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# **Economic Development Issue Paper**

*Island of Maui*

*Maui County General Plan 2030*

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## SECTION ONE: OVERVIEW

This is one of a series of Issue Papers intended to provide analysis and to offer policy options for the Maui Island Plan, which is being prepared as part of the Maui County General Plan 2030. The objectives of this paper are to:

- provide an overview of the Maui economy and ongoing economic development planning efforts;
- analyze challenges and opportunities, with emphasis on the largest industry, tourism, and the most land-extensive industry, agriculture; and
- offer policy options for the Maui Island Plan.

### PLANNING FOR ECONOMIC DEVELOPMENT

This paper draws upon recent and ongoing planning efforts in over-all economic development, tourism, and agriculture. Day-to-day responsibility for planning and coordination of economic development efforts lies with the County Office of Economic Development (OED), which is based in the Mayor's Office. Each year the County grants substantial funding to underwrite tourism marketing by the Maui Visitors Bureau (MVB), as well as providing grants-in-aid to assist development efforts in agriculture, high technology and other sectors.

Comprehensive planning for economic development in Maui County has been led by a strong collaboration between the County government and the Maui Economic Development Board (MEDB). Current policy is stated in the *2004 Maui County Comprehensive Economic Development Strategy (CEDS)*, which MEDB prepared for the OED. The CEDS drew upon focus group meetings, as well as two prior efforts that incorporated extensive community participation: the Focus Maui Nui project and the 2004 Mayor's Economic Summit.

Planning for tourism has been led by the Maui Visitors Bureau and the Hawai'i Tourism Authority (HTA). The HTA adopted the *Hawai'i Tourism Strategic Plan* in 2004, then funded and guided the preparation of the *Maui County Tourism Strategic Plan* (published in 2006).

There is no official plan that comprehensively covers the agricultural sector, very likely because the sector is so diverse. Within Maui County, a volunteer committee of the Maui Farm Bureau (MFB) has prepared the Maui Agricultural Strategic Plan (Draft 2, March 3, 2003). The MASP covers a wide range of issues affecting agricultural enterprise.

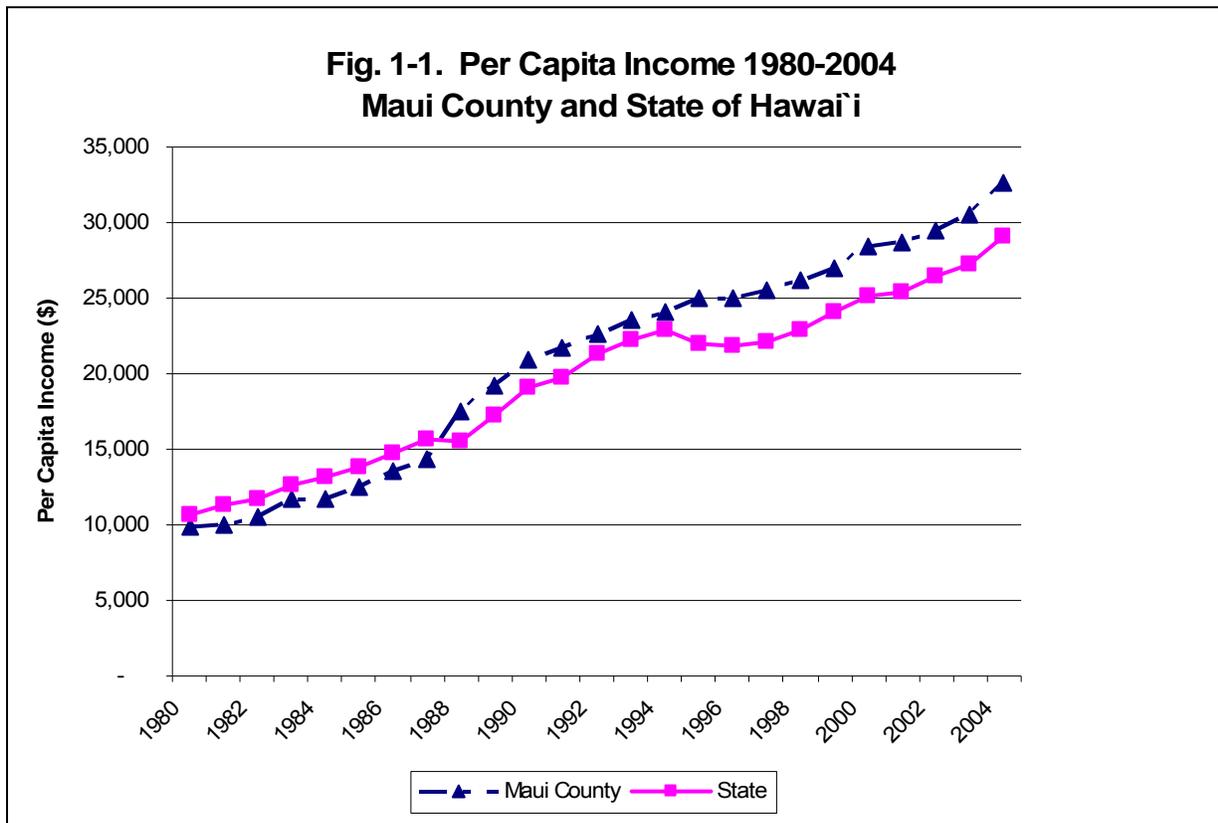
Planning for agriculture has been undertaken on the State level in connection with legislation to identify "Important Agricultural Lands" (IAL). This collaborative effort, led by the

Hawai'i Farm Bureau Federation (HFBF) and the Hawai'i Department of Agriculture (HDOA), resulted in a package of proposals submitted to the 2007 Legislature. The proposals offer financial and regulatory incentives to lands designated as IAL.

## OVERVIEW OF THE ECONOMY

This section takes a look at the general characteristics of the Maui economy and the issues and opportunities facing economic development overall. Most of the available economic data has been aggregated for the County of Maui and is not available for the individual islands.

Historically, the Island of Maui was the first of the Neighbor Islands to attract large-scale resort development, as the islands transitioned from a plantation-based economy to one based on tourism. Maui Island continues to dominate the Neighbor Island tourism market, attracting 49 percent of all non-O`ahu visitor-days as of 2005. Maui has consistently led the other counties in the rate of job growth, and, as the chart below shows, Maui's per capita income has consistently exceeded the statewide average since 1988.

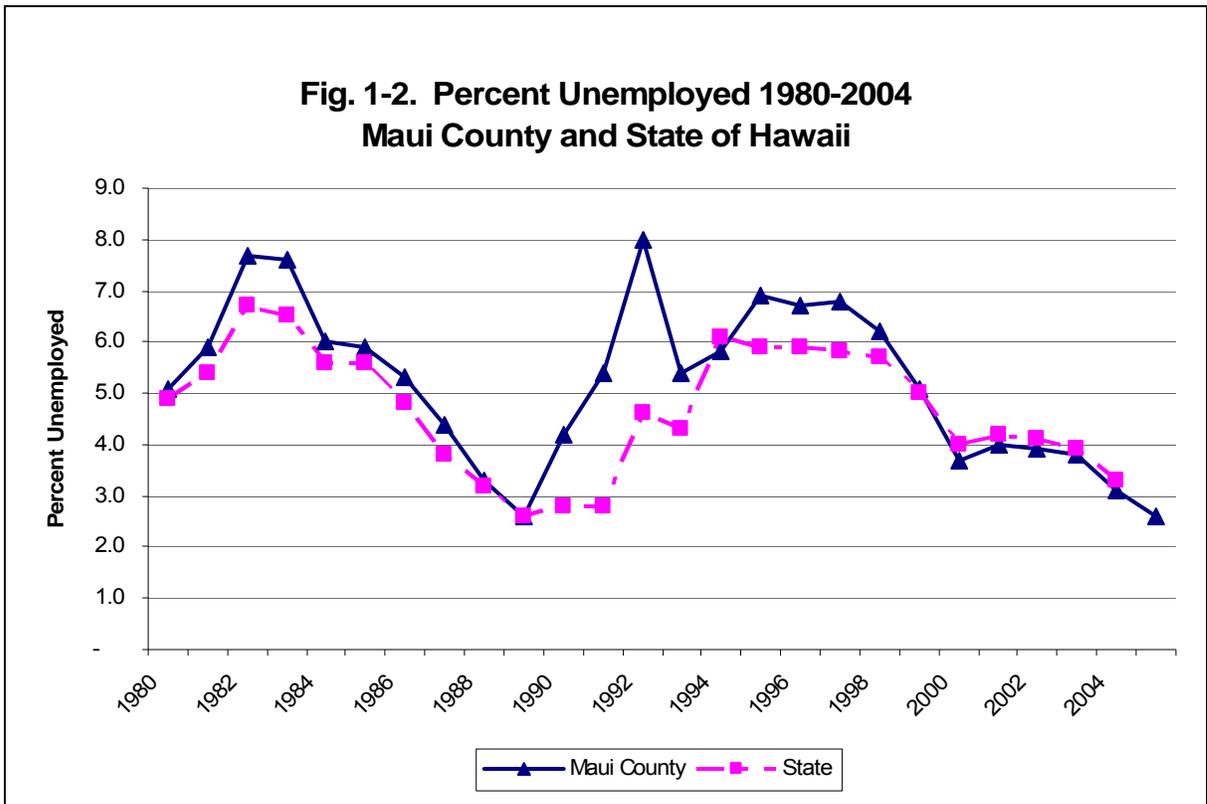


Source: Department of Business, Economic Development and Tourism, State of Hawai'i.

Today, the County of Maui has some 4,700 business establishments, which together with the Federal, State and County governments, provide about 71,600 wage and salary jobs (including agriculture). According to the 2004 CEDS, 88 percent of Maui firms employ fewer than 20 people, The State Department of Business, Economic Development and

Tourism (DBEDT) estimates that the County has an additional 19,000 self-employed jobs, which include small business owners.<sup>1</sup>

With the exception of the economic downturn in the early 1990s, the unemployment rate for Maui County has closely tracked the statewide average. Since 2000, the Maui annual unemployment rate has fallen below the statewide rate. In 2006, Maui County registered a record low rate of 2.3 percent unemployed.



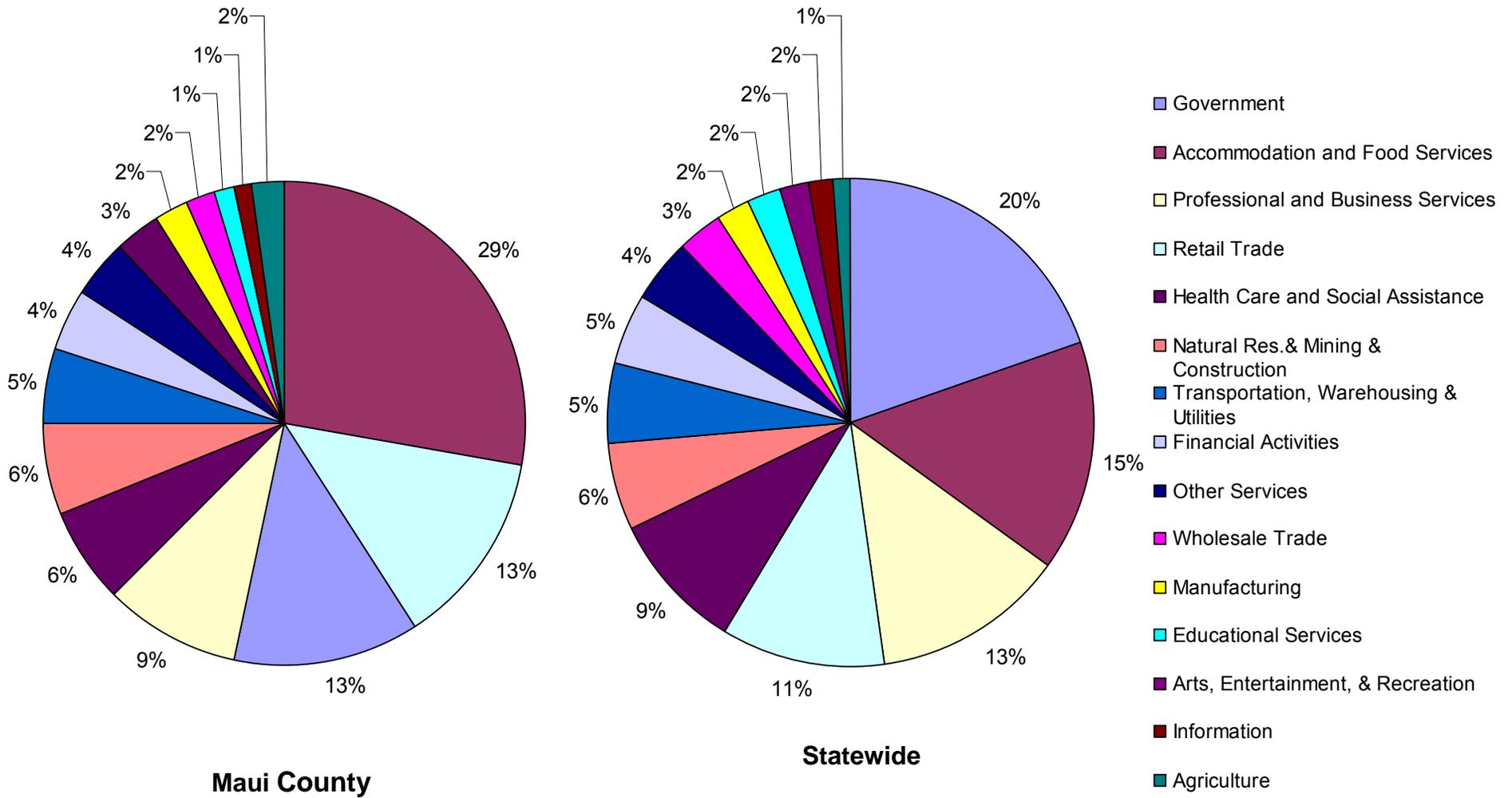
Source: Department of Business, Economic Development and Tourism, State of Hawai'i.

The dominance of the tourism industry shows up in the proportion of jobs by industry. Figure 1-3 compares the percentage of jobs in major industries for Maui County and the State as a whole. In Maui County, the Accommodations and Food Services industry accounts for the largest proportion – 29 percent of all wage and salary jobs. This is nearly double the statewide proportion of 15 percent. Retail Trade, also driven substantially by tourism, is second at 13 percent.

The *Maui County Tourism Strategic Plan 2006-2015* (Maui County TSP) states that the economy of Maui is the most reliant on tourism among the four counties. Of Maui County's

<sup>1</sup> Includes both full- and part-time jobs. An individual may hold two jobs or more, as a wage and salary employee and/or as a self-employed person.

**Fig. 1-3. Jobs by Industry, 2007**



Source: Hawai'i Department of Labor and Industrial Relations, Current Employment Statistics, 2007.

Gross County Product (GCP), 39 percent is attributed to tourism, versus a range of 19 to 29 percent for the other counties.<sup>2</sup>

A large proportion of jobs in Maui County are low-wage jobs, many of them the tourism-related. Contending with Maui’s high cost of living, most households support themselves on two or more jobs. Even so, the evidence indicates that many are falling short. Based on a living wage study of Maui County, a family of four (two adults, two children) would have needed an annual income of \$61,650 to support itself in 2005.<sup>3</sup> Assuming that both parents work, each would need to earn \$30,800.

A corresponding analysis of 2005 job and wage data for Maui found that the average wage of 78 occupations – representing 54 percent of all jobs – fell below the \$30,800 living wage standard. Table 1-1 below shows the 10 occupations with the largest number of employed workers. Only two of the 10 pay an average wage that meets or exceeds the living wage.

**Table 1-1. Average Wage, Ten Largest Occupations, Maui County**

Occupation	Number of Jobs	Average Annual Wage
Retail Salespersons	3,100	\$23,550
Waiters and Waitresses	3,000	\$22,870
Maids and Housekeeping Cleaners	2,540	\$26,330
Cashiers	2,230	\$20,830
Office Clerks, General	1,560	\$23,760
Landscaping and Groundskeeping Workers	1,470	\$26,050
Cooks, Restaurant	1,190	\$27,890
Maintenance and Repair Workers, General	1,070	\$35,210
Bookkeeping, Accounting, and Auditing Clerks	1,050	\$31,570
Janitors & Cleaners, excl. Maids & Hsekeepng Clnrs	1,050	\$24,210

Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics, 2005.

Diversifying Maui’s economy has been a key, longstanding County policy. Objectives of economic diversification include (1) reducing Maui’s reliance on tourism and its consequent vulnerability to external economic forces and events, such as 9/11; (2) attracting more high-skill, higher-paying jobs, thereby increasing the proportion of jobs that pay a living wage; and (3) moderating growth in the daily census of visitors and their impact on natural and cultural resources. In addition to attracting high-technology industries and supporting the expansion of agriculture, recent diversification efforts have focused attention on potential growth sectors of

<sup>2</sup> Hawai’i Tourism Authority, *Maui County Tourism Strategic Plan: 2006-2015*, 2006, p. 11, citing DBEDT Long Range Forecast, 2005.

<sup>3</sup> D.Pearce, *The Hawai’i Self-Sufficiency Standard*, Maui County 2003; updated to 2005 based on increase in the Consumer Price Index, U.S. Bureau of Labor Statistics. Similar analysis for 2003 may be found in the 2004 Maui County Comprehensive Economic Development Strategy.

agriculture, sports and recreation, healthcare, film and entertainment; and energy production using renewable resources.

## CHALLENGES AND OPPORTUNITIES

As discussed above, the Island of Maui – like the County as a whole – faces two fundamental challenges in economic development: (1) diversification; and (2) increasing the number and proportion of living wage jobs. There is a subset of more specific challenges, such as the high cost of housing and the need to strengthen public education. These challenges are described in the 2004 Maui County Comprehensive Economic Development Strategy and are summarized below.

- **Affordable Housing.** The high cost of purchasing or renting a residence has increased substantially since 2000 and poses a barrier to attracting and retaining skilled workers in fields from high-technology to agriculture. According to the GP Update’s Housing Issue Paper, “Maui County had Hawai`i’s highest 2005 median single-family resale price,” and was tied with Kaua`i as being “least affordable.”<sup>4</sup> In 2006, the median price for Maui single-family homes rose still further to \$693,000, although the number of sales declined. The Housing Issue Paper cites 2005 Census data that 46 percent of Maui renters are paying more than 30 percent of their income for rent. High home prices reflect the influence of offshore buyers, and high rents reflect visitors occupying a large share of rental units.
- **Education and Workforce Development.** The 2004 CEDS focused on the need to train Maui’s residents to qualify for high-skill jobs and the consequent need to improve the public education system. Hawai`i’s poorly-rated K-12 education system also makes it more difficult to attract new businesses to Maui.
- **Infrastructure Development.** The 2004 CEDS cited water, road and air transportation systems as particular areas of concern for participants in the CEDS planning process. “Several employers noted that traffic congestion and lengthy travel times reduced productivity and made it difficult to attract or retain workers. Employers and farmers also pointed to water as a top priority, with concerns expressed over its limited supply and the need for maintenance of existing water systems.”<sup>5</sup> More recently, Kahului Harbor has emerged as a major concern. Increased cruise ship use has placed pressure on the limited physical plant of Maui’s only commercial harbor, and further crowding is anticipated when the Superferry goes into operation in 2008.

The 2004 CEDS also cited Maui’s numerous natural and cultural sites and qualities, as well as the cultural diversity of Maui’s people, as critical resources to be protected.

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<sup>4</sup> John M. Knox & Associates, “Maui Island Housing Issue Paper”, 2030 Maui County General Plan project, December 2006.

<sup>5</sup> Office of Economic Development, County of Maui (Maui Economic Development Board), “2004 Maui County Comprehensive Economic Development Strategy,” p. 7.

Participants in this and past planning processes have repeatedly recognized the county's scenic beauty, pristine environment, cultural heritage, and historic sites as assets that require thoughtful stewardship. Economic development must therefore strike a delicate balance between growth and protection of these treasured resources.<sup>6</sup>

Finally, the 2004 CEDS notes the following “future challenges and opportunities”:

- The Hawai'i Superferry, with its drive-on/drive-off service, will enable Maui farmers and other producers to better compete in the O`ahu market.
- Developing information technologies will allow information services to be delivered remotely to and from Maui, at lower cost and greater efficiency.
- An aging population will increase the need for healthcare and other services and may lead to workforce shortages.

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<sup>6</sup> 2004 CEDS, p. 8; citing the Focus Maui Nui Report (2003) and the Report of the Mayor's Economic Summit (2004).

## SECTION TWO: TOURISM

As stated in Section One, the tourism industry accounts for about 40 percent of economic activity in Maui County. Following are both an overview of the industry and projected growth and also an assessment of issues and opportunities.

### OVERVIEW

The Island of Maui is second only to O'ahu in the number of visitors it attracts. In 2006, the Average Visitor Census (per day) was 48,961, exceeding State long-range projections.<sup>7</sup> Maui accounts for 97 percent of all visitor days in the County, with the remaining three percent going to Moloka'i and Lana'i.

Recently, Maui tourism has been booming, though there are indications the boom may be leveling off. Since 2002, visitor arrivals on Maui have been steadily climbing, with 2006 recording a six percent increase. Likewise, hotel occupancy rates have risen beyond 80 percent; and average daily room rates increased 16 percent in 2005-'06. Maui Island expenditures particularly shot up in 2006, but fell back in early 2007. Also falling in early 2007 (as part of a statewide trend) have been total visitor days. It is too soon to tell whether these small reverses are more than a statistical blip in the general upward trend.

