewably based condition BY 2030 AT THE LATEST.

Long Definition:

- An energy/ecological footprint which relies solely on renewable energy
- Provides the lowest energy price
- Preserves the local environment (land and resources)
- Preserves the global environment (resources and climate)
- Enhances the well being of the island and its people



Condensed Definition:

- Meeting energy efficiency, carbon neutrality, and renewable stability through locally produced sustainable sources

ENERGY RECOMMENDATIONS

There is overwhelming commitment by the people on the island to create an energy portfolio which is grounded in independence, self reliance and sustainability. Underlying its commitment for a sustainable energy future is an understanding of the need to both reduce the consumption of energy and transition from non renewable, fossil fuel sources to a renewable base.

In order for Kauaʻi to capture and capitalize on its energy independence, there are four inter-dependent strategic goals which must be met. These include conservation, education, demonstration, and transformation. By accomplishing these goals, Kauaʻi also works to improve its quality of life, raise public awareness, reduce atmospheric emissions which contribute to global warming, and becomes a model of energy use for the region and state.

ISSUE NO. 5: RENEWABLE ENERGY

1. Promote Energy Conservation

This strategic goal underscores the need to save energy and use energy wisely. The savings of energy by reducing demand is clearly a first line of defense in exploring a sustainable energy strategy, making energy conservation the island's most valuable resource. Following conservation – at all levels, all energy utilized should be processed at the highest efficiency possible. It is suggested Kaua'i consider the following in order to accomplish conservation and efficiency goals:

- Reduce transportation energy use as discussed in the Transportation section of this report
- Optimize conservation and consumption efforts for buildings, particularly for large scale buildings and uses.
- Establish design criteria and guidelines for both residential and commercial buildings that apply to new and existing buildings. These guidelines can be:
 - o Grounded in ahupua'a principles
 - o Holistic approaches
 - o Employed using passive and natural energies
 - o Optimized for climate, context, and microclimate



2. Develop Energy Education

Clearly, an understanding of the islands' vision and mission is fundamental in moving toward a sustainable energy future.

While some information outreach and marketing programs are already in place, not all this material is easily understood or clearly communicated. By providing a variety of educational opportunities at a variety of levels, knowledge and delivery of a sustainable energy direction becomes more commonplace. Several suggestions include:

- Develop school education programs for all grade levels
- Develop community workshops and training for residents.
- Organize community activities and events that celebrate successes

3. Initiate Energy Demonstration: The Island of Kaua'i can and should serve as a model for a sustainable energy future, and Līhu'e can be central – providing the heart and soul of this sustainable energy message.

- Become a clearinghouse for information and technology on energy independence and sustainability
- Have the County "Walk the Walk" by being a leader in sustainable energy implementation in county facilities.
- Create a model sustainable energy, and demonstration center, perhaps with the name of "PIKO" – (Power, Information, Knowledge, Opportunity). As a community center focused on serving as the heart, spirit, and soul of Līhu'e and Kaua'i, it can bring together many of the elements suggested in this report, including sustainability education opportunities, eco-incubator spaces, workshops, markets, training programs, etc. This demonstration center could be housed in one building or in multiple buildings. One concept is to use the area around the Līhu'e Mill as the location for this demonstration. There are other concepts that are possible as well. It should be noted that any effort to transform and reuse the Līhu'e Mill in a sustainable manner should be embraced by the community,

particularly if it is proposed to be developed by private efforts. Nonetheless, the concept of a community demonstration center that pulls together sustainability principles in the center of Līhu`e is a desirable outcome.

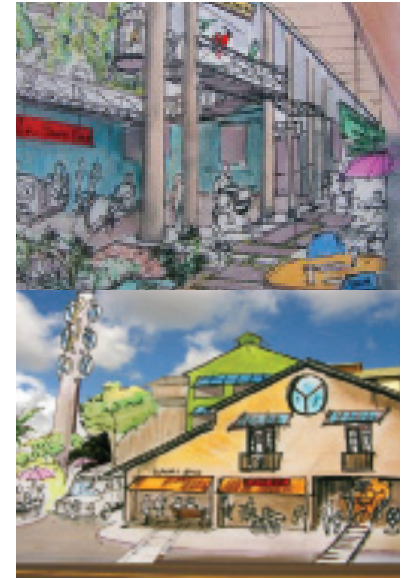
4. Facilitate Energy Transformation

Underscoring each of the strategic goals above is the goal of transforming the island's energy portfolio from a carbon based, fossil fuel driven reliance, into a renewable and regenerative energy independence. At an island wide level, there are several opportunities to capture and re-capture renewable energy potential. Within the town of Līhu`e and elsewhere, harvesting renewable energy at both a community and independent property owner level can be easily demonstrated. Goals include:

- Universal solar water heating (SDHW)
- Electrical generation with 100 percent renewable sources
- Transportation completely alternative fuel powered
- On Island Rate Stability
- Zero Waste; Waste = Energy
- Energy Security
- Reliability and Grid Stability
- COLLABORATION – Unifying discussions of a sustainable energy future at local, county, island, and state levels to maintain efficiency and effectiveness of all stakeholders

The following matrix provides a synoptic overview that brings together, organizes and outlines several of these strategic goals. Aligned with each element (the WHAT category), is a listing of WHO, those central players and stakeholders who are core to accomplishing the goal; a segmentation of When, identifying immediate potential (less than 4 years), an intermediate time frame (4- 10 years); and Stran extended

time frame (10-20 years). A HOW category addresses a beginning look at various methods or techniques at how each goal might be accomplished, and is intended to describe performance opportunities, versus an indication of specific prescriptive actions. The Qualifier category in the matrix indicates both what areas should be enhanced or not overlooked, as well as links and connections to existing local, county and state initiatives which exist, are being planned, or undergoing revision, and serving as a reminder that sustainable energy must be included in this material. Finally, a notation is made regarding the applicability of each goal to a technology, policy, or community focus, or a combination between or among them. It is important that each of these become further developed to the point that success or progress can be measured in a quantifiable metric.



ISSUE NO. 5: RENEWABLE ENERGY

STRATEGIC GOALS FOR KAUA'I – MOVING TOWARD A ENERGY BALANCED FUTURE

Goal	Who	When	How	Qualifiers
Goal: 100% Solar Water Heaters	KIUC	Near (4 yrs)	Improve Outreach, stop selling other options, tune regs for new construction	New & existing
Conservation-reduce consumption	City focus, KIUC, PUC	near	Education	Inverted Rate structure
Establish building design guidelines (comm. & res)	Architects, consults, Plan Dept	Near/mid (10 yrs)	LEED or similar	How and where
Reduce transportation Energy		Near/mid/long (20 yrs)		
Convert to 100% Renewable for Electricity		50%*75%/100%	Create permitting guidelines that address each technology specifically	Complete Island-Wide Habitat Conservation Plan (so can install DG)
Convert to 100% Renewable fuel transportation		%/75%/100%	Charge higher reg. fees for fossil fuel cars	
Zero Waste; Waste=Energy				
Inventory & Monitor CO2				
Develop method to audit and examine Life Cycle and Embodied Energy				
Education in School and for the Community		%/75%/100%	Charge higher reg fees for fossil fuel cars	
Model Sustainable Energy and Community Center	The PIKO			

CONNECTIONS AND LINKAGES TO OTHER ISSUES

Energy is such a pervasive element of modern living and the environment that it is inextricably linked to all of the other issues in this report. Hence, this discussion can be seen to relate directly to the sustainable future of Kaua'i in terms of land use, housing affordability, transportation, and economic development.

MOVING FORWARD



SUMMARY OF RECOMMENDATIONS

This report contains several general and specific recommendations based on the assessment of the National SDAT team and the input of many local residents and stakeholders. The next step is to use this information to the benefit of the people of Līhuʻe and Kauaʻi to craft a truly sustainable future through the updating of the General Plan related documents. There are a few overriding thoughts to keep in mind as this process goes forward:

Update the Plan, then act on the Plan: As the process of updating the Līhuʻe Development Plan, the CZO, ADU, and workforce housing plans goes forward, include these recommendations and thoughts in those efforts for a truly sustainable basis to the plan. During the planning update process, consider a temporary, focused “hoʻomaha” or “pause” on development activity until the plan is fully worked out and in place. Then, once the plan is in place, stick with it to see it is followed through as the basis for all development and regulation work.

Keep the full community involved: Continue to seek all voices to participate in the processes of decision making. Many people from many different backgrounds participated in the SDAT process, but it was noted that others will not come out to public meetings. Find ways to reach out and engage more of the community for input and acceptance of the sustainability principles ultimately made part of the Plan.

Focus on Long Term Sustainability: Think beyond today to see the Kauaʻi of future generations, not just the immediate needs of today.

Build on Aloha ʻAina: Continue to love the land, the people, and

MOVING FORWARD

the culture that are unique to here. If the unique things about the land and the people are preserved, celebrated, and sustained, then tourists will continue to want to come and respect what they find in Līhuʻe and Kauaʻi.

Use the AIA for SDAT Follow up: The AIA staff and team leader of the SDAT are available for follow up support in the form of phone calls, additional information if available, and a follow up visit in Fall of 2009. Take advantage of these resources to help leverage and move forward the good work that has been started here.

Web sites: <http://www.aia.org/about/initiatives/AIAS075265>

Email: sdatt@aia.org

Address: The American Institute of Architects
Center for Communities by Design
1735 New York Avenue NW
Washington, DC 20006-5292