Figure 2-1 on the next page compares visitor and resident populations for Maui Island at 10-year intervals, presenting both historical numbers 1970-2000 and projections 2010-2030. The tourism industry grew very rapidly during the 1970s and '80s, with the average daily census of visitors increasing by more than 500 percent during the decade 1970-1980 and by 150 percent during 1980-1990. During the economic recession of the 1990s, growth in the AVC declined to about 17 percent for Maui Island; nevertheless, Maui led the County and the State for that period (for the County, growth during the '90s was only 3.2 percent). On the average day in 2005, Maui had one visitor for every 2.7 residents.

The projections for the visitor census in future years come from the *Socio-Economic Forecast* prepared for the Maui County General Plan 2030 project, which built upon the State DBEDT's 2030 Series of population and economic projections. The Forecast projects that the AVC for the Island of Maui will continue to grow to 2030, but at relatively low rates of 14 to 21 percent per decade.<sup>8</sup> According to the Forecast, between 2005 and 2030 Maui will add about 23,000 visitors per day, compared to a projected increase of about 57,000 residents in the same period. The visitor share of the de facto population will rise slightly, but will remain in the range of one visitor per 2.7 residents.

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<sup>7</sup> Dept. of Business, Econ. Development and Tourism, *2006 Annual Visitor Research Report*. **NOTE:** New State forecasts through 2035 are due to be issued by the end of 2007.

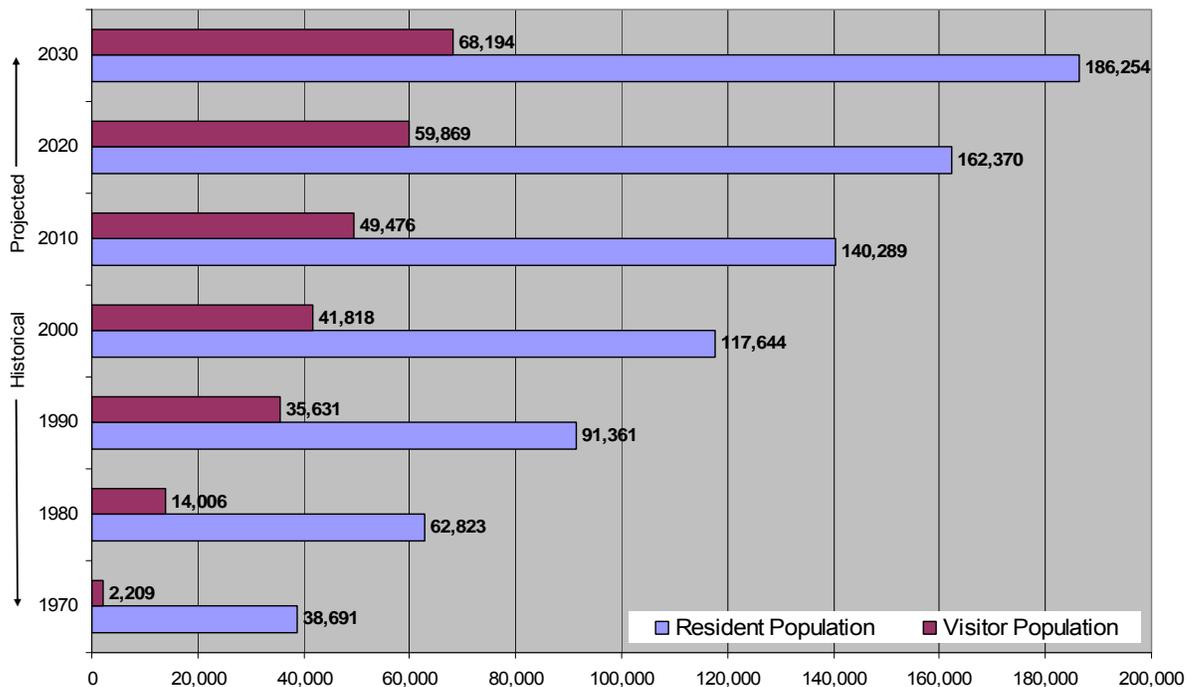
<sup>8</sup> Planning Department, County of Maui, *Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030*, 2006; Exhibits I-1 and I-17.

## Tourism Strategic Plan

The *Maui County Tourism Strategic Plan 2006-2015 (Maui County TSP)* is one of four prepared under the auspices of the Hawai'i Tourism Authority. The county plans are intended to provide specific guidance, building on the themes and policies set forth in the statewide *Hawai'i Tourism Strategic Plan*. It states the following "Maui County Tourism Goal":

To strategically manage tourism on Maui, Moloka'i and Lāna'i, in a sustainable manner that promotes economic well-being, quality of life for residents, preservation of natural and cultural resources, and quality experiences for visitors.

**Fig. 2-1. Maui Resident-Visitor Population Ratios**  
**Visitor and Resident Population, Island of Maui 1970- 2030**



Sources: (1) U.S. Census; (2) State DBEDT, historical visitor and population statistics; (3) Maui Planning Department, *Socio-Economic Forecast, Maui County General Plan 2030*; 2006.

Key objectives of both the statewide and the county TSP are to:

- Increase tourism's economic contribution primarily by increasing per-person, per-day visitor spending, rather than by significantly increasing arrivals.
- Market Maui to higher-spending types of visitors.

- Preserve and support the Native Hawaiian culture.
- Preserve and protect natural resources; improve maintenance of parks and other natural resource areas.
- Invest in “product development” – i.e., by increasing attractions and experiential activities and by rejuvenating facilities that are used by visitors.

These objectives express a concern with the impacts of tourism, recognition of community concerns, the importance of culture and place to the ongoing health of the industry, and a focus on industry sustainability.

The State and County TSPs also contain other related objectives, such as cultivating the workforce (includes addressing living wage, affordable housing issues); measuring and improving visitor satisfaction; communicating with resident populations who are concerned about tourism impacts; and carrying out research and planning to maintain Hawai’i’s competitive edge as a visitor destination.

Although the State 2030 projections and the County 2030 forecast predict a moderate rate of growth in the daily visitor count, the projected increase is nevertheless substantial (about 50 percent between 2005 and 2030). The State’s economic forecast, then, appears to be at odds with the stated objective of increasing visitor revenues primarily through increasing visitor spending.

## **Visitor Accommodations**

There is relatively little land planned for new resort development on Maui Island, and the County must decide whether or not to accommodate projected growth by designating more land for “Hotel” use. (The Community Plan land use designation “Hotel” includes resort condominiums and timeshares as well as standard hotels.)

The projected increase in the daily visitor census for both the Island and County of Maui creates a projected demand for additional visitor units. The *Socio-Economic Forecast* projected a need for 25,700 visitor units on Maui by 2030, compared to a current inventory of about 17,500 (see table). The *Socio-Economic Forecast* allocated the additional 8,200 units by Community Plan region.<sup>9</sup> The largest gain is projected for the Kīhei region, where the number of visitor units is

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<sup>9</sup> The number of existing visitor units given in the *Socio-Economic Forecast* is based on DBEDT’s Visitor Plant Inventory but includes only “formal” visitor units – i.e., hotels, condo-hotels, timeshares. The *Forecast* does not account for vacation rental and bed-and-breakfast units in either existing or projected counts of visitor units.

**Table 2-1. Projected Change in Visitor Census and Visitor Units**

Island of Maui	Baseline – 2000	Projected – 2030	Change
Avg. Visitor Census	41,818	68,194	+ 26,376
Visitor Units	17,473	25,714	+ 8,241

forecast to increase by 5,700 between 2000 and 2030. The Socio-Economic Forecast calls for the West Maui region to receive 2,900 additional visitor units over the same period. By 2030, the two regions are projected to be even – each having about 12,500 visitor units.

The *Land Use Forecast* prepared for Maui County General Plan 2030 translates the projected need for visitor units into amounts of land needed, taking into consideration resort projects already planned. While recognizing the increasing volume of vacation rentals and B&Bs in residentially-zoned areas, the *Land Use Forecast* adopted the approach that new visitor units would be developed on lands designated “Hotel” on the Community Plan maps or lands within a Project District where visitor accommodations are specifically allowed.

The *Land Use Forecast* found that: (1) known future projects would provide about 3,800 additional visitor units; and (2) once the known projects were developed, there would be virtually no supply of vacant Resort-planned lands remaining.<sup>10</sup> Known future projects include those at North Beach in Kā’anapali, build-out of the Mākena Resort, and other projects in Kīhei and Kahului.<sup>11</sup> The *Land Use Forecast* compared the potential supply – known projects plus a small amount of Hotel-zoned acreage – with the demand for additional units (see Table 4-3, *Land Use Forecast*). The analysis revealed a need for additional “Hotel” land to support about 4,800 additional visitor units.

Based on the regional allocations made in the *Socio-Economic Forecast*, the deficit is largest in Kīhei-Mākena, amounting to 4,060 units. (Note that only about one-third of future units at the Mākena Resort are projected to be visitor accommodations.) Based on an average density of 35 units per acre, this translates to 162 acres of resort land needed – i.e., 162 acres of additional land designated Hotel on the Community Plan. The analysis shows a deficit of 800 visitor units in West Maui, which translates to 32 acres of additional land designated Hotel on the Community Plan. Remaining Maui regions are allocated few additional visitor units, and consequently they are projected to have no appreciable need for additional “Hotel” land.

<sup>10</sup> Planning Department, County of Maui, *Land Use Forecast: Island of Maui, Maui County General Plan 2030*, November 2006.

<sup>11</sup> Information on known projects cited in the *Land Use Forecast* came from the Development Projects Database maintained by the Long-Range Planning Division of the Maui Planning Department, current as of August 2006. The Database counted timeshare conversions, which sometimes result in a smaller number of units. Sometimes these units have more bedrooms, and therefore may house equal or greater numbers of visitors compared to the hotel units that were eliminated in the conversion.

In conclusion, a key policy question affecting the Maui Island Plan is whether or not to accept and plan for the increase in the number of visitors and visitor units foreseen in the State's 2030 projections.

## **STATE AND COUNTY ROLES**

The State government plays a pivotal role in supporting and guiding the tourism industry. The County plays a complementary role in supporting the industry, but is also concerned with impacts on local communities. With its planning and zoning powers, the County exercises substantial influence on the location and growth of resort areas and visitor accommodations.

**State of Hawai'i.** The Hawai'i Tourism Authority (HTA) is the lead agency and advocate for Hawai'i's tourism industry, responsible for creating a vision and overseeing tourism from a statewide perspective. Funded through the Transient Accommodations Tax, the HTA oversees marketing Hawai'i as a visitor destination, invests in "product development," and carries out research and planning. In marketing, HTA funds the Hawai'i Convention and Visitors Bureau and the Maui Visitors Bureau, as well as other agencies to promote Hawai'i in international markets. In product development, the HTA sponsors programs relating to festivals and events, natural resources, and Hawaiian culture. It also funds a "County Product Enrichment Program" administered on Maui by the Office of Economic Development.

The State Department of Transportation also plays a critical role in the tourism industry through management of State airports and harbors. Over 99 percent of Hawai'i visitors arrive by air transport, and tourism is dependent on an adequate amount of airlift being provided by airlines. The State's role is to continually renovate airport facilities so that they operate efficiently and are able to meet challenges of airline security, changing routes and carriers, and preventing the import of invasive species. In recent years, State harbors have been challenged to support the fast-growing inter-island cruise ship business. Management of these large vessels, frequent visits, and embarkation and disembarkation of 2,000 to 3,000 passengers per vessel has created a need for more dock space and shore facilities. Since most visitors tour Maui by rental car, tourism both adds to and is affected by congested traffic conditions.

**County of Maui.** Compared to the State, the County has a very limited role. It receives a portion of the Transient Accommodations Tax from the State, and provides annual funding to the Maui Visitors Bureau for Maui-specific marketing efforts. While County parks are intended primarily for residential use, these and all other infrastructure (such as roads) in reality serve the visitor industry as well.

Other than infrastructure, the County's principal role involves regulation of land uses – especially visitor units and related recreational real estate, but also commercial attractions for visitors (e.g., golf courses, the Maui Ocean Center, or permits and variances for day uses such as agri-tourism, bicycling use of public roads, or ocean activities based in county parks). Additionally, the Cultural Resources Management Commission is tasked with perpetuating local culture by reviewing new project proposals for cultural sensitivity – appropriate respect for archaeological sites, design themes, interpretive features, etc.

## ISSUES

As the island's (and the state's) largest industry, tourism generates countless issues. However, in addition to the previously mentioned question about Resort-zoned land, four issues seem particularly worth noting for purposes of this paper – visitor units in residential areas; diversification of lodging types; infrastructure impacts; and desired limits on growth.

### Dispersal of Visitor Units into Residential Areas

**Public Opinion.** Transient vacation units (TVUs) – bed-and-breakfasts (B&Bs) or vacation rentals (also called “transient vacation rentals” or TVRs) – in residential areas comprise a contentious issue in Maui and most other Hawaiian islands. In 2006, slight majorities (about 56%) of Maui residents agreed that TVUs are “*a necessary part of Hawai‘i’s visitor industry, despite any problems they may cause for neighbors.*” However, far larger majorities (84%) also said both B&Bs and TVRs “*should be strictly controlled and limited to areas where nearby residents agree to allow them.*”<sup>12</sup> (The Maui Island sample size was 302.)

**Extent of TVU Phenomenon.** The official 2006 DBEDT *Visitor Plant Inventory* listed 495 “Individual Vacation Units” (i.e., TVRs) for Maui Island, but this is generally felt to be an underestimate because DBEDT lists only properties willing to confirm their activities. An independent 2005 assessment by the Kauaian Institute counted nearly 1,100 Maui Island TVUs (about 75% of which were TVRs/vacation rentals), based in good part on “detective work” following up from advertisements on the Web. This count was for single-family structures only and did not attempt to determine zoning status, though the geographical information suggests the vast majority are in areas zoned for residential (or agricultural) use:

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<sup>12</sup> Market Trends Pacific, Inc./John M. Knox & Associates, Inc. *2006 Survey of Resident Sentiments on Tourism in Hawai‘i*. Prepared for the Hawai‘i Tourism Authority. It may be noted that Maui’s percentages endorsing control and limits for TVUs were (1) by a slight margin, the highest of all islands in 2006, and (2) about 12 percentage points higher than they had been just one year before, in the HTA’s 2005 survey.

**Table 2-2. Number and Distribution of Transient Vacation Units**

Vacation Rentals			Bed-and-Breakfasts		
Town	Units	Properties	Town	Units	Properties
Alaeloa	2	2	Ha'ikū	51	21
Ha'ikū	128	112	Hāna Area	19	7
Hāli'imaile	2	2	Hāna Town	11	2
Hāna	32	22	Huelo	2	2
Hāmoa-Koali	36	29	Keokea	2	1
Huelo	28	26	Kīhei	60	23
Kā'anapali	45	45	Kīpahulu	1	1
Kahakaloa	4	3	Kū'au	11	3
Kahana	12	12	Kula	21	7
Kapalua	30	30	Lahaina	56	20
Kīhei	118	103	Makawao	11	7
Kū'au	20	16	Maui Meadows	1	1
Kula	33	30	Olinda	5	1
Lahaina	50	50	Pā'ia	5	3
Launiupoko	2	1	Pukalani	3	3
Mā'alaea	2	2	Waihe'e	1	1
Makawao	17	12	Wailuku	35	7
Mākena	16	15	<b>TOTAL</b>	<b>295</b>	<b>110</b>
Maui Meadows	11	10			
Nāpili	38	38	<b>COMBINED:</b>	<b>1,095</b>	<b>816</b>
'Ohe'o	2	1			
Olinda	6	4			
Olowalu	1	1			
Pā'ia	46	39			
Pa'uwela	1	1			
Pukalani	13	13			
Spreckelsville	33	29			
Waiehu	4	4			
Waihe'e	1	1			
Wailea	63	49			
Wailuku	2	2			
Waipi'o	2	2			
<b>TOTAL</b>	<b>800</b>	<b>706</b>			

**Source:** The Kauaian Institute, *Transient Vacation Rentals on Maui*, August 2005.

**Note:** Count was for single-family TVRs only -- excluded multi-family units used for short-term rentals in residentially-zoned apartment areas.

For the first time in 2003, DBEDT added the category “rental house” to its list of intended lodging types for the visitor in-flight survey. Table 2-3 shows the small but upward trend since then for the share of visitors staying in such accommodations, as well as comparison numbers for B&Bs and “visiting friends and relatives” (VFR). (It may be noted that Maui’s 2006 combined vacation rental and B&B share of 4.2% was higher than O’ahu’s at 3.4%, but lower than those for the Big Island, 6.7%, or Kaua’i, 8.0%. Moloka’i’s rate was 9.0%.) It is unclear to what extent increasing percentages at rental houses reflect growing numbers of units vs. higher occupancies in existing units. The data do show that more visitors are staying in Maui residential areas in the homes of friends or family ... although these are non-commercial establishments and are less concentrated than are TVUs in particular areas.

**Table 2-3. Share of Maui Visitors Staying in Transient Vacation Units**

	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Rental House	2.1%	2.4%	2.7%	2.9%
B&B	1.3%	1.3%	1.2%	1.2%
<i>Combined TVU</i>	<i>3.4%</i>	<i>3.7%</i>	<i>3.9%</i>	<i>4.2%</i>
Visiting Friends, Relatives	5.7%	5.7%	6.2%	6.7%

Source: Hawai'i State DBEDT, Research and Economic Analysis Division, *Annual Visitor Research Reports*, 2005 and 2006, and special computer runs for 2003 and 2004. **Note:** These data reflect Maui visitors' accommodations statewide, not just on Maui. The database does not have Maui-specific lodging information.

**Arguments Against and For.** TVUs in residential areas are generally illegal and raise a number of concerns – “loss of community” due to the presence of transients; disruptions such as overflow parking or late-night weekday partying by visitors; purported avoidance of the Transient Accommodations Tax (TAT) by some operators; general objections about commercial activity on residentially-zoned land; and real or perceived loss of residential housing stock to visitor use, accompanied by higher residential property taxes as neighborhood homes sell for higher prices due to intended income-generating purposes. (One view is that B&Bs are less problematic in many of these regards due to the presence of on-site hosts, although that is probably a function of the number of rooms as well.)

TVU proponents point to increased expenditures in neighborhood stores and restaurants; provision of affordable units for larger parties unable to pay hotel rates; the social benefits of more direct interaction between visitors and residents outside resort “ghettoes;” small-scale lodging as an amenity for visiting friends and family of nearby residents who cannot fit everyone in their homes; and benefits to landlords who find that some long-term tenants cause more damage than short-term visitors paying for frequent maintenance.

If opponents are correct about higher property taxes, the County government would benefit from this. However, it must respond to citizen complaints (among myriad other complaints about zoning infractions), and the cost of enforcement can be high, especially because inspectors must often take multiple trips to a site to find direct evidence of infractions. More vigorous enforcement on Maui would also involve the cost of hiring more inspectors.

When these contrasting views are weighed, one possible conclusion is that TVUs are positive or at least tolerable in neighborhoods up to some yet-to-be-defined limit. But others say they should either be legal or illegal, not something in between. New policy discussions must first decide if the objective is to find a “balance point” or a more black-and-white solution.

**Informational Needs.** Policy discussions may be helped by research into some current unknowns, perhaps in conjunction with other counties:

- (1) To what extent is the visitor demand for TVUs driven by a desire for a “residential experience” (i.e., a true desire to be *in a neighborhood*) vs. a desire for economical

lodging for larger parties in oceanfront or other picturesque settings (that is, a market pressure that could be met in specially designated areas *outside neighborhoods*)?

- (2) To what extent are TVUs symptomatic of areas transitioning from full-time residential use into predominantly second-home/retirement use (with short-term vacation rentals as a strategy to defray absentee owner's expenses), and would firm enforcement of an anti-TVU policy actually return many properties to long-term local residential use?<sup>13</sup>
- (3) What are actual TVU occupancies, property turnover, ownership patterns?

**Legal Status.** TVUs can operate legally on Maui only with a Conditional Permit approved by the County Council, a process criticized by operators as overly lengthy and very costly. In 2001, former Mayor Apana made an agreement with the Maui Vacation Rentals Association to suspend enforcement until the Council completes a new ordinance, which it has yet to do. In 2007, the County began enforcing the regulations again, ordering all operations (except those with permits and pending applications) to shut down. The decision has drawn fire from operators, who have argued that it was unfairly sudden.<sup>14</sup>

## Diversification of Lodging Types

“Visitor units” once meant hotels, period. Now, visitors have a choice of many other types of accommodation – TVUs, cruise ships, resort condos, timeshare, and even second homes. This suggests a continuum between short-term transient accommodations and longer-term resort-recreational real estate.

The policy implications are sometimes broad and philosophical – what do we mean by “tourism?” Resorts are now a mixture of short-term visitor units and real estate<sup>15</sup> – so should “tourism” policies expand to include more focus on recreational real estate? And, if so, should that be only on resort-zoned land? A bit more concretely: As hotels begin to lose market share to other types of visitor units (or believe they are), should government strive to protect hotels from other activities as it once labored to protect agriculture from hotel development, or welcome the diversification of visitor choices?

**Public Opinion.** The previously cited Hawai'i Tourism Authority's *2006 Survey of Resident Sentiments on Tourism in Hawai'i* included items about just four types of non-hotel activities (in addition to TVUs) and asked if each was “good or bad:”

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<sup>13</sup> In the *Maui Island Housing Issue Paper (Part A: Defining the Problem)* for this General Plan Update, John M. Knox & Associates (December 2006) reviews available evidence about this question. However, the review concludes that available data are insufficient to provide firm answers.

<sup>14</sup> Allison Schaefer. “Maui B&Bs face ‘crisis.’” *Honolulu Star-Bulletin* online edition. Sept 4, 2007.

<sup>15</sup> The timeshare industry now prefers the term “vacation ownership,” which does accurately capture the fact that timeshares are a mix of short-term vacation use and real estate ownership status. Timeshares are confined to resorts and are clearly part of “tourism,” but they have one foot in the world of real estate, too.

**Table 2-4. Maui Island Attitudes Toward New Types of Vacation Activities**

	<b>% "Good"</b>	<b>% "Mixed" or Unsure</b>	<b>% "Bad"</b>
<i>More <u>cruise ships</u> are stopping at this island</i>	31%	36%	32%
<i>Many big hotels are turning some hotel rooms into <u>time share units</u> or adding new rooms that are <u>timeshares</u>.*</i>	13%	44%	33%
<i>Increasing numbers of <u>vacation homes</u> have been built in <u>resort areas</u>.</i>	16%	33%	51%
<i>Increasing numbers of <u>vacation homes</u> have been built outside resort areas on <u>subdivided agricultural lands</u>.**</i>	6%	31%	63%
* The HTA report noted the question did not specifically address new timeshare projects, just hotel conversions/additions.			
** The HTA report pointed out that many, but not all, off-resort vacation homes are built as "gentlemen farms/ranches."			

Source: Market Trends Pacific, Inc./John M. Knox & Associates, Inc. 2006 *Survey of Resident Sentiments on Tourism in Hawai'i*. Prepared for the Hawai'i Tourism Authority.

Maui attitudes were among the most negative in the state. However, it is unclear to what extent these attitudes reflect dislike of new visitor accommodation types vs. a general frustration with all tourism growth (or all growth of any type, tourism or not).

**Extent of Phenomenon.** Throughout the state, almost no new hotels have been built in recent years, even as other types of short-term visitor units and vacation property have been created. The lack of new hotels is also a national phenomenon, with little growth except for low-end motel/hotels. Reasons involve economic complexities within the industry and the investment community, but one part has to do with lenders' and developers' desire for reduced risk – while hotels may require years to be profitable, timeshares and resort condominiums can realize a return almost immediately. Additionally, as Hawai'i's visitor pool consists of growing percentages of repeat visitors, there is demand for different and sometimes less expensive accommodations from people on their 5<sup>th</sup>, 6<sup>th</sup>, or 7<sup>th</sup> trip.

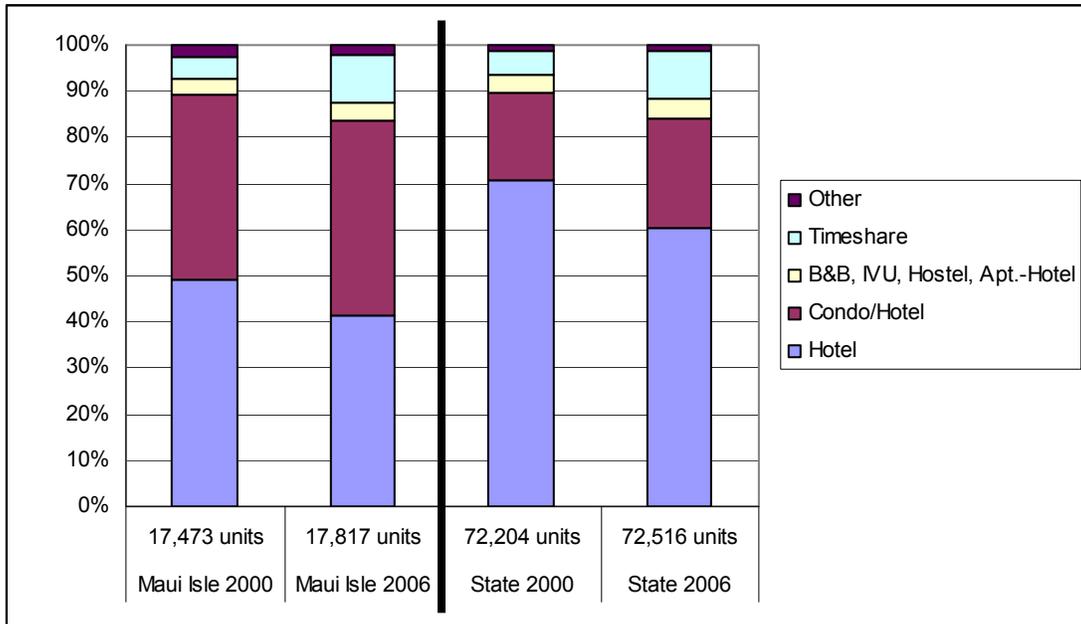
Cruise ships are a different and more distinctive issue. Despite their explosive recent growth in Hawai'i, the largest operator, Norwegian Cruise Line, has had serious profitability issues in Hawai'i, has withdrawn one of its ships, and has raised uncertainty about whether it might discontinue operations here altogether.

As previously noted, the Hawai'i State DBEDT *Visitor Plant Inventory* has incomplete counts of vacation rentals and B&Bs. It also excludes cruise ship capacity and second homes. Even so, Figure 2-2 provides some indication of the extent to which hotels are dropping as a percentage of total inventory – on Maui, from 49% in 2000 to 41% in 2006; statewide, from 71% to 60%.

As may be seen in the exhibit, timeshare and condo-hotels (condominiums with cooking facilities rented for hotel use) appear responsible for loss of hotel inventory, and of course some

hotels have indeed been converted to condominium or “vacation ownership” use. A 2006 study<sup>16</sup> found that 520 new Maui timeshare units were created through conversion (vs. 480 “new build” timeshare units) between 2000 and 2005, but projected that 2006-2010 timeshare growth would be far less through conversions (390 units) than through “new build” (1,909). The same study found only 354 hotel units were converted to hotel condos from 2000 to 2005, but 859 more hotel units are likely to be converted into condo-hotels from 2006 to 2010.

**Fig. 2-2. Maui and State Visitor Inventory, 2000 Vs. 2006**



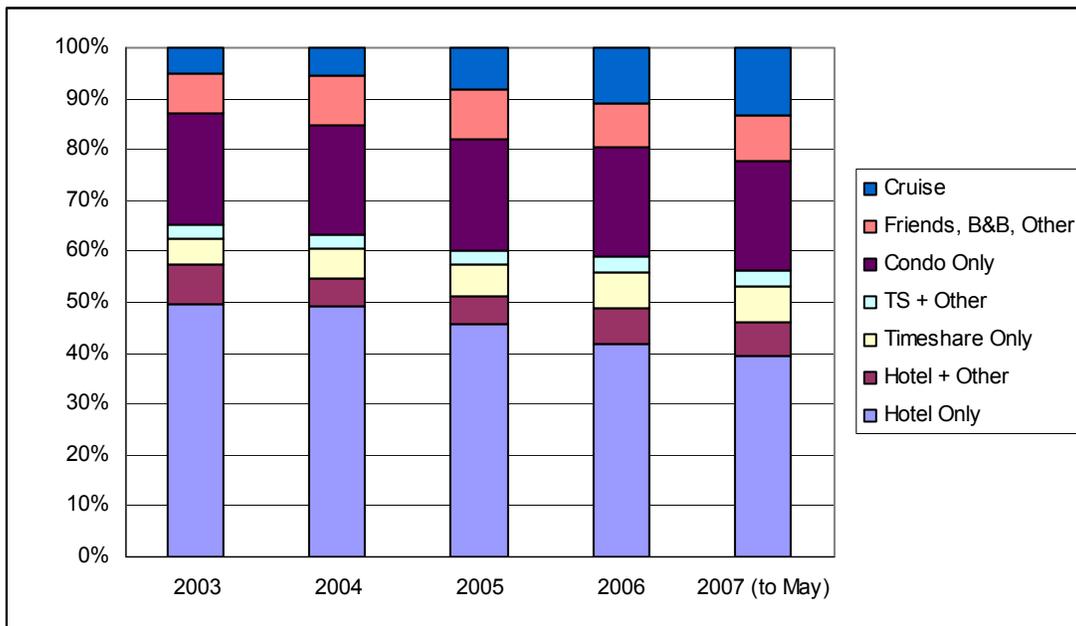
Source: Hawai'i State DBEDT, *Visitor Plant Inventory*, 2000 and 2006.

(The report did not project “new build” resort condominiums in the near future, and, unlike other counties, Maui does not track and report to the State likely new construction of resort condominiums in the foreseeable future. Also, the State does not track “units” in cruise ships – it knows number of rooms, but not how many are allocated to passengers vs. crew. Thus, both present and/or projected counts in a number of visitor accommodation types are unknown.)

Another State data series (Figure 2-3) tracks reported accommodations where visitors intend to stay. These data do include cruise in the mix, and the numbers suggest that cruise outranks timeshare as a competitor to hotels for loss of “market share.” (We put “market share” in quotes because, as noted shortly, there is a question as to whether that is the right way to think about the situation.) Just in the past four years, hotels – due both to reduction in units and additions to other types of units – have lost 10 percentage points (from 50% to 40% for the “hotel-only” category), while the gain in cruise ship numbers accounts for eight of those lost percentage points (from 5% to 13%).

<sup>16</sup> Hospitality Advisors LLC. *Summary Analysis of Economic and Social Impacts on Maui County from Timeshare Conversions*. Prepared for Maui County Dept. of Finance, 2006.

**Fig. 2-3. Maui Island Accommodations “Market Share,” 2003 - 2007**



Source: Hawai‘i State DBEDT, Research and Economic Analysis Division, *Annual Visitor Research Reports* and special run for 2007. **Note:** These data reflect Maui visitors’ accommodations statewide, not just on Maui.

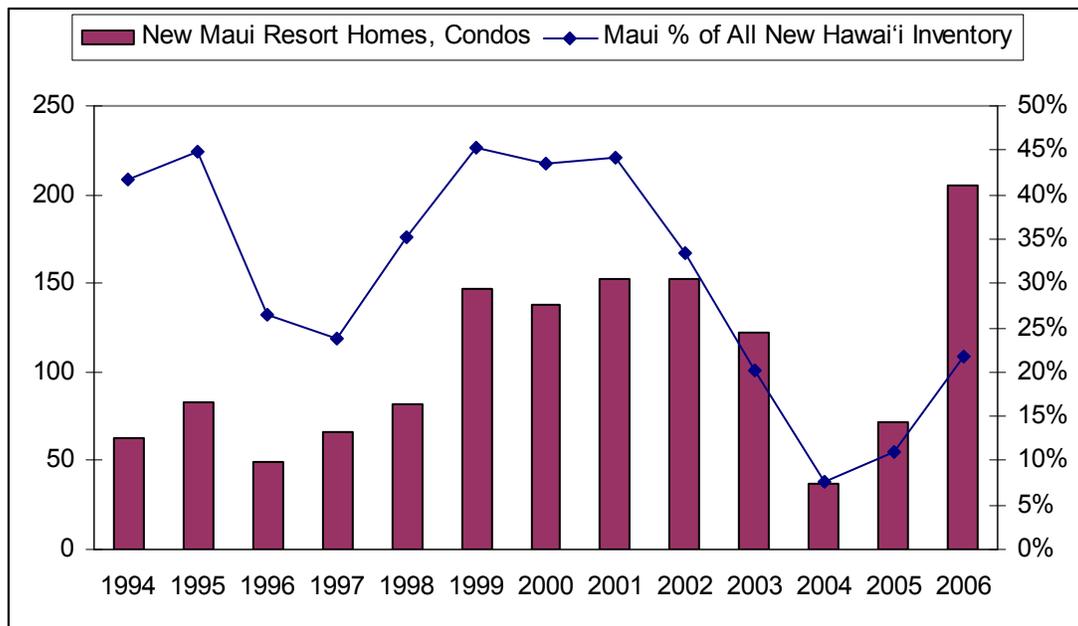
Not counted in any of the above – perhaps appropriately, perhaps not – are second homes, whether at resorts or elsewhere. These are especially difficult to tally because many properties held by off-shore owners have multiple and shifting uses: as investments (including use as long-term residential or short-term vacation rentals), as intended future retirement homes, or strictly as part-time residences. The companion “Housing Issue Paper” for this Maui General Plan Update reviews U.S. Census data through 2005 on vacant units held for “Seasonal, Recreational, or Occasional Use” (SROUs) – mostly vacation homes but some timeshare – as well as percentage of households whose temporary occupants resided elsewhere at the time of the Census.<sup>17</sup> As of 2005, 17.8% of Maui County’s housing stock (including resort housing) fell in the SROU category, the highest of Hawai‘i’s four counties. And 8.2% of households were temporarily occupied by people with permanent residences “elsewhere” – again the highest of Hawai‘i counties and also higher than in any county in the state of Florida, usually considered the “snowbird” capital of the nation.

Another indicator is the annual increase in total resort housing stock reported by recreational real estate specialist Rick Cassiday (Figure 2-4). Again, these reflect units brought online at resorts without certainty as to their immediate or final use (e.g., strictly second homes, part of the “condo-hotel” rental pool, part of the “vacation rental” stock, long-term rentals, etc.).

<sup>17</sup> John M. Knox & Associates, Inc. *Maui Island Housing Issue Paper (Part A: Defining the Problem)*. Prepared for PlanPacific, Inc. and Maui County Planning Dept. December 2006.

These numbers also combine condominium and single-family unit numbers. The chart shows that Maui accounted for a large share of the state’s new resort units until the last three years, when there has been a surge of development on other islands as well:

**Fig. 2-4. Annual Additions to Maui Island Resort Housing Stock, 1994-2006**



Source: Courtesy of Rick Cassiday, Data@Work.

The only known published attempt to link ownership and uses to date has been a 2005 mail-out survey of 365 out-of-state Maui County homeowners (most of them condominium owners, with just 12% owning single-family homes). This survey found that 35% of condos and 23% of single-family properties were reportedly purchased primarily as second homes.<sup>18</sup>

**Arguments and Issues.** No comprehensive study has yet been made of the pros and cons of resort condominiums or second homes. This activity has clearly generated substantial property tax revenue for the County and significant revenue for home building contractors, landscapers, home furnishing retailers, etc. Equally clearly, there have been significant social concerns about the extent to which Maui land has been developed for upscale, outside residents. What is by no means clear is whether resort residential development has funneled and controlled an activity that would otherwise spill over into “local” neighborhoods or has actually generated spillover effects because of the marketing of Maui to outside purchasers.

Maui County did commission a major study of the effects of hotel-to-timeshare *conversions* (and to some extent of the growth of timeshares in general) in 2006. Hospitality Advisors LLC concluded that the total amount of conversions was actually small and had little impact. They

<sup>18</sup> SMS Research. *Out of State Homeowners Survey, Maui County, 2005*. Information courtesy of SMS Research.

reported that a small informal survey of business people yielded mixed perceptions about timeshare-specific business impacts (i.e., loss of rooms for meetings and conventions, perceived tendency of timeshare occupants to shop at national chain rather than local mom-and-pop outlets). They also found that timeshare occupants were indistinguishable from resort condominium renters in their patterns of expenditures and use of local parks.<sup>19</sup>

In 2005, the “Mayor’s Cruise Ship Task Force” for the Island of Maui issued a lengthy review of the cruise industry, though it was “... *not undertaken as a technical study. Rather the process was designed to be a broad informal survey and assessment from a community perspective of the cruise industry in Maui.*”<sup>20</sup> As such, it raised more concerns and questions than provided definite answers. The issues raised were too extensive to be fully summarized here, but they included concerns about competing harbor uses (canoe clubs and Lāna‘i-Moloka‘i ferry), Kahului Harbor capacity for both cruise and cargo ships, environmental practices, and tax revenues paid by cruise operations vs. hotels. The question of whether cruise operations pay their “fair share” of taxes is expected to be a major focus of an even more extensive and statewide assessment of cruise activities being commissioned by the HTA for work to be completed in 2008.

However, the broader issues about diversification that were raised earlier included:

- (1) *Should “tourism policies” be expanded to include resort real estate?* Until timeshare began to bridge the gap, vacation homes seemed like a distinct domain from short-term transient visitor units and activities. But master-planned resorts derive much of their profitability from resort real estate (whether sold for vacation home use or for investment/rental purposes), and probably would not have been developed otherwise. And some observers have suggested that it makes more conceptual sense to talk about an integrated Hawaiian “vacation industry” (including short-term vacationers, vacation timeshare owners, and permanent vacation homes) than just to focus on the traditional short-term “visitor industry.”

Possible opposing arguments would be that short-term visitors are (a) still far more abundant than vacation homeowners; (b) can to some extent be “controlled” or at least influenced through marketing strategies; and (c) have a very different economic profile from resort vacation homeowners (i.e., provide more concentrated employment and TAT revenues primarily benefiting the State, vs. more dispersed employment and property taxes primarily benefiting the County).

Ultimately, whether to include resort real estate among “tourism policies” depends on what policies are being considered. The most critical policy choice being discussed on Maui today involves whether to limit tourism growth, and what the consequences of such a decision might be. Given the lack of any definitive study to date on the benefits and costs of resort real estate on Maui, it at least makes sense to acknowledge that limiting

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<sup>19</sup> Hospitality Advisors, LLC. *Summary Analysis of Economic and Social Impacts on Maui County from Timeshare Conversions*. Prepared for Maui County Dept. of Finance. June 1006.

<sup>20</sup> Mayor’s Cruise Ship Task Force. *Mayor’s Cruise Ship Task Force, Island of Maui, Final Report*. August 2005.

resort growth also means limiting the little-studied consequences of concentrated, resort-zoned vacation home activity – and therefore generating unknown effects on the island.

- (2) *Should government favor and protect hotel development, or welcome the diversification of visitor choices?* This question is particularly salient in regard to conversion of established hotels to condominium or timeshare use, but also touches on potential policies regarding cruise expansion or build-out of existing resort-zoned land.

Hotels, once seen as a not-altogether-welcome rival to agriculture for dominance in the local economy, have now become a familiar and established lynchpin of the economy. They host a centralized, relatively well-paid, and often unionized workforce consistent with Maui’s historical socio-economic fabric. Off-site vendors of activities and attractions find it easy to market to hotel guests through concierge and activity desks, and hotels provide venues and rooms for the lucrative conference and incentive market. And most hotel owners and/or management companies are long-term players who seem intuitively more likely to play the role of “good stewards” than do the dispersed owners of timeshares and condominiums or the cruise companies who come and go.

On the other side of the argument, business people in general have long objected to government protectionism or other intrusion into the marketplace, saying that economic “central planning” has a poor historical track record. More specifically:

- If the economics of new hotels do not make sense to investors, government disapproval of alternative lodging types on already-zoned land will not result in hotels being built instead. Denial of approval for conversion has less certain effects, depending on whether aging hotels are simply looking for greater profitability or if they see renovation in the current form as being actually unprofitable and infeasible.
- Many of the larger hotel chains now embrace a “mixed-use” hotel and timeshare model, claiming that timeshare strengthens and preserves the hotel component.
- Perhaps most importantly, it is not entirely clear to what extent hotels, resort condos, timeshare, and cruise ships are truly competing for “market share” of a single visitor market or are providing a measure of economic stability by attracting different market segments. How many visitors first decide to come to Hawai‘i, and only then ask whether to book a hotel room, a cruise ship, a resort condo, or even buy a timeshare? On the other hand, how many first make decisions about property purchase or cruise behavior, and only then look at possible locations/destinations?

Ideally, Maui would determine which types of accommodations are most beneficial to the community. But this might a little like imagining a consumer asking himself: “Which type of vehicle is best for me – a Ford, a Cadillac, a motor scooter, a bus ticket, or a bicycle?” In truth, markets have different but overlapping segments, and the structure of the Maui accommodations market is not yet entirely clear to public policy makers.

## Impacts on Government Infrastructure and Services

Any economic activity that leads to population growth will result in greater *residential* demand for roads, parks, police, and other services or infrastructure. Tourism (or the broader “vacation industry,” including resort real estate) is a unique economic activity in that it also generates direct *visitor* use of some taxpayer-funded infrastructure and services.

**Public Opinion.** Statewide and in Maui, there is a strong belief that tourism negatively impacts traffic and crime (hence, need for police). In separate questions, traffic and crime have been rated “big problems” by substantial percentages. There is considerably less public concern about impacts on parks, which is also much less likely to be seen as a problematic issue at any rate.

**Table 2-5. Maui Island Resident Beliefs About Tourism Effects on Selected Issues Related to Infrastructure or Services**

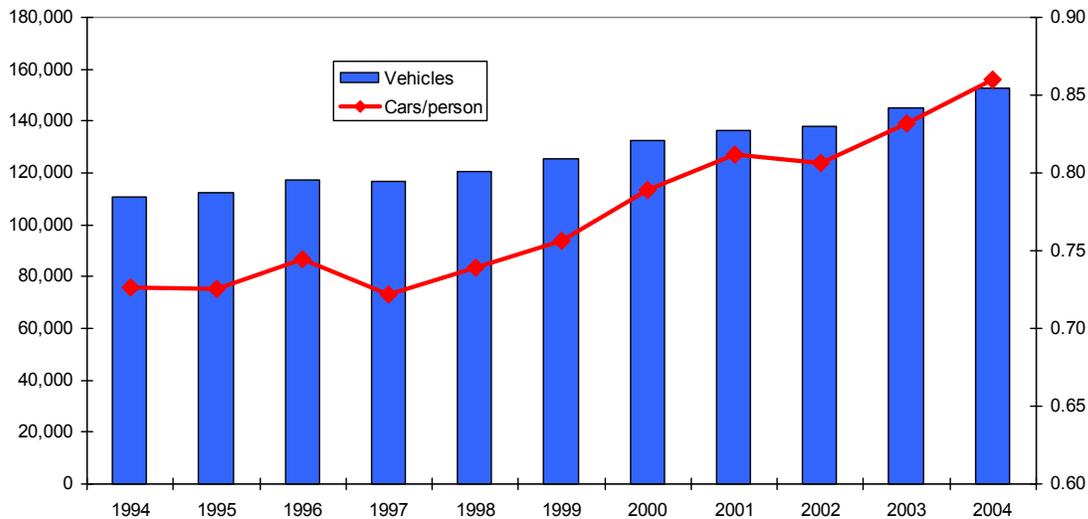
	% “Better”	% “No Effect” or Unsure	% “Worse”	% Saying “Big Problem”
<i>Traffic*</i>	5%	4%	91%	69%
<i>Crime</i>	5%	35%	60%	47%
<i>Number and quality of parks</i>	25%	60%	15%	18%

\* Result from 2005 survey – item not asked in 2006, but is supposedly to be asked again in 2007.

Source: Market Trends Pacific, Inc./John M. Knox & Associates, Inc. 2006 *Survey of Resident Sentiments on Tourism in Hawai‘i*. Prepared for the Hawai‘i Tourism Authority.

**Empirical Evidence – Traffic, Parks, and Police.** While not ruling out the effects of tourism on traffic, an SMS Research 2005 presentation to the Maui County Tourism Strategic Planning Advisory Committee also pointed out that much of Maui’s traffic growth can be attributed to residential growth and a higher ratio of cars per person:

**Fig. 2-5. Historic Vehicle Registrations and Ratio to De Facto Population of Maui County**



Source: SMS Research, slide show entitled “County of Maui Tourism Strategic Plan Data Support.”  
November 15,3 2005.

A 2004 HTA study<sup>21</sup> found that the four most heavily used Maui *State* parks – ‘Īao Valley State Monument, Mākena State Park, Wai‘ānapanapa State Park, and Pua‘a Ka‘a State Wayside – were all dominated by visitor usage (59% for Mākena on up to 95% for Wai‘ānapanapa). However, *Maui County* parks are typically more resident-oriented, and no studies have been conducted of visitor usage there, though there are frequent anecdotal reports of conflicts when dive groups or other visitor recreational activities compete with resident use.

Visitors add to demand for government emergency rescue and police services – probably disproportionately for emergency rescue due to high visitor use of risky ocean areas, but likely *not* disproportionately to police services. A study of changes in major crime rates compared to changes in visitor population over time (1975-2000) found that most Maui crime types have been dropping rather than rising as visitor population grew.<sup>22</sup>

**Other Infrastructure Impact Studies.** On a statewide basis, the most comprehensive look at tourism effect on infrastructure demand thus far has been DBEDT’s “Economic & Environmental Modeling” component of the “Sustainable Tourism Study.” This study used highway fuels as a proxy for traffic, and also considered various other types of resources and infrastructure, including water and solid waste. The study concluded that, while visitors have a higher daily per capita usage than do residents, the total impact is much more due to residents than to visitors because of the much higher number of residents:

**Table 2-6: Summary of Statewide Infrastructure Demand, Residents and Visitors**

	<u>Water</u>	<u>Sewer</u>	<u>Electric</u>	<u>Utility Gas</u>	<u>Solid Waste</u>	<u>Hwy Gas &amp; Diesel</u>
<b>Total Demand</b>	(m gal)	(m gal)	(GWh)	(mmBtu)	(m lbs)	(m gal)
Residents	61,429	33,587	5,253	1,287,940	2,423.20	353.7
Visitors	11,856	8,022	1,944	1,521,257	421.3	52.1
<b>Daily Per Capita Demand</b>	(gal)	(gal)	(KWh)	(mmBtu)	(Lbs)	(gal)
Residents	138.9	75.9	11.9	0.003	5.5	0.8
Visitors	206.7	139.8	33.9	0.027	7.3	0.91

Source: R. M. Towill, Inc. *Planning for Sustainable Tourism, Part III: Economic & Environmental Modeling Study. Volume I: Executive Summary.* Prepared for Hawai‘i State DBEDT. October 2005. Data in table are based on 1997 statewide visitor mix and economic activity.

In selected county-level analysis of infrastructure capacity to absorb foreseeable additional visitor and residential growth, the study concluded that Maui’s available water supply is at little risk. However, with anticipated visitor and resident growth, Maui Island’s current solid waste disposal capacity could reach its maximum in 2020 or shortly thereafter.

<sup>21</sup> OmniTrak Group Inc. *Hawai‘i State Parks Survey.* Prepared for Hawai‘i Tourism Authority. February 2004.

<sup>22</sup> John M. Knox & Associates, Inc. *Sustainable Tourism in Hawai‘i: Socio-Cultural and Public Input Component, Volume I: Summary Report.* Prepared for Hawai‘i State DBEDT. 2004.

**Perspectives and Issues.** How to pay for the maintenance and expansion of infrastructure is fast becoming a crisis nationally as well as in locally. In Hawai‘i, both tourism and non-tourism developments are sometimes subject to permit conditions that extract payments for certain types of infrastructure. These are supposedly ones that have a clear “nexus” (connection) to the project’s direct impact, but developers have complained that the rules are unclear and unpredictable.

While this topic is fraught with legal and political issues – and goes far beyond tourism alone – the value of a clear and definite “impact fee” policy is difficult to overstate. The County is now working on an impact fee policy to address tourism and other types of development.

### How Much Growth is Acceptable to the Maui Community?

**Public Opinion.** The HTA resident attitude surveys show Maui residents, like residents on most Hawai‘i islands, strongly want more economic diversification, oppose hotel growth in particular, but have split opinions about the desirability of more tourism *jobs*. (The 2006 results below show a slight majority disagreement about the need for more jobs, but there was majority agreement on the need for more jobs as recently as 2002.) There is also an increasing tendency to believe the island is “run for tourists” at the expense of locals:

**Table 2-7. Maui Island Attitudes Relevant to Tourism Growth**

	<b>% “Agree”</b>	<b>% “Mixed” or “Unsure”</b>	<b>% “Disagree”</b>
<i>My island’s economy is too dependent on tourism.</i>	86%	2%	12%
<i>Even if more visitors come, I don’t want to see any more hotels on this islands</i>	71%	3%	27%
<i>We need more tourism jobs on this island.</i>	43%	6%	51%
<i>This island is being run for tourists at the expense of local people.</i>	77%	5%	17%

Source: Market Trends Pacific, Inc./John M. Knox & Associates, Inc. 2006 Survey of Resident Sentiments on Tourism in Hawai‘i. Prepared for the Hawai‘i Tourism Authority.

A 2007 survey for the Hawai‘i 2050 Task Force found that 84% of respondents statewide “did not want tourism to outpace the rest of the economy,”<sup>23</sup> which is considerably different from stopping its growth. (As of this writing, Maui-specific data have not been published, but the survey’s chief researcher told the Hawai‘i 2050 Task Force that results were very similar for each county.)

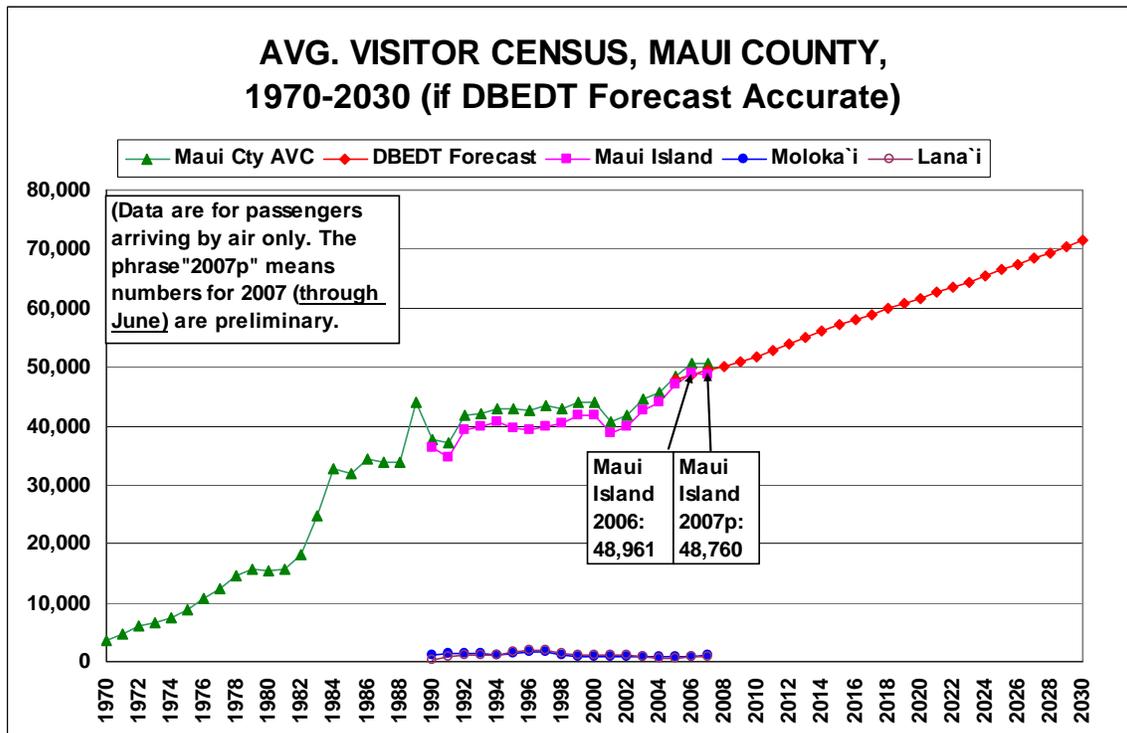
**Recent Growth Patterns and Likelihood of Additional Growth.** Figure 2-6 shows historical Maui Island data (available only since 1990) and Maui County figures from 1970. After a period of stagnation or decline from 1989 to 2001, recent trends had been steadily upward through

<sup>23</sup> Treena Shapiro. “Hawai‘i residents say environment worth tab.” *Honolulu Advertiser* online edition, August 15, 2007. Story summarized a survey of 2,000 residents – including 500 in Maui County – conducted by SMS Research for the State’s Hawai‘i 2050 Task Force.

2006, but leveled off in the first half of 2007. Figure 2-6 also shows State DBEDT forecasts through 2030, though the State emphasizes these are projections of “market demand” and not necessarily actual future conditions.

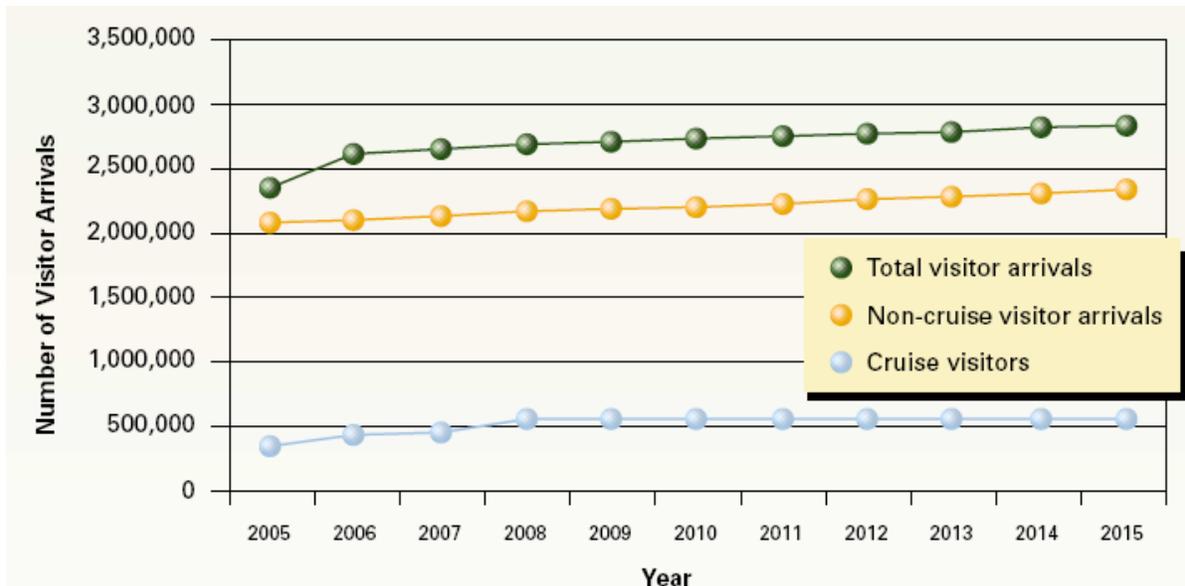
The *Maui County Tourism Strategic Plan 2006-2015 (Maui County TSP)* included cruise visitors in a more short-term forecast of total annual visitor arrivals prepared by contractor SMS Research, through 2015 only. Figure 2-7 shows those projections.

**Fig. 2-6. Historical and Projected Maui Average Daily Visitor Census**



Source: Hawai'i State DBEDT, Research and Economic Analysis Division, various reports.

**Fig. 2-7. Maui County Visitor Arrivals Forecast from Strategic Plan**



Source: SMS Research. *Maui County Tourism Strategic Plan 2006-2015*. Prepared for Hawai'i Tourism Authority, 2006.

In conjunction with this forecast, the Plan states:

The forecast for future visitor arrivals for Maui County is [for] a relatively small increase, except for the planned increase in cruise ship visitors. This is primarily due to current visitor accommodations running near capacity, and no large resorts or hotels with zoning and permitting approval. (Page 22)

**Issues and Perspectives.** The overall pattern of preceding survey results indicates that Maui residents are clearly in favor of slowing or halting the growth that is associated with high housing prices, traffic congestion, and other infrastructure impacts. However, this leads to additional questions:

- (1) Both Maui and Hawai'i in general are susceptible to fairly extreme economic cycles. How much of this anti-growth feeling will persist into the next "down" cycle?
- (2) How much of the feeling is anti-tourism and how much is anti-any-growth at all, even if the economy diversifies and growth comes from non-tourism drivers?
- (3) Given that Maui's population continued to expand in the 1990s when tourism stagnated, how much effect would capping tourism actually have on more general growth concerns – would it actually slow down residential population growth as well?
- (4) How much of the current desire to limit growth of any kind is due just to frustration over infrastructure or housing supply not keeping up with growth, and would alleviate if those problems could be solved?
- (5) Perhaps most importantly, what would be the likely effect if growth were actually halted, and would the community find the consequences acceptable? (See following discussion.)

**Informational Needs.** The previously-mentioned “Economic & Environmental Modeling” component of the State’s “Sustainable Tourism Study”<sup>24</sup> ran a hypothetical scenario in which statewide visitor expenditures remained constant while the labor force expanded due to natural population increase. The main finding was that a few other economic sectors (such as agricultural goods and clothing manufacturing) would benefit and thereby maintain or increase the Gross State Product ... *but* at the significant cost of declines in average wages for workers and households. The State report noted that this was an “artificial example” in which no other component of the economy changed, which raises the question of impacts in more real-world situations.

DBEDT forecasters have projected that visitor demand for the Maui experience will continue to grow over the long term, even if there is a short-term slowdown in growth. If Hawai‘i is fortunate enough to be entering a “soft landing” – in which the economy slows but does not crash, with attendant recessionary pressures to create jobs by any means – it might be the perfect time to do an objective study of the pros and cons of a long-term policy of capping visitor unit supply in the face of growing demand.

Some island nations, such as Bermuda, have done this, and the consequences for such places should be assessed, to the extent that they apply to an American state/county rather than a nation. When demand exceeds supply, there are typically concerns about:

- (1) Price and social equity effects (for both residents and visitors), and
- (2) The possibility of black-market responses (such as more TVR activity).

To what extent have these in fact occurred in places which have decided to limit tourism or other economic growth, and how successful have these places been in coping with such effects? These questions are of statewide importance, but are particularly salient on Maui and Kaua‘i, the islands with the greatest proportion of visitors to residents.

## **OPPORTUNITIES**

### **Attracting Higher-Spending Visitors**

Both the State and Maui County *Tourism Strategic Plans* place significant emphasis on attracting higher-spending visitors. Objective 1 of the Maui County plan states, in part:

To maintain the health of this industry, this plan focuses on increasing the economic contribution from the industry by increasing per-person, per-day visitor spending. To accomplish this, there must be on-target marketing with the right messaging to attract visitors who can and will boost the economy by actively experiencing what Maui, Moloka‘i, and Lāna‘i have to offer.

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<sup>24</sup> Hawai‘i State DBEDT. *Planning for Sustainable Tourism. Part I: Summary Report*. December 2005.

According to DBEDT's 2006 *Annual Visitor Research Report*<sup>25</sup>, average daily spending on Maui (\$201) and Lānaʻi (\$281) were the highest in the state and were the only two islands to enjoy an increase in inflation-adjusted per-person, per-day spending from 2005. However, Maui's 2006 level was still lower than its inflation-adjusted 2003 level of \$213/day (in 2006 dollars). In general, inflation-adjusted average daily spending statewide has been falling in recent years, due primarily to fewer high-spending Japanese visitors, but also due to some declines in Mainland spending that are perhaps associated with more repeat visitors who have learned to economize.

While clearly a Maui value, emphasis on higher-spending visitors needs to be tempered by several considerations:

- (1) Direct expenditure figures alone may be misleading. For example, Japanese visitors spend much more per day than do American visitors – but more of their spending quickly “leaks” away, because so much Japanese shopping focuses on imported goods that were not purchased within the local economy.<sup>26</sup>
- (2) Similarly, a large part of the apparent gap between “higher-spending” hotel visitors and timeshare or resort condo visitors is accounted for by different levels of spending on lodging in particular. In all types of accommodations, the “lodging” expenditures are particularly likely to revert to out-of-state owners or investors.
- (3) The highest-spending visitors may no longer always be the most recession-proof market. As Hawaiʻi increasingly depends on its West Coast domestic visitors who visit most frequently, there may be a need to accept that upper-income visitors are ever more inclined to buy second homes or timeshares. They then spend less per day than on initial visits, but also spend more days on island and thereby provide the steady “rainy day” spending that helps get Maui through economic downturns. (At least, this is an argument which merits consideration and study.)

All this simply means that marketing targets should be well thought-out and sophisticated, just as investors want to assemble a “well balanced portfolio” of different types of stocks and bonds. However, just as investors will always buy a stock that they believe is set to grow in value, so should Maui marketing efforts focus in good part on known higher-spending markets:

- East Coast and foreign visitors, who are more likely to be first-time visitors and stay in hotels (though a certain portion is now being diverted to cruise ships);
- Segments prone to spend more because of activities or events generating their travel – for example, the Maui *Tourism Strategic Plan* mentions “Golf, Romance (Bridal and Honeymooners), Avid Travelers, Convention Meetings and Incentive Travel ... “

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<sup>25</sup> Plus calculations based on the Honolulu Consumer Price Index to determine inflation-adjusted values.

<sup>26</sup> Hawaiʻi State DBEDT. *Planning for Sustainable Tourism. Part I: Summary Report*. December 2005.

## **Linkages with Arts, Culture and Education, or Sports**

The more that visitors attend local cultural, artistic, sports, or educational attractions, the more their dollars will circulate in the local economy rather than quickly “leaking” out of state.

The 2004 Mayor’s Economic Summit emphasized such connections and tourism spin-offs. Particular opportunities appear to lie in golf tournaments, agri-tourism featuring upcountry flower farms and vineyards, and West Maui’s growing art colony. The Maui Arts and Cultural Center provides a unique venue for cultural performances appealing to both residents and visitors, although its location in Wailuku – while assuring accessibility to residents – is sometimes a challenge in attracting visitors from the other side of the island.

Retaining more of the tourist dollar in Maui is primarily a matter of replacing the imported goods and services a tourist purchases directly or indirectly with ones that are produced locally. There are some obvious examples: Using electrical energy produced by wind or waves reduces the amounts of funds expended for imported oil. Using locally produced crops to yield ethanol – which, in turn, is blended with gasoline made from imported oil – reduces the cash leakage. If the food that visitors consume is produced locally, again the leakage is reduced. The same holds true for locally produced clothing and handicrafts. More of the visitor dollar spent to vacation in a locally owned B&B stays in the community than if the same amount of money is expended for hotel accommodations owned by a Mainland or Japanese corporation. Designing ways to reduce the leakage of the expended tourist dollar out of Maui is an important way of increasing the tourism yield for Maui.

Another less-explored possibility is the idea of educational activities or even a small extension campus that could leverage the expertise of resort visitors, part-time residents, or retirees willing to teach short courses to one another and to Maui residents. Extension schools associated with Harvard and other prestigious institutions have succeeded in creating communities based on such reciprocal education mixing residents and alumni ... an obvious parallel to mixing visitors and residents (less for economic than for social benefits).

## **POLICY OPTIONS**

*One day Alice came to a fork in the road and saw a Cheshire cat in a tree. “Which road do I take?” she asked. “Where do you want to go?” was his response. “I don’t know,” Alice answered. “Then,” said the cat, “it doesn’t matter.”<sup>27</sup>*

There are policy tools available (or can be made available) to achieve almost any tourism policy outcome desired for Maui Island. Before choosing the appropriate tools, however, there are two critical questions that must be asked and then answered, at least as best as can be, given currently available data, especially as they relate to causal relationships:

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<sup>27</sup> Lewis Carroll, [Alice in Wonderland](#)

- (1) What is the desired outcome? And
- (2) What will be the consequences of seeking that desired outcome using specific policy tools?

## **Acknowledging Existing Circumstances**

**Change and Uncertainty:** Those making public policy as it relates to tourism for Maui Island need to recognize three important visitor industry phenomena:

- (1) The Hawaiian vacation industry once again (e.g., the impact of the 747, the introduction of group tours, the entry of the Japanese tourists) is in a transition period:
  - (a) New hotels are not being built, though major hotel organizations are expanding with timeshare conversions, new hotel towers, or building new timeshare projects;
  - (b) Some existing hotel units, or portions thereof, are being converted to condo-hotels, timeshare and other fractional vacation ownership arrangements that are playing an increasing significant role in terms of tourism facilities;
  - (c) The cruise industry has been growing rapidly in recent years; and
  - (d) transient vacation rentals (TVR) and Bed & Breakfast (B&B) accommodations are on the rise.

The Hawaiian vacation industry is not what it was ten years ago, and, in all likelihood, will be different ten years from now.

- (2) The Hawaiian economy is subject to cycles that generally lead to higher highs and lower lows than is true of most mainland communities, particularly in the real estate market. Public policies that are appropriate to put in place prior to the beginning of a boom in real estate may well require modification when there is a downturn.
- (3) Repeat visitors, most from the West Coast, now comprise the great majority of visitors to Maui and other islands. Repeat visitors may be inclined to economize on spending, and they are also increasingly more likely to want to purchase property here – whether for investment, a second home, or a “vacation ownership” (timeshare) unit.

Additionally, the experience that visitors are looking for when they come to Maui varies widely. First time visitors, for instance, may very much want to see Haleakalā and the ‘Īao Needle and swim in the ocean. Repeat visitors may desire to learn more about the culture and the history of the Island and to engage in exchanges with local residents.

**Need for Additional Research:** The changing nature of visitor industry, the importance of the economic cycles, and varied experiences that visitors are seeking requires a greater emphasis on visitor industry research so as to be able to more accurately predict the consequence of pursuing specific policy options. This section has emphasized again and again that while Maui County has a great deal of data on the visitor industry, there are important areas in which it knows much less than it should.

Maui lacks data on existing and projected counts of TVU and B&Bs; it does not know whether timeshare units accommodate more visitors than the hotel units they replaced; data are lacking on whether the size of a B&B affects its degree of acceptability in a residential neighborhood. It is not known to what extent the demand for TVUs is driven by a desire for “a Maui residential experience” or a desire for economical housing for large parties of people. Little data are available on which to base a prediction of whether or not a strict enforcement of an anti-TVU policy would result in return of housing units to the local rental or for sale market.

It would be helpful to know if cruise ships and/or timeshare are tapping entirely new markets for Hawai‘i or are simply taking “market share” away from hotels. It would be good to know the economic consequences of seeking to stabilize the visitor industry at its current level before putting policies in place to achieve such an outcome.

Regardless of which outcome is desired, there is a pressing need for additional research data. The Maui County Planning Department will have to determine what data it requires and then either arrange to obtain the data on its own or negotiate with the Department of Business, Economic Development, and Tourism to furnish the required analyses or pursue both avenues.

## **Basic Policy Options Regarding Tourism Growth**

**Framework:** There are three basic policy options, each designed with a specific outcome in mind:

- (1) Stop tourism growth at current level of facilities and current number of visitors;
- (2) Provide for slow to moderate growth (“controlled growth”) in tourism facilities and number of visitors;
- (3) Let the market determine the quantity and quality of visitor facilities and the number of visitors.

Option 2 mentions two possible rates of growth, slow or moderate. The policy difference is just a matter of degree –with slow growth, restrictions would be greater than with moderate growth.

For each option, there are four classes of visitor facilities to be considered:

- (a) Those required to be located in land zoned for resort use, namely, hotels, condo-hotels, resort condos, and timeshare or other fractional ownership units;
- (b) Bed and Breakfast accommodations;
- (c) Transient vacation rentals including second homes; and
- (d) Cruise ships.

It is vitally important to recognize that Maui County may desire to employ different policy options to the different classes of visitor facilities. Thus, it might choose the no growth option with respect to TVR facilities and the moderate growth option when it comes to B&Bs. Even among the facilities required to be located on land zoned for resorts, the County may choose to encourage moderate growth in hotels and only slow growth in timeshare units. Even though the County may desire a moderate growth in the number of hotel rooms, the financial markets may not be willing to invest in that option while ready to finance time share developments. The critical point, however, is that the County can pursue different options for different classes of visitor facilities.

**Key Policy Tool -- Establish a Licensing System for All Visitor Accommodations:** Key to administering any of the options is a comprehensive licensing system for all visitor accommodations: hotel units, condo-hotels, resort condos, time shares and other fractional ownerships, bed and breakfast units, and transient vacation rentals. The owner of any such unit must have a license to use the unit as a visitor accommodation. There would be a single license for a timeshare or fractional ownership unit, which would list all the owners. A license could be transferred to a new owner, but registration of the new ownership would be required in a manner similar to transferring an automobile title. The license would require payment of an annual fee. Non-payment, of course, would result in cancellation of the license and the non-availability of the unit as a visitor accommodation. Licenses could be surrendered when a unit is demolished or destroyed or no longer used to accommodate visitors.

If a license is turned in or otherwise surrendered, the County could then issue a new license to a current applicant because there would be no increase in the number of available units in that class of accommodations.

Licenses would be issued for visitor accommodation units that had previously received official permission from the County to operate prior to the effective date of the establishment of the licensing system. Those owners of currently operating units that have not received official permission from the County would need to submit an application for a license if they intended to continue to provide accommodation for visitors.

The purpose of the licensing system is to provide the County with the means for regulating the availability of visitor accommodations. Licensing also facilitates the County requiring that a license number appear in any advertisement, whether in print, on the internet or in any other medium, publicizing the availability of a visitor accommodation unit. It can thus help in the regulation of TVRs (see following Section 2.5.3.)

### **(1) The Stop Tourism Growth Option**

*In Land Zoned for Resort:*

- Do not zone any additional land for resort.
- Do not issue any new licenses except on a one-to-one replacement basis.

### *Bed and Breakfast (B&B):*

- Set a maximum limit on the quantity of B&Bs based on the number of currently licensed units plus the number in process of being licensed. Establish separate limits for Class One, Class Two, and Class Three B&Bs as described in the following bullet.
- Establish three classes of B&Bs: (1) Class One based on two or fewer bedrooms; (2) Class Two based on three to four bedroom units; and (3) Class Three based on five to six bedroom units. Prohibit B&Bs from having more than six bedroom units
- Use the license system for all three classes of B&Bs. One cannot open a new B&B without acquiring a license from the County.
- Provide that B&Bs will be taxed at the same property tax rate as hotels and resorts.
- Establish a stiff financial and criminal penalty for running a B&B without a license.

### *Transient Vacation Rentals (TVRs):*

- Define TVRs as rentals for a period of three months or less. The figure could be one month or two months, but the three month figure provides the County with additional control over the rental of second homes as VCRs.
- Set a maximum limit on the number of TVRs based on the number of currently licensed units plus the number in process of being licensed. Establish separate limits for different classes of TVR based on size of the unit.
- Establish strict rules relating to parking (e.g., vehicles must be parked on site) and to noise (e.g., no more than so many decibels at such and such a distance between 10 pm and 7 am). The penalty for the second or third violation of the rules would be revocation of the license.
- Use the licensing system for all classes of TVRs. One cannot operate a new TVR without a license from the County.
- Provide that TVRs will be taxed at the same property tax rate as hotels and resorts.
- Establish a stiff financial and criminal penalty for running a TVR without a license.

### *Cruise Ships:*

- Petition the State to establish a limit on number of cruise ship passengers that can arrive in Kahului Harbor on any single day and in any seven day period based on current arrival figures.
- Petition the State to allow the county to levy a municipal infrastructure/service fee per disembarking passenger to be paid by each cruise ship landing at Kahului Harbor.
- Seek authority from the State to have the right to impose a real property tax on each cruise ship for the portion of the year that the ship resides in Maui County.

## **(2) The Controlled Growth Option**

The Controlled Growth Option includes both the slow growth and moderate growth possibilities. With Slow Growth, restrictions on growth would simply be greater than with Moderate Growth.  
*In Land Zoned for Resort:*

- Plan on zoning additional acreage for resort with the amount to be determined based on the desired growth rate for number of visitors staying in hotels, condo-hotels, resort condos, and timeshare accommodations

*Bed and Breakfast (B&B):*

- Set a maximum limit on the quantity of B&Bs based on the number of currently licensed units plus the number in process of being licensed plus the desired annual growth rate. Establish separate limits for Class One, Class Two, and Class Three B&Bs as described above.
- Use the license system for the three classes of B&Bs. One cannot open a new B&B without a license from the County for a Class One, Class Two, or Class Three facility. The County would increase the number of license available each year based on the desired annual growth in B&Bs.
- Provide that B&Bs will be taxed at the same property tax rate as hotels and resorts.
- Establish a stiff financial and criminal penalty for running a B&B without a license.

*Transient Vacation Rentals (TVRs):*

- Define TVRs as rentals for a period of three months or less.
- Set a maximum limit on the quantity of TVRs based on the number of currently licensed units plus the number in process of being licensed plus the desired annual growth rate. Establish separate limits for different classes of TVR based on the size of the unit.
- Establish strict rules relating to parking (e.g., vehicles must be parked on site) and to noise (e.g., no more than so many decibels at such and such a distance between 10 pm and 7 am). The penalty for the second or third violation of the rules would be revocation of the TVR license.
- Use the license system for all classes of TVRs. One cannot open a new TVR without acquiring the applicable license from the County. The County would increase the number of additional licenses each year based on the desired annual growth in TVRs.
- Provide that TVRs will be taxed at the same property tax rate as hotels and resorts.
- Establish a stiff financial and criminal penalty for running a TVR without a license.

*Cruise Ships:*

- Petition the State to establish a limit on number of cruise ship passengers that can arrive in Kahului Harbor on any single day and in any seven day period based on current arrival figures plus desired annual growth rate.

- Petition the State to allow the county to levy a municipal infrastructure/service fee per disembarking passenger to be paid by the each cruise ship landing at Kahului Harbor.
- Seek authority from the State to have the right to impose a real property tax on each cruise ship for the portion of the year that that the ship resides in Maui County.

### **(3) The Market-Determined Growth Option**

#### *In Land Zoned for Resort:*

- Zone additional acreage for resort based on the anticipated demand for new hotels, condo-hotels, resort condos, and/or timeshare accommodations that is likely to occur during the next 15 to 20 years.

#### *Bed and Breakfast (B&Bs):*

- Grant licenses for new B&Bs as qualified applications are submitted.
- Consider taxing B&Bs at the same property tax rate as hotels and resorts.
- Establish a stiff financial and criminal penalty for running a B&B without a license.

#### *Transient Vacation Rentals (TVRs):*

- Define TVRs as rentals for a period of three months or less.
- Grant licenses for new TVRs as qualified applications are submitted.
- Establish strict rules relating to parking (e.g., vehicles must be parked on site) and to noise (e.g., no more than so many decibels at such and such a distance between 10 pm and 7 am). The penalty for the second or third violation of the rules would be revocation of the TVR license.
- Consider taxing TVRs at the same property tax rate as hotels and resorts.
- Provide a stiff financial and criminal penalty for running a TVR without a license.

#### *Cruise Ships:*

- Petition the State to allow the county to levy a municipal infrastructure/service fee per disembarking passenger to be paid by the each cruise ship landing at Kahului Harbor.

### **Visitor Units in Residential Areas**

For vacation rentals (“TVRs”), Maui County is considering a policy which would legalize such units but permit them only in new Resort Destination Areas or in country town business districts which would impose design guidelines. This would still leave open the question of how to enforce laws against remaining illegal activities in residential areas. The City and County of Honolulu is currently considering a requirement that all advertising (including Web ads) must

include an accurate license number showing the operations are legal. This approach would allow prosecution without the need for on-site inspections to determine use.

Maui County looks more favorably on bed-and-breakfasts (“B&Bs”) and is considering allowing some expansion of that activity through streamlined permit processing.

## **Attracting High-Spending Vs. Diversified Visitor Types**

Maui County has two basic tools:

- (1) Marketing through the Maui Visitors Bureau; and
- (2) Land use decisions for new or expanded resort activities.

As previously suggested, what has been lacking is careful research into the trade-offs involved in assuming that higher-spending visitors are always the most stable market through economic cycles. First-time visitors from the East Coast staying in hotels for only a few days may spend the most per day, but it is possible they will not be the most dependable market.

Diversification of visitor types (and, to an extent, visitor units) can help stabilize Maui’s visitor industry. One of the most critical needs is for better data on trends in timeshare, which still suffers from a poor reputation but which boasted high occupancies in the months after September 11, when other types of lodging saw a severe slump.

## **Tourism Linkages**

Again, Maui County has two basic tools:

- (1) As above, marketing through the Maui Visitors Bureau (MVB); and
- (2) Grants from the Hawai‘i Tourism Authority’s “County Product Enrichment Program.”

The County Enrichment Program has been used to fund events such as the “‘Ulupalakua Thing,” which celebrated upcountry culture and agricultural products. While that event has been discontinued, it is a model for future possibilities.

Having a rich menu of attractions and activities appealing to a wide range of people is also an important element in enhancing the possibility that a visitor will return. The list of such attractions and activities is almost endless, from the X-Treme marathon to the Hawaiian cultural show to golfing to hiking Haleakalā to fishing near Lāna‘i to whale watching off Lahaina to attending a local lū‘au to painting historic churches to trying a spa or alternative healing to fine dining to kayaking to story telling to just meeting and visiting with local folks. It is this last item that may be most important to many potential returnees.

MVB marketing efforts (including County dollars) have traditionally focused on generic promotion of Maui as an overall destination. However, with two-thirds of Hawai'i's visitors now on repeat trips, it may be time to divert some of the emphasis to acquainting people already familiar with Maui as a whole to events and attractions with which they are less familiar. This could both keep them coming back to Maui and also result in more of their dollars being circulated in the local economy.

## SECTION THREE: AGRICULTURE

Hawai'i is a geographically remote place whose first people, the Polynesians, supported a large population by cultivating crops, livestock, and fish. Today, Hawai'i's people depend mostly on food supplies transported long distances from North America, Asia, and the Pacific region. Some of the state's most viable agriculture products are primarily produced for export. While agriculture's role in the cash economy has declined, locally-raised food and agriculture's presence in the landscape have other important benefits: supporting tourism, increasing self-reliance, and adding to the quality of life. Perhaps most important, agriculture provides stewardship and environmental management for thousands of acres.

Agriculture on Maui consists of both large, land-extensive activities (plantation crops and cattle-grazing) and labor-intensive small farming. Agricultural enterprises range from subsistence farming to corporately-owned plantations. Products include plant crops, livestock products, and aquaculture.

### OVERVIEW

Over the past 40 years, agriculture has declined in terms of overall production, employment, and economic value in Maui County as in the State as a whole. Statewide between 1964 and 2003, total farm sales decreased from \$970.5 million to \$550.5 million (2003 dollars).<sup>28</sup> According to researchers at the UH's College of Tropical Agriculture and Human Resources (CTAHR), agriculture currently contributes about three percent of the Gross State Product.

At the same time, however, the agricultural industry has diversified. In 1964, sugar and pineapple represented 71 percent of farm sales statewide. In 2003, the position was reversed: diversified crops accounted for 70 percent of farm value, and the two major plantation crops accounted for 30 percent. In the past 20 years, the value of diversified agriculture production has more than doubled. In 2005-06, seed corn became Hawai'i's highest-earning crop, with sales of \$68.1 million (exceeding sugar sales of \$61.5 million).

During this period, many large plantations have closed, while small farms have increased in number throughout the state. This has led to a decrease in wage and salary employment, while the number of self-employed farmers has increased.

### Trends

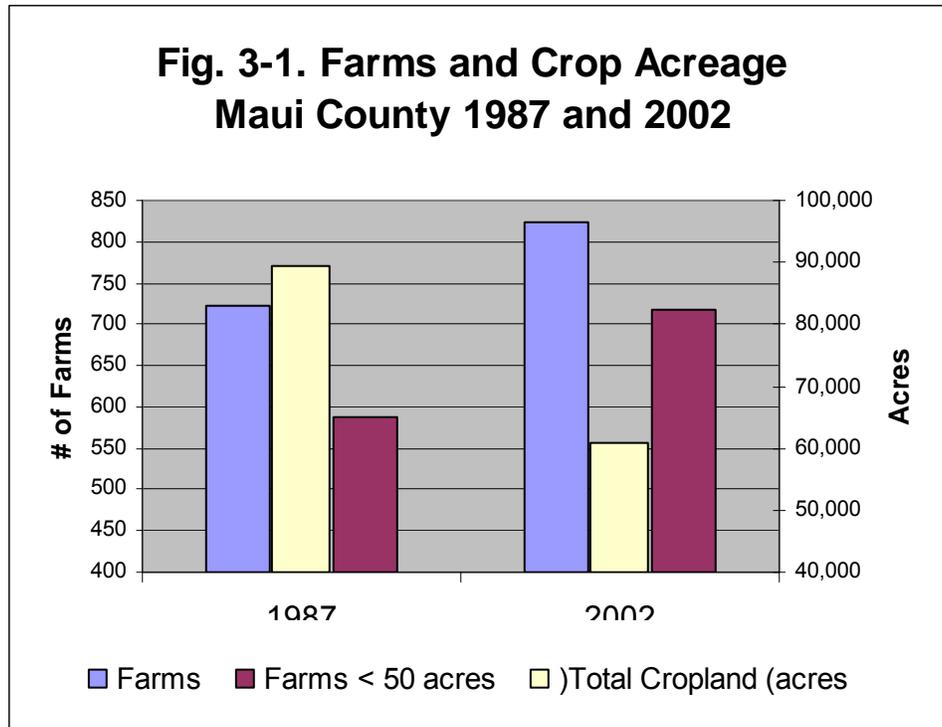
Federal and State agencies provide comprehensive agricultural statistics for the state and Maui County, but do not differentiate data among the islands. Consequently, although this issue paper addresses the Island of Maui, most of the trend data cited herein relates to Maui County.

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<sup>28</sup> Cai, Junning and PingSun Leung, "Growth and Stability of Agricultural Production in Hawai'i: A Portfolio Analysis," Economic Issues #EI-9, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawai'i at Manoa, April 2006.

The total number of farms in Maui County has steadily increased from 500 in 1978 to approximately 850 farms in 2004. This was due to growth in the number of small farms growing diversified crops. In 2002, 87 percent of all farms in the County were less than 50 acres in size; and 61 percent were less than 10 acres. At the same time, the number of plantations and larger farms declined, as did total cropland (land in cultivation). Figure 3-1 shows the opposing trends by comparing the number of farms with total cropland for the agricultural census years of 1987 and 2002. Total cropland decreased from 89,439 acres in 1987 to 60,729 acres in 2002.<sup>29</sup>

**Fig 3-1: Farms and Crop Acreage**



Wage and salary jobs in agriculture declined substantially in Maui County, as plantations closed or became more efficient. In 1984, the county had 3,700 agricultural jobs. By 2005, the number of wage and salary jobs in agriculture dropped to 1,600, only 2.3 percent of all Maui County jobs.<sup>30</sup>

The number of self-employed farm operators in Maui County has trended upward, with significant fluctuations year-to-year. The data show 360 self-employed farm operators in 1978, sinking to a low of 225 in 1989, and rising to a high of 500 in 2002.<sup>31</sup> The rising trend corresponds to the increasing number of small farms. The fluctuations indicate a general instability in small agricultural businesses.

<sup>29</sup> U.S. Department of Agriculture, National Agricultural Statistics Service, *Census of Agriculture*, 1987, 1992, 1997 and 2002.

<sup>30</sup> State of Hawai'i, Department of Business, Economic Development and Tourism, *State of Hawai'i Databook*, various years.

<sup>31</sup> After 2002, "self-employed farm operators," and "unpaid family members" were no longer tabulated because of a change in the national labor statistics program.

Sugar and pineapple continue to be Maui's leading crops, both in terms of acreage and value of products. One of only two sugar plantations remaining in the state, Hawaiian Commercial & Sugar (HC&S), accounted for 75 percent of statewide sales of unprocessed cane in 2004. Pineapple produced on Maui represented 35 percent of 2004 statewide sales.

In a portfolio study of Hawai'i agriculture, CTAHR researchers identified several "star" industries, whose expansion evidenced "stabilizing capacity" and "helped increase both Hawai'i's agricultural sector's growth and stability" during the period 1984-2003.<sup>32</sup> The star industries were aquaculture, herbs, seed crops, vegetables and melons, and floriculture and nursery products. Maui County has seen growth in these crops – particularly in vegetables and melons and floriculture/nursery products. In general, however, Maui County has had a relatively small share of statewide production in these emerging industries.

From 1974 to 2004, the number of nurseries and flower farms in Maui County increased from 54 to 180. Cooperatives have helped growers to market and ship products more cost-effectively. In 2004, Maui County flower and nursery sales totaled about \$9.5 million, about 10 percent of the state's total flower and nursery sales.

Maui County's vegetable and melon farms increased from 72 in 1974 to a peak of 145 in 1999. In 2004, the total had dropped to 105 farms. Crop sales in this industry amounted to about \$9.6 million in 2004, about 14 percent of the state total.

Following a statewide 20-year trend, livestock operations and sales have declined in Maui County. Statewide during the period 1984-2004, the inventory of cattle dropped by 30 percent, while the number of milk cows, hogs and pigs, and chickens each declined by about 50 percent. Since the closing of Haleakalā Dairy, Maui no longer has a major producer of fresh milk and dairy products. In 2004, Maui County recorded 19,000 head of cattle, about 12 percent of the state total. The county had about 14 percent of 2004 sales statewide of cattle and hogs.

## **Land Supply**

The Island of Maui has 17,174 acres in the State Urban District, which is approximately five percent of the total land area. Over 14 times that amount, or about 244,632 acres, has been designated within the State Agricultural District. While some has been developed with large-lot residential subdivisions, much of Maui's agricultural land is used for crop production or as rangeland.

Table 3-2 compares acreage of lands designated for agriculture with acreage rated according to two primary productivity rating systems, and finally with acreage in crop production. Based primarily on soil qualities suitable for major crops, the earlier Land Study Bureau report rated 87,425 acres on Maui as "A", "B" or "C" quality for crop production. The largest amount of A and B land lies in Central Maui between Pu'unene, Pā'ia, Pukalani, and Mā'alaea. Other A and B

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<sup>32</sup> Cai, Junning and PingSun Leung, "Growth and Stability of Agricultural Production in Hawai'i: A Portfolio Analysis," Economic Issues #EI-9, Cooperative Extension Service, College of Tropical Agriculture and Human Resources, University of Hawai'i at Manoa, April 2006.

lands lie in the valleys and lower ridges on either side of the West Maui mountains, around Ha'ikū, and in the Makawao-Kula area.

<b>Table 3-2 Maui's Agricultural Lands (acres)</b>	<b>Maui Island</b>	<b>Maui County</b>
Total Land Area	465,471	741,760
Land in State Agricultural District	244,632	402,898
Agricultural Lands of Importance to the State of Hawai'i (ALISH):		
Prime, Unique, and Other Important Lands	149,249	209,902
Prime <sup>33</sup>	67,980	79,430
University of Hawai'i Land Study Bureau (LSB) Lands:		
Lands Rated "A", "B", and "C" <sup>34</sup>	87,425	96,590
Lands Rated "A" and "B"	50,801	51,505
Total Cropland (2002) <sup>35</sup>	n.a.	60,729

Sources: State of Hawai'i Department of Agriculture; Department of Business, Economic Development and Tourism, *2005 State of Hawai'i Databook*; U.S. Dept. of Agriculture, *2002 Census of Agriculture*.

The ALISH study (Agricultural Lands of Importance to the State of Hawai'i) counted 149,249 acres on Maui as Prime, Unique or Other Important Lands. ALISH considered climatic properties as well as soil quality. ALISH was more comprehensive, including lands that were being cultivated for unique and locally important crops.

The USDA's *2002 Census of Agriculture* showed that 60,279 acres were in use for crops countywide. (Conducted every five years, the census provides data only at the state and county level.) Cropland includes land harvested (about half), land used for pasture and grazing, and land that is idle. It does not include rangeland, i.e., uncultivated areas that are used for low-intensity grazing. Presumably, Maui Island accounts for some 90 percent of the county's croplands.

Comparing the ALISH inventory of important agricultural lands with the amount of cropland in use, it seems evident that Maui has an ample supply of land that is suitable for increased agricultural production. Some of the land formerly in sugar and pineapple production has been developed with "agricultural subdivisions" (i.e., large-lot residential), and some has been proposed for or redesignated to urban use. Nevertheless, there still remains a significant amount of land that could be used for agriculture.

## **Government Roles in Supporting Agriculture**

The Federal and State governments play primary roles in supporting and regulating agriculture on Maui. The County plays a supporting role and has comparatively few resources to devote to agriculture.

<sup>33</sup> Prime ALISH indicates the most potentially productive lands and assumes availability of sufficient rainfall or irrigation water.

<sup>34</sup> The LSB ratings indicate the productivity of lands, with "A" being the best. The "A", "B", and "C" ratings indicate lands with very good to fair productivity potential for most crops.

<sup>35</sup> Total Cropland includes cropland harvested, cropland used for pasture and grazing, and idle cropland (Census on Agriculture 2002).

**Federal Government.** The U.S. Department of Agriculture provides financial aid, loan, and insurance programs for farmers, as well as marketing assistance. USDA also has a wide range of programs addressing environmental preservation, research and agricultural statistics. In addition, USDA regulates food safety and operates the Animal and Plant Health Inspection Service (APHIS), whose mission is to prevent disease and maintain the health of crops and livestock. This service is critical in preventing the importation of alien organisms that could damage not only agricultural production but also native plant and animal species.

Certain federal policies with regard to inspection services and marketing put Hawai'i at a disadvantage. As an island archipelago, the state is uniquely vulnerable to alien species that may be transported here from various U.S. and international sources. Nevertheless, the USDA spends far greater resources to inspect transport outbound to California and the U.S. mainland than it does in inspecting inbound transport. In addition, the USDA has been more liberal regarding the importation of some foreign products than it has in allowing sale of similar Hawai'i products to mainland states.

**State of Hawai'i.** The mission of the Hawai'i Department of Agriculture (DOA) is "to stimulate growth in agriculture in Hawai'i." The department's main objectives are to preserve, promote and develop essential agricultural resources and infrastructure; to create and maximize opportunities for exporting; and facilitate growth of existing and new agricultural commodities and by-products. In addition, the department works to prevent the introduction and establishment of plants, animals and diseases that are detrimental to the state's agriculture industry and the environment.

DOA provides direct assistance to farmers with financial aid and marketing programs. It operates 10 agricultural parks statewide, but none on Maui. It also operates five irrigation systems on three islands, but none on Maui. The DOA has built produce processing and marshalling facilities on various islands. On Maui, the state funded the Kula Vacuum Cooling Facility, which is operated by a farmers' cooperative.

Other State agencies have responsibilities that are critical to the transportation of agricultural products and supplies. The Department of Transportation (DOT) is responsible for furnishing and operating airport and harbor facilities. The Public Utilities Commission (PUC) is responsible for regulating inter-island barge services. Marshalling and transportation of products to O'ahu and the U.S. mainland affect the viability of Neighbor Island farms that produce for export.

Article XI, Section 3 of the State Constitution mandates conservation of agricultural lands: "The State shall conserve and protect agricultural lands, promote diversified agriculture, increase agricultural self-sufficiency and assure the availability of agriculturally suitable lands." In fact, the State Land Use District statute adopted in 1961 and implemented in 1964 was intended to protect agricultural lands by regulating the conversion of land to urban uses. Article XI, adopted in 1978, goes further by requiring identification of "important agricultural lands," setting standards and criteria, and mandating that rezoning or reclassification could only be approved by a two-thirds vote of the approving body.

Industry advocates argue that land use regulation is not sufficient to promote the growth of agriculture. The state Legislature agreed when, in 2005, it adopted Act 183 establishing a process to designate “Important Agricultural Lands” (IAL) in all counties. The Legislature linked implementation of the IAL regulatory scheme with adoption of a wide range of incentive measures to support agricultural businesses. IAL incentives named in Act 183 include grants, tax incentives, reduced infrastructure requirements, “facilitated” building permit processes, favorable water policies and regulations, and education and training.

The College of Tropical Agriculture and Human Resources (CTAHR), headquartered at the University of Hawai‘i at Mānoa, supports agriculture through educating students, undertaking research, and providing information and services to farmers through its cooperative extension office. Maui Community College offers coursework in agriculture oriented to the local farming community.

**County of Maui.** The County has no agency dedicated to agriculture, and no specific responsibility for agricultural enterprise is listed in the Maui County Charter. Nevertheless, the County provides significant support for agriculture through its property tax regime, by providing water for crop irrigation, and special projects such as the Kula Agricultural Park. In addition, the County has partnered with farm and business organizations to promote Maui products.

Under the Maui County Code, lands dedicated to agriculture are assessed according to their value for agricultural production rather than by “highest and best use.” In addition, lands classed “Agricultural” are taxed at \$4.50 per \$1,000 assessed value – a low rate compared to most tax classes. This represents both a direct subsidy of agricultural businesses, as well as an incentive to maintain land in agricultural use.

The Maui Department of Water Supply (DWS) provides water to agricultural users at subsidized rates. As of 2006, the agricultural rate per 1,000 gallons was \$.85 for (a) non-potable water and (b) potable water over 25,000 gallons per billing period. (Note that farmers pay the same rates as residences for the first 25,000 gallons.) This represents a subsidy of greater than 50 percent of the DWS’s average cost of providing potable water, which was computed at \$1.94 per 1,000 gallons in FY 2003.<sup>36</sup> In that year, agricultural users consumed 8.44 percent of all potable water supplied by the DWS. About 77 percent of this water was consumed by farms in the Makawao-Pukalani-Kula CP Area.<sup>37</sup> The cost of supplying potable water in Kula was \$2.79 per 1,000 gallons (2003) – well above the countywide average. Consequently, the effective subsidy for Kula agricultural users represents 70 percent of the DWS’s average cost.

The Office of Economic Development (OED) manages the Kula Agricultural Park on behalf of the County. The 445-acre park consists of 31 farm lots ranging in size from 7 acres to 29 acres. According to the OED, “The purpose of the Ag Park program is to promote the development of diversified agriculture by providing appropriately-sized agricultural lots at reasonable rent with long-term tenure thereby contributing to the economic growth of our agriculture industry.” Non-potable irrigation water for Kula Agricultural Park is supplied by the DWS. This is the only non-potable system operated by the County.

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<sup>36</sup> *Maui County Water Use and Development Plan, Draft Chapter on DWS Finance and System Economics*, August 2005. Figures stated are the total of operating costs and allocated capital costs.

<sup>37</sup> *Maui County Water Use and Development Plan, Draft Chapter on Water Use and Demand*, November 2004.

## Strategic Planning

Planning for agriculture generally focuses on a specific issue, crop or project. The range of activities and influences affecting agriculture is so broad that it makes comprehensive planning very difficult. In 2002-03, the Maui Farm Bureau engaged in a strategic planning process with support from the Mayor's Office of Economic Development. This resulted in the preparation of the "Maui Agricultural Strategic Plan," Draft 2, March 3, 2003 (MASP). The Strategic Plan sets forth a vision and a set of initiatives, as well as more detailed issues and implementation steps. Much of the analysis of challenges and opportunities that follows was drawn from the MASP and follow-up discussion with the Maui Farm Bureau.

## CHALLENGES

This section summarizes key challenges facing agriculture on Maui. The next section summarizes opportunities. It should be noted that each agricultural industry confronts its own special challenges and opportunities, which change with market and biological influences. Most of the challenges and opportunities discussed pertain to small farms. The large corporate landowner/agricultural producers HC&S and ML&P confront different sets of challenges and opportunities.

**Competition from Overseas.** Agriculture in Hawai'i faces a number of challenges, the most important of which is the globalization of food markets. This has affected both exports and imports. Plantation agriculture and the export of sugar and pineapple have declined because crops can be raised and food products can be processed at lower cost overseas. Labor for cultivating and canning pineapple in the Philippines or Thailand costs a fraction of what it would in Hawai'i.

Conversely, much food consumed in Hawai'i comes from the mainland or overseas. In California, large corporations, employing relatively inexpensive labor and utilizing large farms and factories, produce crops and processed foods. The size and efficiency of these operations, coupled with the efficiency of their distribution networks and the relatively low cost of transportation, allows them to deliver food at low cost over long distances. Some years ago, rice was grown and milled in the islands. Today, all of the rice consumed in Hawai'i is imported. More recently, competition from mainland milk producers has driven all but one of the state's commercial milk producers out of business.

On the positive side, Hawai'i has developed new export crops, such as fresh pineapple, seed corn, and floriculture/nursery products. Despite the fact that 80-90 percent of food consumed in Hawai'i is imported, the state now grows 40 percent of its fresh vegetables.<sup>38</sup>

**Availability of Land for Farming.** Although agricultural land is plentiful on Maui, it is not readily available to the farmer-entrepreneur. Small agricultural parcels that have road access,

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<sup>38</sup> *Hawai'i Business News*, "Hawai'i's 7 Agriculture Myths," April 2005.

water and utility service command an extremely high price as house lots. Owners of larger properties typically decline to grant a long-term lease or to subordinate their interest so that the farmer can qualify for agricultural business loans. Even though a farmer may be able to lease land for cultivation, he may not be able to build a house there. The farmer then must pay for a residence elsewhere, adding to his cost of living, and his crop will be vulnerable to thieves. By the same token, a small farmer – particularly one who is just starting up – will be unable to afford the price of the typical two-acre agriculturally-zoned lot.

The capitalized value of land leased for agricultural production is a fraction of the value of the same land developed with houses. Developing homes in an agricultural subdivision may stimulate some part-time or hobby farming activity, but it does not provide land for full-time farming enterprises.

**Availability of Irrigation Water.** HC&S and ML&P irrigate crops by using ditch systems that the companies built for that purpose 100 years ago. Most small farmers, however, use potable water supplied by the DWS. The majority of small farms are located Upcountry, where DWS’s system relies primarily on surface sources, has limited reservoir storage capacity, and is vulnerable to summer droughts. During drought periods, the DWS imposes mandatory use restrictions that affect Upcountry farm operations and reduce crop yields.

As discussed above, DWS subsidizes the average cost to agricultural users by more than 50 percent countywide, and by 70 percent in Upcountry (amounts greater than 25,000 gallons per billing period). Treatment to potable standards is a large part of operating cost. In a project jointly funded with the federal Natural Resource Conservation Service (NRCS) and the State DOA, the DWS is developing the Upcountry “Dual Line Water System” to reduce the cost of providing irrigation water. Scheduled for completion by 2010, this system consists of transmission lines that will bypass the water treatment facility and serve nonpotable water to agricultural users. Recent outbreaks of *e. coli* on the mainland, however, have caused health officials and foodsellers to reexamine the use of untreated water on edible crops, such as vegetables. In the future, regulations for fresh produce may ban irrigation using untreated water.

**Transportation.** The availability of transportation to markets outside of Maui affects the economic viability of many agricultural enterprises. Some industries, such as cut flowers, rely heavily on airline shipping to the mainland. Others, such as fruit and vegetable crop farmers, ship to O’ahu via inter-island barge. The cost of transportation is vulnerable to increase (especially due to rising fuel prices) and can be a significant part of the farmer’s overall cost of doing business. In February 2007, the interisland barge service Young Brothers filed for a rate increase of 24 percent for less-than-container-load (LCL) shipments, as well as an automatic fuel adjustment.

While the price increase is significant for farmers shipping pallet loads, more challenging yet is Young Brothers’ stated intention to discontinue LCL service altogether. As reasons, the company cites poor profitability and inadequate space at commercial harbors. In 2006, Young Brothers had announced it would terminate LCL operations at Kahului because it was especially congested. With the State’s urgent action to acquire four acres at Kahului, Young Brothers has agreed to continue LCL service through 2010. Closely related to transportation, the issues of pest

control and invasive species pose different problems for exporters of Hawai'i products and for importers of food and agricultural materials. For exporters, USDA regulations affect what can be shipped to the mainland and what special treatment may be required (at cost to the grower). In some cases, regulations for shipping Hawai'i products to the mainland are more stringent than those governing foreign producers shipping the same products.

On the other hand, imported products – not only agricultural products – sometimes carry pests or diseases that may not only adversely impact a specific crop, but may also prey upon or crowd out native species (i.e., miconia) and/or become a nuisance to the general public (i.e., the coqui frog). Unless agricultural inspection services are sufficiently funded and implemented, enlarging transportation facilities and adding direct connections from foreign and domestic ports can increase the Island's vulnerability to pests and alien species.

**Availability of Skilled Farm Operators and Labor.** Even with the right crops, ample land, and water, agriculture will not expand without attracting additional farmer-entrepreneurs and laborers. Given the capital needed and the competition from large mainland and foreign producers, there is a high threshold for farmers who are just starting up. Meanwhile, today's farm operators are aging, and their children are typically choosing other occupations. According to the 2002 Census of Agriculture, the average age of principal Hawai'i farm operators at that time was 56.5 years.

A related problem is the lack of local labor needed to operate farms. To address this need, some farm owners have been seeking foreign laborers. Acquiring foreign labor is not easy: no single agency provides information about how to find and contract with foreign labor or about getting work visas. Foreign laborers also need housing. While land use regulations allow the development of farm workers housing, the development process itself is costly and time-consuming.

Training and education of farmers is also important. The Maui Agricultural Strategic Plan calls for more educational programs for farmers in subjects such as record-keeping, marketing, and business planning. The 2004 Maui Comprehensive Economic Development Strategy recommends developing an "Ag in Schools Program" – i.e., adding education and training in agriculture to the K-12 curriculum.

**Coordination of Government Support.** If it is the goal of the State and Maui County to generate new agricultural businesses, there needs to be more focused planning and use of resources. There is a plethora of agencies and offices, especially in federal and State government, that have a mission to support agriculture. Coordination of research and development, education, financial support and marketing support is needed, especially to serve independent farmers who lack the time and resources to deal with complicated government programs. The State also needs to forge coordination among government agencies whose authority critically affects agriculture – principally in land use planning and regulation, water supply, and transportation.

**County Permits.** Building standards and permitting processes frequently poses difficulties for the farmer. Building standards that are based on human habitation and an urban environment (e.g., hurricane-proofing) raise the cost for agricultural structures such as greenhouses and

storage sheds. Drawn-out building permit processes cause delays and additional expense. On another front, the County and the State are both encouraging “agricultural tourism,” where visitors pay for farm tours and buy Maui-made products. However, regulations prevent the farm/tour operator from marking his farm with a road sign.

**Challenges Facing HC&S.** Hawaiian Commercial & Sugar, a subsidiary of Alexander & Baldwin, is Maui’s largest agricultural business, occupies a large portion of Central Maui, and utilizes and maintains the state’s most extensive surface water system. Because of the large scale of its operations, HC&S merits particular consideration in discussing the economic future of the island.

HC&S plans to continue to grow sugarcane. It seeks to increase profitability by developing value-added products such as its Maui Brand Natural Cane Sugar. By 2008, the company expects that 25 percent of total production will be refined on-island under the Maui Brand. The company also plans to develop an ethanol plant, processing sugar into fuel to be used in Hawai‘i. The company also expects to increase electrical power generation by improving its Pu‘unene plant to burn fresh cane.

HC&S faces two major challenges. First, HC&S needs to secure long-term access to its current water supply, the ditch system operated by East Maui Irrigation Company (EMI). Much of East Maui water is harvested from streams of Forest Reserve lands, for which EMI holds month-to-month water licenses from the State. Supporters of stream restoration have opposed and effectively prevented the State from issuing long-term licenses. The State is mandated to adopt instream flow standards, which could substantially reduce the amount of water diverted into the EMI ditch system. Lacking a secure long-term water supply, A&B may be reluctant to invest capital in the plantation.

## **OPPORTUNITIES FOR AGRICULTURE**

This section offers a brief summary of opportunities for stimulating agricultural enterprises on Maui and for assuring the stability of existing farming and production operations. It is intended to complement the section on challenges. Most of these opportunities relate to attracting and retaining a larger portion of business income on Maui.

**Agricultural Tourism.** The accepted definition of ag tourism is as follows:

Ag-tourism is a commercial enterprise on a working farm conducted for the enjoyment, education, and/or active involvement of the visitor, generating supplemental income for the farm. Activities such as producing and selling products directly from the farm, operating a bed and breakfast, conducting educational farm tours, offering horseback riding, festivals, concerts, and many other on-farm activities qualify as ag-tourism.<sup>39</sup>

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<sup>39</sup> “Hawai‘i Ag-Tourism”, Hawai‘i Agricultural Statistics (HAS), October 2004; available on the Internet at <http://www.nass.usda.gov/hi/>

This is a growing sector, with on-farm sales, recreational activities and other retail sales providing the largest amounts of revenue. An example is Haleakalā Ranch, which offers horseback riding, ATV riding and zip-line activities. Zoning and permitting should be streamlined to encourage ag-tourism businesses that supplement the income of farming activities.

**Value-Added Products.** By producing and selling finished products, the farmer-entrepreneur can diversify and increase revenue. One example is HC&S's production of Maui Brand specialty sugars. Another is the Ali'i Kula Lavender farm, which sells a wide range of products made with lavender or associated with the farm through their onsite store and the Internet. According to its website, "Currently, 82% of the Lavender Farm's overall revenue comes from . . . value-added products. Without these products, the farm could not survive."

Ali'i Kula Lavender exemplifies community economic development in two other ways. First, the owners have made the farm a tourist destination by offering a range of activities, including a farm tour, luncheons, teas, craft events, and shopping. This in turn boosts product sales. Second, the Lavender Farm has made a practice of partnering with jam-makers, candle-makers and other locally-owned small businesses who produce goods sold through the Ali'i Kula store. The other community businesses benefit from the market exposure and are able to increase production and revenues. It also enhances the store by broadening the depth and variety of its wares.

**Seed Crops. Seed Crops.**<sup>40</sup> The value of seed crop sales statewide has increased significantly in recent years, rising from \$13 million dollars in 1995 to \$97.6 million during the 2006/07 season, an increase of 26% over the prior season (not in constant dollars).<sup>41</sup> <sup>42</sup> Approximately 5,000 acres are harvested statewide annually of a total of 10,000 acres with the unplanted acreage providing security. It is anticipated that 9,020,000 pounds of seed crop will be exported during the 2006/07 season, an increase of 19% over 2005/06.<sup>43</sup> Just over 96% of the value of the industry's products comes from seed corn.<sup>44</sup> Both conventional and biotechnology practices are employed. About 40% of the seed corn in the United States is developed using conventional techniques and 60% employing biotechnology.<sup>45</sup> The division for Hawai'i is believed to be similar.

It is likely that seed corn production will continue to increase in Hawai'i and in Maui, but perhaps not as rapidly as in the recent past. One possibility, however, is for Hawai'i, and by extension Maui, to become a producer of other seed crops, such as alfalfa, cotton, and lettuce, employing horticulturally desirable crop rotation practices. The critical matter at issue is to be

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<sup>40</sup> Paul Koehler, Scientific and Community Affairs Manager, Monsanto Hawai'i, and Dr. James Brewbaker, Professor and Researcher, Tropical Plants and Soil Sciences, University of Hawai'i at Mānoa, furnished much of the data for this section, but responsibility for the presentation of the material remains with the author.

<sup>41</sup> State of Hawai'i Databook 2006, Table 19.07 and National Agricultural Statistics Service (NASS), "Hawaii Seed Crops," October 12, 2007, two pp.

<sup>42</sup> Island or county specific data are not available on seed crops in order to protect proprietary data.

<sup>43</sup> NASS, *supra*.

<sup>44</sup> NASS, *supra*, and Website of the Hawai'i Crop Improvement Association at [www.hciaonline.com](http://www.hciaonline.com).

<sup>45</sup> Whether the future emphasis in developing seed crops will be on genomics, that is, biotechnical gene mapping, or genetic transformation or some combination of the two or on other methodologies in terms of producing seed crops is a topic well beyond the scope of this issue paper.

able to maintain plant security, namely, to make certain that neither the primary corn seed crop nor the other crops are contaminated.

The keys to the expansion of the seed crop industry on Maui are threefold: (1) the availability of water and land; (2) the ability to compete with other lower cost areas in producing seed crops; and (3) successfully continuing to assure legislators and the public of the safety of modern genetic technology. Maui's good agricultural lands and sunny climate provide the Island with an intrinsic competitive advantage, namely, being able to produce three or four generations in a single season, that offsets, to some extent, the high cost of production in the Islands. Maui is in a relatively good position to participate in the highly probable expansion of the production of seed crops worldwide.

**Processing Facilities.** Processing facilities are needed to prepare export crops for shipping and to enable small businesses to make value-added products. For example, in 2006 Maui Land & Pineapple Company (ML&P) opened a new fresh fruit packing plant in Kahului. With aid from the County, the Maui Flower Growers Association is planning to develop a facility for de-infestation of tropical flowers and other commodities.

Among facilities planned for development are a meat processing plant for the Maui Cattle Company and a "Multi-Use Agricultural Processing Plant" proposed by ML&P. The company has stated its intention to provide processing capacity for independent farm-businesses to prepare value-added products.

**Bio-Fuels.** Growing crops that can be processed to generate electrical power or to make fuel will provide agricultural jobs, utilize agricultural lands, and make Maui more self-reliant in energy. Pacific Biodiesel pioneered by refining used cooking oil and grease-trap waste into biodiesel fuel at plants on Maui and O'ahu. Sales of the fuel on Maui have been strong, but the cooking oil resource is limited. Every year, the company diverts thousands of tons of waste from the Central Maui Landfill.

In 2007, Hawaiian Electric Company announced plans with BlueEarth Biofuels LLC to build a \$61 million biodiesel refinery at Maalaea. While the plant will initially refine imported palm oil, the long-range intent is to develop a Maui-grown fuel crop.

As mentioned above, HC&S has plans to build an ethanol plant and to improve the Pu'unene plant to burn fresh cane (replacing pre-harvest burning in the field). Such capital investments, however, are dependent on HC&S obtaining a long-term commitment for water supply.

**Local Consumption of Local Products.** Increasing local consumption of Maui agricultural goods is a long-term opportunity for stabilizing and expanding agriculture. Besides economic benefits to farmers, substituting locally-produced food for imports allows the local community to retain a larger share of agricultural revenues and improves self-reliance of the County and the State – e.g., in the event of a major disruption. As discussed above, currently 80-90 percent of food consumed in Hawai'i is imported, but local producers have captured a growing share of the market for fresh vegetables.

Making this opportunity a reality will not be easy. Because the costs of production are high in Hawai'i and food can be transported from the mainland relatively cheaply, local farmers are at a competitive disadvantage. This is especially true for the meat, poultry, eggs and milk industries, in which local producers depend upon feed shipped from the mainland. Success will involve a commitment by Maui residents and institutions to buy locally-produced food; grocers to contract with local farmers; and government to support critical industries and crops.

## **OPTIONS FOR POLICY AND ACTION**

Most responsibilities for supporting and regulating agriculture lie with the federal and state governments, both of which have a much broader revenue base than Maui County. Nevertheless, the County can play an important role in developing a focused strategy for agricultural development by;

- revising County policies and land use regulations to support the strategy;
- building irrigation infrastructure;
- facilitating farm to market transport of agricultural products;
- encouraging agricultural tourism endeavors;
- targeting property tax relief and reduced water fees to bona fide farming operations; and
- appointing an Agricultural Coordinator in the Office of the Mayor.

### **Revising County Policies and Land Use Regulations**

The County needs to examine its policies as they relate to agricultural subdivisions. There are a large number of residential dwellings located in land designated “agriculture” by the State Land Use Commission, which one would be hard pressed to describe as farm dwellings. It is true, of course, that the lands designated as “agriculture” include a range of lands from those that are highly productive to those it would be difficult to grow any commercially viable crop. At present all that is required to initiate the process for obtaining approval for a subdivision on land designated for agriculture is to submit a subdivision application, which meets certain minimum requirements, to the Department of Public Works (DPW). Once DPW grants preliminary approval, the application is submitted to county agencies for comment. The applicant is not required to address these comments. DPW then grants the subdivision permit if it deems that all required conditions have been met.

There are several possible modifications of this process, which the County might consider:

- Move approval of the subdivision applications from DPW to the Planning Department;

- Prohibit the development of subdivisions on the more productive classes of agricultural land;
- Require the applicant to respond in writing to comments submitted by various county agencies;
- Tighten up the definition of what constitutes a farm dwelling and a working farm;
- Establish a requirement for a public hearing on any requests for a subdivision on agricultural lands;
- Provide by ordinance that vesting does not occur until final approval is granted; and
- Specify that if the construction as described in the approved subdivision application or any approved amendment thereto is not completed within a designated period of time, the permit lapses and the application process must be reinitiated.

It would be useful to explore the possibility of developing a new type of subdivision, which might be called a “working farm subdivision,” so as to distinguish it from the agricultural subdivision, which is primarily a residential development. Such a subdivision would be similar in many ways to the Kula Agricultural Park. Minimum requirements for such a subdivision could well include a two or three acre minimum lot size; a rigorous definition of what constitutes a working farm; a requirement for 25- or 30-year minimum term to farmers leasing lots so that they might be able to secure agricultural business loans; a limit on the size of farm dwellings; and the employment of low impact development standards with respect to road design, stormwater management, and wastewater management within the working farm subdivision. The intent of the working farm subdivision is to make it possible to have real working farms devoted to producing agricultural crops, particularly products for Hawai‘i markets.

It would be advisable to investigate the possibility of having a modified building code applicable to farm dwellings and farm structures on working farms. Building standards applicable in urban communities may be excessively stringent when applied to farm homes and appurtenant or accessory structures.

## **Building Irrigation Infrastructure**

Water is an essential ingredient in the growing of most crops. Either the State or the County can construct irrigation infrastructure to bring the necessary to areas of working farms. The critical question is whether non-potable water or minimally treated non-potable water can be used in such a system.. If the water used in irrigation systems must reach potable water standards, then the cost become relatively high. Assuming that public health can be protected (e.g., e-coli be prevented) using non-potable water or minimally treated non-potable water, then the investment in irrigation infrastructure may well be what makes intensive crop farming feasible for the small farmer.

## **Facilitating Farm to Market Transport of Agricultural Products**

The major Hawai‘i market for farm products is on O‘ahu. Without entering the debate about the proposed Superferry, whatever the County can do to facilitate the rapid transport of farm products from Maui farms to O‘ahu markets will strengthen agriculture on Maui. This is a subject worthy of further study by the County, because it is one of the areas where it can make a significant difference to the well being of Maui farmers.

### **Encouraging Agricultural Tourism Endeavors**

The County can encourage agricultural tourism, which is an adjunct to a working farm. On the one hand, it provides supplemental income to the farmer; on the other, it provides an alternative attraction to the Island visitor, particularly those who are vacationing in the island for the third, fourth, fifth or more time. Such endeavors may not be appropriate on the working farm subdivision described above due to the employment of low-impact development infrastructure, but in more intensely developed areas they may easily fit in.

Agricultural tourism endeavors will generally require modification of land use regulations and the issuance of specific permits including those for directional road signs. The County needs to determine what is required to facilitate agricultural tourism endeavors and then determine how to make those permissions available to such endeavors without simultaneously opening up the permission process to every economic enterprise.

### **Targeting Property Tax Relief and Reduced Water Fees to Bona Fide Farming Operations**

The County has within its power the authority to reduce the tax rate on property employed as working farms and on water purchased by such farms, a power it already exercises. The effect of instituting such measures is to reduce operating costs to farmers whose profit is often very small at best. While these are good incentives, the critical element is make such allowance available only to true working farms endeavors without simultaneously opening up such benefits that do not fit the definition of a bona fide working farm.

The County already provides water to farmers at a reduced or subsidized rate. The benefit to the farmer is similar to a reduction in the property tax rate – it reduces his or her operating expenses. If it possible to use non-potable water or minimally treated non-potable water, then the magnitude of the County’s contribution can be significantly reduced.

### **Appointing an Agricultural Coordinator in the Office of the Mayor**

There are multiple actors on the agricultural scene in Maui – including several federal agencies with different missions, the State Department of Agriculture, the University of Hawai‘i School of Tropical Agriculture, the major agricultural producers, the independent farmers, a multiplicity of county agencies, especially the Department of Water Supply, the State Department of Transportation, which controls the harbors and the airports, the providers of transport services for farm products, the Farm Bureau, and the major land owners. In addition there are plurality of

good ideas floating about, the implementation of which would improve agricultural productivity on Maui and the well being particularly of the small farmer. Many such ideas have been noted in this narrative.

To implement some of these ideas there is the need to convene key actors and obtain their cooperation in moving an idea forward in a coordinated manner. The Agricultural Coordinator would have the responsibility for convening and facilitating coordination among key actors. Sometimes what is required is a State legislative appropriation or the amendment of a law or a modification in federal enforcement practices. The Coordinator then has the task of being an advocate and a lobbyist. On occasion a County government practice will be detrimental to the development of agriculture. The Coordinator then becomes an advocate for change within the County structure.

The Coordinator also becomes the person to whom independent farmers and even major agricultural producers, including growers of seed crops, can turn to point out problems they are encountering, matters about which legislators and administrators may not even be conscious. This coordinating function does not require a large outlay of funds from the County, but may result in the leverage of funds and other resources available at the State or federal governmental levels and perhaps even in the private sector.

## **In Conclusion**

The main public responsibility for fostering agricultural endeavors on Maui falls on the federal and the state governments as noted earlier. That does not mean that the County must be a passive bystander. There are significant steps that the County can take, as outlined above, which will improve the environment for agricultural production on Maui, particularly for the independent farmers operating working farms. Perhaps the most important step that the County can take at this time is to establish the Office of Agricultural Coordinator in the office of the Mayor.

The potential payoffs for successfully promoting a vibrant agricultural industry on Maui are multiple, including, but not limited to:

- Decreased dependence on imported foodstuffs;
- Better utilization of lands suitable for agriculture than is occurring at present;
- Effective encouragement of and support for the independent farmer;
- Removal of barriers to agricultural productivity;
- Increase in agricultural exports;
- Effective preservation of open space;
- Improvement in the quality of produce purchased and consumed by people on Maui and O'ahu;

- Reduction in the leakage of Maui income to outside entities;
- Improved protection of the environment; and
- Promotion of an agricultural economy in which all the people of Maui Island can take pride.

## SECTION FOUR: EMERGING SECTORS AND OPPORTUNITIES

### HIGH TECHNOLOGY

#### Overview

High technology is an important industry on Maui and is a key component of economic diversification. Globally, high technology is a strong driving force in the economy, thus it is important for Maui to support and expand its technology sector to be globally competitive and maintain a strong economic base.

High technology is a relatively new industry on Maui, having only emerged in the last two and a half decades. Although the technology sector does not contribute to Maui's economy on the same scale as primary economic sectors such as tourism and agriculture, the technology sector's contributions are growing and other community benefits produced by the industry, such as increased employment options and educational opportunities, are also important.

In 2005, Maui's technology industry earned an estimated \$145 million and employed 1,200 employees<sup>46</sup>. While high technology's 1,200 employees accounts for less than 2% of Maui's approximately 67,000 total jobs, high technology's contribution to the economy is important and the average wages for these jobs surpass Maui's living wage standard of \$30,800<sup>47</sup>. Wages within the technology industry are highly competitive with other industries, providing Maui's workforce with new opportunities for highly skilled and well paid employment. The average salary per year paid to high technology workers in 2005 was \$60,000 to \$70,000<sup>48</sup>. Statewide, wages in the technology sector in 2005 were 66% above the average for the private sector as a whole<sup>49</sup>. The technology sector includes a wide range of employment opportunities and requires a workforce with an array of skill sets.

#### Industry Success Factors

Success of the high technology industry depends on the presence of several key factors. In mainland regions such as Silicon Valley, Research Triangle, and Route 128, where high technology has been extremely successful, these key factors are present and provide essential support for the industry. These success factors include:

- Intellectual infrastructure such as universities and public or private research laboratories that generate new knowledge and technologies;
- Mechanisms for transferring knowledge between companies;
- Physical infrastructure such as high quality telecommunication systems;

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<sup>46</sup> Maui Economic Development Board, Inc. *Annual Report on Operations*. July 1, 2004 – June 30, 2005.

<sup>47</sup> Office of Economic Development, County of Maui. *County of Maui Comprehensive Economic Development Strategy*. October 2004.

<sup>48</sup> Maui Economic Development Board, Inc. *Annual Report on Operations*. July 1, 2004 – June 30, 2005.

<sup>49</sup> Department of Business Economic Development and Tourism. *DBEDT e-Reports; Hawaii's Technology Sector: 2001 – 2005*. October 2006.

- Highly skilled technical workforce;
- Sources of risk capital;
- High quality of life; and
- Entrepreneurial culture<sup>50</sup>.

While Maui does not currently offer all of the above listed industry success factors, it is important to identify them and implement key actions toward making more of these factors a reality on Maui.

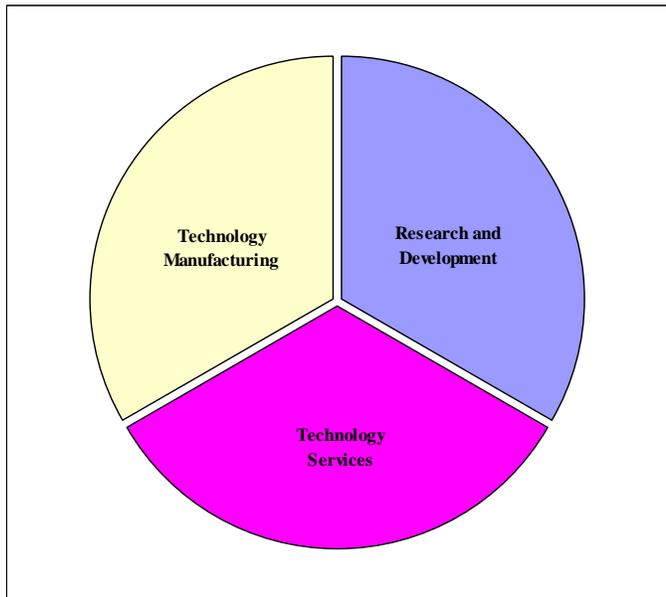
The creation and ongoing support of clusters is also an important success factor for high technology. Clusters of niche technology industries allow related companies to draw productive advantage from their mutual proximity and connections. Maui has the opportunity to support the growth and development of clusters around key technology niches such as biotechnology, space surveillance, and disaster mitigation. The County should coordinate with State, non-profits, and private business to encourage and support the creation and growth of clusters by ensuring the availability needed human, intellectual, and financial capital, and physical infrastructure.

## Industry Trends

High technology is a growing industry that provides well paid jobs for Maui’s workforce, attracts highly skilled professionals from other regions, and provides educational opportunities for Maui’s youth. Numbers of workers in the industry, yearly earnings, and average employee wages have all increased since the birth of the industry on Maui in the early 1980’s.

The technology sector is composed of three inter-industry growth sectors: 1) Research and Development (R&D); 2) Technology Services; and 3) Technology Manufacturing. Technology services include such activities as communications, software development, internet providers, and testing laboratories. Base on number of jobs provided, technology services represent the largest component of Hawaii’s private technology sector. R&D is the second largest component; however this component has experienced considerable growth in the last few years primarily due to the growth of the seed corn industry. From 2001 to 2005, R&D grew by 36.1% statewide. Technology manufacturing accounts for the smallest number of high technology jobs in Hawaii.

**Fig 4-1: High Technology Inter-Industry Growth Sectors**



<sup>50</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

## Key Players

The success of Maui's high technology industry depends on the integrated efforts of State and County government, non-profits, and private businesses. Government involvement is essential for creating a supportive climate through the establishment of programs and incentives in which high technology can grow and thrive. Non-profits provide industry support and create the opportunity for industry stakeholders to work together to better the industry as a whole. Private high technology businesses are the heart of the industry and it is their innovative efforts that play a key role in the growth of the industry on Maui. The following is a breakdown of the key players in Maui's high technology industry:

**Government.** Both the State of Hawaii and County of Maui provide incentives and programs aimed at encouraging and strengthening Maui's high technology industry. The following is a brief description of these incentives and programs:

- ***Hawaii High Technology Investment Tax Credit:*** The Hawaii High Technology Investment Tax Credit provides a package of incentives for investment in high technology companies located in Hawaii. While many other states offer tax incentives as a means of encouraging high technology firms to expand or to spur the growth of new industries, Hawaii's investment tax credit is considered the most progressive in the nation, demonstrating the State's commitment to fostering the growth of the technology industry. Other tax incentives offered by the State include the Increased Research Tax Credit; Stock Option Income Tax Exclusion; and Royalty, Patents and Copyrights Income Tax Exclusion.
- ***High Technology Development Corporation (HTDC):*** HTDC was established by the Hawaii State Legislature in 1983 to facilitate development and growth of Hawaii's commercial high technology industry. HTDC actively markets and promotes Hawaii as a site for high technology applications and gives advice on policy and planning. One of HTDC's programs is the Maui Research and Technology Center (MRTC) located at the Maui Research and Technology Park (MRTP) in Kihei. MRTC is an incubator and phase-in facility that is home to a cross section of technology ventures. The facility provides technology companies with an environment and the resources to become established and grow into profitable businesses.
- ***County of Maui Economic Development Coordinator:*** The County's Economic Development Coordinator, within the Office of Economic Development, is the Mayor's designee to serve on the Maui Economic Development Board (MEDB) and is actively involved in activities and happenings at MRTP and MRTC and economic development issues and technology promotion and marketing. The County plays an important role in the development and growth of the technology industry on Maui by supporting the establishment of high technology infrastructure and other actions to continually stimulate business expansion.

**Non-profits.** Non-profit organizations provide vital programs and a supportive environment for the growth of Maui's high technology sector. Two key non-profits servicing Maui's technology industry are discussed below:

- ***Hawaii Science and Technology Council (HISciTech):*** HISciTech is a non-profit industry association representing member technology and science companies throughout Hawaii. The council's mission is the acceleration of Hawaii's science and technology economy through the provision of services to industry including advocacy, enterprise support, the enhancement of research collaboration, group purchasing and sector research.
- ***Maui Economic Development Board (MEDB):*** MEDB was created in 1982 by community, business, and elected leaders to foster a balanced economy and create a broader realm of employment choices for Maui residents. MEDB supports high technology by building a supportive business climate, providing access to resources, and encouraging collaboration among peers. One of MEDB's projects is High Tech Maui, which provides an array of resources for the high technology sector. Kamaaina Come Home is a High Tech Maui program dedicated to providing resources to help Hawaii students graduating from mainland colleges return to Maui in the high technology field.

**Private Businesses.** Maui is home to a range of high technology businesses from a variety of industry niches such as biotechnology, astronomy, software engineering, communications, disaster mitigation, scientific research, and advanced materials development. Maui's technology businesses also have a range of experience from established large firms to industry start-ups. All technology businesses operating on Maui contribute to the diversification of the island's economy and provide employment opportunities for residents. Some of Maui's high technology players include:

- Pacific Disaster Center
- Maui Space Surveillance Site and University of Hawaii Institute for Astronomy
- Monsonto
- Maui High Performance Computing Center
- Pacific Biodiesel
- Oceanit Laboratories
- Trex Enterprises

## **Challenges and Opportunities**

With the support of government, non-profits, and private businesses, Maui's high technology industry has made impressive strides since its inception in the early 1980's. While it is unlikely that Maui will become a major hotbed for high technology in the future, the industry will continue to be a growing business on Maui which is vital to the diversification of the island's economy and providing quality employment and education opportunities for residents.

Numerous challenges and opportunities exist related to fostering high technology on Maui. The challenges must be identified and, to the extent possible, mitigated. Maui's unique opportunities must also be identified and utilized to their fullest extent in order to provide the most conducive climate for the success of high technology. The following discussion provides a breakdown of the challenges and opportunities surrounding the technology industry on Maui:

## Challenges

- ⇒ ***Geographic Isolation*** Maui's geographic isolation presents challenges to almost any business trying to become established on the island. The isolation factor often increases the cost of doing business and can create challenges obtaining necessary business supplies and equipment.
- ⇒ ***High Cost of Living*** Maui's high cost of living and shortage of affordable housing creates a barrier to attracting and retaining the skilled workforce needed by many high technology industries.
- ⇒ ***Lack of a Major University*** Research and development institutions are a critical element for establishing and supporting a successful technology sector. Studies have demonstrated that research universities play a major role in supporting and enhancing a robust technology-oriented private sector.<sup>51</sup> Maui's lack of a four-year university presents a significant challenge to advancing the high technology industry.

## Opportunities

- ⇒ ***Mid-Pacific Location*** Although Maui's mid-Pacific location can present isolation challenges for conducting business, it also creates significant opportunities for the technology industry. Maui is in a highly strategic location between the mainland U.S. and Asia, creating a natural gateway between these two high technology markets. Another competitive advantage of Maui's mid-Pacific location is the flexibility provided by Hawaii's time zone, which allow Maui companies to conduct business with Asia and the U.S. east coast in the same business day.
- ⇒ ***High Technology Support Infrastructure*** Access to high technology support infrastructure such as high quality telecommunications systems and affordable high speed internet connections is imperative for

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<sup>51</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

facilitating the growth of the technology industry. Maui is highly equipped in this aspect with a diversified network of trans-Pacific high-bandwidth telecommunications and sophisticated satellite communications system. The Maui Research and Technology Park (MRTP) and Maui High Performance Computing Center (MHPCC), with one of the nation's most powerful supercomputers, are also valuable assets which support the growth of Maui's high technology industry.

⇒ *Quality of Life*

Maui has a high quality of life which is an important factor in attracting highly-skilled employees for various technology industries. Maui's lifestyle, natural environment, and vibrant cultures all contribute to the high quality of life.

⇒ *Natural Environment  
Conducive to  
Development of Industry  
Niches*

Several aspects of Maui's natural environment are highly conducive to the development of specific technology industry niches. Due to Maui's year-round growing season, biotechnology has the potential of becoming a big player in the island's high technology industry. Additionally, with Haleakala's elevation and high quality visibility, space surveillance is another industry niche with considerable growth potential. Growth of this industry niche also depends on continuing cooperation with the University of Hawaii Astronomy Program.

Biotechnology and space surveillance are also industry niches which are prime candidates for the development of successful clusters.

⇒ *Collaboration between  
Schools and Businesses*

Although Maui does not have a major four-year university, Maui Community College (MCC), through its connections with the University of Hawaii, has made important strides in the last decade towards better serving the higher education needs of Maui. Several high technology companies collaborate with MCC to encourage students to pursue technology-related careers through career day, mentor, and internship programs. Businesses are also working with Maui high schools and younger students to foster an interest in technology at an early age.

⇒ *Sources of Risk Capital*

Providing access to adequate capital is an essential element required to support the growth and development of the high technology sector. Numerous organizations have been established to help Hawaii's technology industry gain access to risk capital. These organizations bring together entrepreneurs, angel investors, mentors, and service providers to facilitate business interaction and fuel the growth of Hawaii's technology industry.

## **RENEWABLE ENERGY**

### **Overview**

Hawaii's citizens pay the nation's highest energy costs, partly because Hawaii is the most oil-dependent state. In 2005, Hawaii relied on imported fossil fuels (petroleum and coal) for 94.5% of its primary energy needs, at a cost of \$4.62 billion. Most of Hawaii's oil is from foreign countries, raising energy security concerns. Roughly 13% of Hawaii's oil imports came from U.S. sources in 2005. In recent years, Hawaii's oil imports have come increasingly from the Middle East, reaching almost 23% in 2005.<sup>52</sup> Hawaii's coal comes from Australia and Indonesia.

According to the US Department of Energy, "renewable" energy sources include biomass, hydroelectric, geothermal, solar, wind, ocean thermal, wave action and tidal action. Renewable energy development will be critical in helping the State of Hawaii and Maui County reduce energy costs, avoid the negative economic effects of volatile oil prices, reduce overdependence on oil, and increase energy security by reducing imports. Renewable energy can grow new local industries, provide jobs and income for the people of Maui County, and protect the environment, which is also the basis of Maui's economy.

### **Industry Snapshot and Growth Trends**

#### **National**

Nationally, renewable energy consumption increased 2% between 2004 and 2005, approaching 7% of US market share. Of total U.S. electricity generation, renewable energy accounted for 9%. Conventional hydroelectric power provided about 74% of the renewable total in 2005; however, annual hydropower consumption has remained relatively flat over the past decade.<sup>53</sup>

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<sup>52</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

<sup>53</sup> US DOE, Energy Information Administration, 2007. "Renewable Energy Trends in Consumption and Electricity, 2005" Washington, DC U.S. Department of Energy, Office of Coal, Nuclear, Electric and Alternate Fuels, July 2007

The greatest increases in renewable energy development are in the wind industry, which grew at an average annual rate of 28% between 2001 and 2005<sup>54</sup>.

The biomass fuel industry's annual growth rate in 2004-2005 was over 15%. Biofuels experienced the most rapid growth within this category. Ethanol consumption in the transportation sector was 4 billion gallons in 2005, well on the way to allowing the ethanol industry to meet the US EPA's Renewable Fuels Standard of 7.5 billion gallons in 2012. Biodiesel consumption in the transportation sector represented a smaller volume of biofuels than ethanol, but its consumption increased almost 400% from 2004 to 2005, and 1100% from 2001 to 2005.<sup>55</sup>

Cost effectiveness remains a challenge to large utility-scale solar energy production. In California, smaller grid-tie commercial and residential photovoltaic systems are shown to augment utility-scale solar generation to a significant degree.<sup>56</sup>

Energy consumption from waste in 2005 was little changed from the preceding few years. More than half was municipal solid waste (MSW) consumed by independent power producers and entities in the commercial sector for producing electric power.<sup>57</sup>

Geothermal capacity increased by 130 megawatts (MW) during 2005. A recent study by the Massachusetts Institute of Technology, commissioned by the U.S. Department of Energy, concluded that the U.S. has 100,000 MW of "enhanced geothermal capacity" which it could develop by 2050.<sup>58</sup>

### **State of Hawaii and Maui County**

Less than 7% of Hawaii's energy is provided by renewable sources (DBEDT 2006). Oil was used to produce 80% of electricity sold by the State's utilities in 2005. The remaining electricity generation was supplied by coal (13.9%), MSW (2.6%), geothermal (2%), hydroelectricity (0.7%), bagasse (sugarcane waste) (0.6%), wind (0.1%), and a very small amount from solar photovoltaic.<sup>59</sup>

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<sup>54</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

<sup>55</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

<sup>56</sup> Heavner, Brad and Churchill, Susannah. 2002. *Renewables Work: Job Growth from Renewable Energy Development in California* Sacramento, CA: CALPIRG Charitable Trust, June 2002

<sup>57</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

<sup>58</sup> U.S. Department of Commerce, Economic Development Administration. *A Resource Guide for Technology-based Economic Development*. August 2006.

<sup>59</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT). January 2006. "Photovoltaic Electricity in Hawaii" DBEDT Strategic Industries Division.

On Maui, electricity from renewable energy is provided by wind and biomass.<sup>60</sup> The 30 MW Kaheawa Wind Power Project began producing power in June, 2006. A potential 27 MW expansion is under consideration.<sup>61</sup> On June 30, 2006, Shell WindEnergy Inc. announced plans to build the 40 MW Auwahi Wind Project at Ulupalakua Ranch. The project may eventually include pumped hydro storage, to store power from wind turbines during off-peak periods for use during peak periods. The HC&S facility in Puunene sells an average of 39% of its total electricity production from sugarcane waste to Maui Electric (MECO) and provides 10% of Maui's electrical power.<sup>62</sup>

Several small-scale hydroelectric facilities operate on Maui, providing approximately 6 MW of electricity. Hydropower is considered an intermittent energy resource because Maui's stream flows vary seasonally.<sup>63</sup>

There is no utility-scale solar energy production on Maui or in the State of Hawaii, but use of residential and commercial solar hot water and photovoltaic (PV) installations is widespread. Hawaii is known to have more solar water heaters per capita than any other state. Data on PV performance in Hawaii are limited, since PV electric generation is a relatively new technology. Most PV systems are privately owned, and installed cost data are not readily available. Grid-tied residential and commercial PV installations are considered to be competitive with conventional utility power in Hawaii. Due to rapid growth in worldwide demand for PV equipment, prices may not drop significantly in the near term, but rising petroleum prices will continue to make PV increasingly competitive.<sup>64</sup>

Geothermal energy has limited potential for future development on Maui. The only geothermal plant in Hawaii has been operated by Puna Geothermal Venture on the Big Island since 1993. Two areas of geothermal potential have been identified on Haleakala and projections suggest a slim possibility that one of these areas may be developed for energy production by 2020.<sup>65</sup>

## Employment Opportunities

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<sup>60</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

<sup>61</sup> Kaheawa Wind Energy, 2007. Information from Kaheawa Wind Energy website <http://www.kaheawa.com/kwp/index.cfm>

<sup>62</sup> Hawaiian Commercial and Sugar Company, 2007. Information from HC&S website <http://www.hcsugar.com/>

<sup>63</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

<sup>64</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT). January 2006. "Photovoltaic Electricity in Hawaii" DBEDT Strategic Industries Division.

<sup>65</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

Several studies from across the country suggest that renewable energy is a significant potential source of employment for Maui County workers in a wide range of sectors, including agriculture, engineering, manufacturing, chemistry, information technology, communications, sales/marketing, and business services.

- Texas, which in 1999 instituted one of the earliest and most successful Renewable Portfolio Standard laws, reported the creation of 2,500 new jobs by 2001.<sup>66</sup>
- A 2002 report funded by CALPIRG Charitable Trust suggests that building 5,900 MW of renewable energy capacity could create the equivalent of 28,000 year-long construction jobs and 3,000 permanent operations and maintenance jobs.<sup>67</sup>
- A 2004 study by economic consulting firm Black & Veatch found that adopting a Renewable Portfolio Standard would cost the State of Pennsylvania \$1.23 billion more over twenty years than using conventional fuels, but would generate \$10.1 billion more in gross state output \$2.8 billion more in earnings, and tens of thousands of additional jobs.<sup>68</sup>
- A 2005 report by the New York State Comptroller's office concludes that increasing renewable-based electricity in the state's energy mix to 25% by 2013 could create 43,000 new jobs in manufacturing and energy-related industries.<sup>69</sup>
- The American Solar Energy Society (ASES) found that in 2006, nearly 200,000 people were directly employed in renewable energy jobs in the United States. Total jobs created by the industry exceeded 450,000. Nearly 70% of jobs were in the biomass sector — primarily ethanol and biomass power, with the second-largest number of jobs in the wind sector.<sup>70</sup>
- A 2007 survey by Massachusetts Technology Collaborative found that renewable energy industries accounted for over 14,000 jobs in that state. Job growth in renewable energy was three times as fast as major industries such as financial services, defense contracting, software, communications, and healthcare.<sup>71</sup>
- A 2007 study by the University of New Hampshire concluded that adopting a renewable energy portfolio of 20% would create thousands of jobs with wages far higher than the state average, generate over \$1 million in additional revenue, and provide opportunities to develop new local businesses.<sup>72</sup>
- A 2007 study by the University of Tennessee shows that adopting a national renewable energy standard of 25 % over 25 years would boost economic activity in the United

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<sup>66</sup> University of Delaware, April 2005. "The Potential Economic Impacts of a Renewable Portfolio Standard in Delaware" Briefing Paper prepared by the Center for Energy and Environmental Policy, University of Delaware

<sup>67</sup> Heavner, Brad and Churchill, Susannah. 2002. Renewables Work: Job Growth from Renewable Energy Development in California Sacramento, CA: CALPIRG Charitable Trust, June 2002

<sup>68</sup> Renewable Energy Today, April 2004. "Black & Veatch Studies Economic Impact of Renewables in PA". Renewable Energy Today.

<sup>69</sup> University of Delaware, April 2005. "The Potential Economic Impacts of a Renewable Portfolio Standard in Delaware" Briefing Paper prepared by the Center for Energy and Environmental Policy, University of Delaware

<sup>70</sup> American Solar Energy Society, July/August 2006. *Solar Today*

<sup>71</sup> Howe, Peter J. August 2007. 'Clean energy' industry shows fast job growth. Boston Globe

<sup>72</sup> Alternative Energy Press, September 11, 2007

States by \$700 billion, largely in rural areas. Net farm income would grow by \$180 billion and over 5 million new jobs would be created.<sup>73</sup>

## **Key Role Players and Incentives**

### **Federal, State, and County Government**

The State of Hawaii and the Federal Government offer a number of mandates and incentives to encourage the development of renewable energy in Hawaii.

#### **State Incentives**

##### **Renewable Portfolio Standard**

Hawaii's Renewable Portfolio Standard (RPS) requires each electric utility in the State to produce 20% of its net electricity sales from renewable sources by 2020.

##### **Ethanol mandate**

The Governor signed an order in September of 2004 requiring 85 percent of gasoline sold in the State to contain 10 percent ethanol, effective in 2006.

##### **Solar and Wind Energy Credit**

Individuals or corporations claim an income tax credit of 20% of equipment and installation cost for a wind system, and 35% for solar thermal or PV systems.

##### **State Enterprise Zone Tax Credits**

Companies located in State Enterprise Zones that produce electric power from wind energy for sale to a public utility may qualify for State business tax credits.

##### **Maui County - Solar Roofs Initiative Loan Program**

Maui County maintains an interest-free loan fund for solar water heating systems. MECO administers the loan program and offers a \$1,000 rebate for installations.

##### **HECO, MECO, HELCO – Energy Solutions Business Appliance Rebates and Customized Incentives Program**

Hawaiian Electric Company, Inc. (HECO) and its subsidiaries offer rebates for purchases of individual energy-efficient appliances.

#### **Federal Incentives<sup>74</sup>**

Federal tax credits and incentives with potential applications for renewable energy development in Hawaii include the following:

##### **Small Producer Biodiesel And Ethanol Credit**

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<sup>73</sup> Lacey, Stephen, 2007. "The Economic Impact of Renewable Energy" RenewableEnergyAccess.com

<sup>74</sup> United States Department of Energy (US DOE), 2007. Information from US DOE Website <http://www.energy.gov/>

Small agri-biodiesel producers receive a 10 cent per gallon tax credit for up to 15 million gallons produced. The credit also applies to small ethanol producers up to 60 million gallons.

**Credit for Alternative Fuel Refueling Equipment.**

Fueling stations are eligible to claim a 30% credit for the cost of installing clean-fuel vehicle refueling equipment, (e.g. E85 ethanol or biodiesel pumping stations).

**Credit for business installation of renewable energy equipment.**

Businesses receive a tax credit for purchasing and installing fuel cell power plants, microturbine power plants or solar energy equipment.

**Local Businesses and Nonprofits**

**Hawaii Commercial and Sugar (HC&S)**

HC&S is Hawaii's largest producer of raw sugar, producing over 60% of the State's sugar from its 37,000 acre plantation in central Maui. The HC&S facility in Puunene provides Maui with 10% of its electrical power. By its own estimates, HC&S could produce enough ethanol from sugar to satisfy the State's entire ethanol mandate.<sup>75</sup>

**Kaheawa Wind Power**

The 30MW Kaheawa Wind Power facility is located in the West Maui Mountains and currently provides 9% of Maui's electrical power.<sup>76</sup>

**Pacific Biodiesel**

Maui-based Pacific Biodiesel was established on Maui in 1996 as one of the first commercially viable biodiesel plants in the U.S. In 2000, Pacific Biodiesel built a biofuel plant in Honolulu. The plant has a daily capacity of 25,000 gallons of grease trap waste and 1500 gallons of biodiesel.<sup>77</sup>

**Blue Earth Biofuels**

The Hawaii legislature authorized \$59 million in special revenue bond financing for Honolulu-based Blueearth Biofuels to develop and build a 40 million gallon-per-year continuous process biodiesel plant to begin operations on Maui in 2009. The biodiesel produced will replace MECO's current petroleum diesel consumption and be used for generating electrical power within Maui County and the State.<sup>78</sup>

**Hawaii PV Coalition**

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<sup>75</sup> Hawaiian Commercial and Sugar Company, 2007. Information from HC&S website <http://www.hcsugar.com/>

<sup>76</sup> Kaheawa Wind Energy, 2007. Information from Kaheawa Wind Energy website <http://www.kaheawa.com/kwp/index.cfm>

<sup>77</sup> Pacific Biodiesel, 2007. Information from Pacific Biodiesel website <http://www.biodiesel.com/>

<sup>78</sup> Blue Earth Biodiesel, 2007. Information from Blue Earth Biodiesel website <http://blueearthbiofuels.com/>

Hawaii PV Coalition works with business owners, homeowners and stakeholders in the PV industry to support greater use of solar electric applications across the State. The Coalition has been active during the past two state legislative sessions supporting PV and renewable energy bills and has taken part in discussions with the Hawaii Public Utilities Commission and Hawaii Energy Forum to move the PV agenda forward. Hawaii PV coalition has been influential in the passage of legislation to raise state tax credit amounts for PV and adopt the Renewable Energy Portfolio Standard.<sup>79</sup>

## Opportunities and Challenges

### Wind

Maui has significant potential for wind energy development. Maui's primary wind resource is in the central valley where trade winds accelerate between Haleakala and the West Maui Mountains. Wind potential also exists on the northwestern slope of the West Maui Mountains and lower Haleakala.

View impacts and physical access present challenges to wind energy development on Maui, since many viable sites lie on high ridges. Wind energy may encounter fewer land use and zoning barriers than other types of renewable energy development. Zoning ordinances allow for wind energy development in State and County Agricultural districts, and barring conflicting land uses, wind energy is likely to be allowable in rural districts.<sup>80</sup>

### Solar

Distributed solar energy projects such as solar water heating, PV lighting, building-integrated PV, and PV rooftop systems integrate easily with other land uses and developments. One example of larger-scale distributed solar energy with applications for Maui is the Mauna Lani resort on the Big Island, which has the most solar PV electric generating capacity of any resort in the world - over 500 kW.

DBEDT lists Kahului Airport as a potential area for utility-scale solar development due to availability of open land, proximity to transmission lines, and lack of zoning conflicts.<sup>81</sup> However, the reflection from solar equipment and its potential to interfere with nearby airfield activities must be considered. The Kihei area and the former Puunene airport site are also potential areas for utility-scale solar development on Maui.

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<sup>79</sup> Hawaii PV Coalition, 2007. Information from Hawaii PV Coalition website  
<http://www.hawaiipvcoalition.org/>

<sup>80</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

<sup>81</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

Solar projects may be allowed in rural districts and in Agricultural districts where the soil is of quality C, D, E, or U, according to the Agricultural Lands of Importance to the State of Hawaii (ALISH) system. Due to its land-intensive nature, utility-scale solar energy may be incompatible with active agricultural uses.<sup>82</sup>

### **Biomass Energy**

The economic feasibility of energy crops for biofuels depends largely on factors in the sugar, pineapple, and oil markets, and alternative uses for land. Only land zoned for Agriculture is likely to be available for energy crops. Market forces appear to be working in favor of biofuels development on Maui at present. Potential synergies and trade-offs between dedicating land to biofuel crops for automotive fuels versus utility-scale power generation should be further examined.

Potential areas identified for biomass energy crop production include former Lahaina Plantation land; HC&S land in Paia; and HC&S land in Puunene. Biomass power plants should be feasible to site in areas zoned industrial, rural or agricultural, so long as sufficient feedstock volume is available within an economical hauling distance.

Municipal solid waste (MSW) is not considered a purely renewable energy resource, since it includes nonrenewable materials such as tires and plastics. MSW power generation may merit some consideration given scarce landfill space on Maui.<sup>83</sup>

### **Geothermal, Hydroelectric and Ocean Energy**

Geothermal, hydroelectric, and ocean thermal and wave energy are technologies that face greater hurdles for development on Maui than wind, solar or biofuel energy. Ocean thermal and wave energy in particular are emerging technologies that may present economic opportunities for Maui from a research and development perspective, but appear to have limited applications for near-term use for utility power generation.<sup>84</sup>

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<sup>82</sup> See footnote 56.

<sup>83</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

<sup>84</sup> State of Hawaii Department of Business, Economic Development, and Tourism (DBEDT), December 2006. "A Catalog of Potential Sites for Renewable Energy in Hawaii" Produced for the State of Hawaii Department of Land and Natural Resources and the Department of Business, Economic Development, and Tourism by Global Energy Concepts, LLC, December 2006

## SECTION FIVE: TRANSPORTATION INFRASTRUCTURE

### COMMERCIAL HARBORS

#### Overview

As a remote island state, Hawaii is extremely dependent on ocean transportation for supply of essential commodities. Hawaii imports approximately 80% of its food and merchandise; and nearly all of these imports, including food, clothing, building materials, cars, and fuel, enter the State through the commercial harbor system. Commercial harbors also provide the primary means of exporting local products such as sugar, molasses, pineapple, livestock, and diversified agricultural products.

Maui's commercial harbors are vital to the island's economy because of the support they provide for Maui's major industries. Although the number of jobs provided by the harbor industry is also important to Maui's economy, the port system is most importantly the island's primary infrastructure, sustaining our modern lifestyle. Harbors can also be used as an economic development tool by strategically locating certain industry sectors within close proximity to harbors; and by creating gathering areas for recreation and entertainment that benefit from the activity and atmosphere of a harbor area.

Maui has three harbor facilities: Kahului Commercial Harbor, Lahaina Harbor, and Maalaea Harbor. Harbor activities on Maui range from major cargo carriers to commercial fishermen and charter boat operators with a single vessel. The primary activities at Lahaina Harbor and Maalaea Harbor are ocean recreation and commercial fishing. Kahului Commercial Harbor is Maui's primary harbor and is the focus of the remainder of the Commercial Harbors discussion.

#### Kahului Commercial Harbor

Kahului Commercial Harbor serves as Maui's lifeline to the rest of the world. Most imported and exported goods travel through Kahului Harbor. Basically all business activities on the island are either directly or indirectly dependent on operations at Kahului Harbor. The harbor is the third busiest harbor in the state in terms of traffic and the busiest of all Neighbor Island harbors with inbound vessel arrivals reaching 1,417 in 2004<sup>85</sup>.

Kahului Harbor has three piers which service all of its harbor activities. Primary harbor activities include overseas container cargo, inter-island cargo, and passenger cruise ships. Overseas container cargo includes all commercial containers arriving at Kahului Harbor from origins outside of the State of Hawaii. The inter-island cargo distribution system is the principal means by which neighbor island communities receive and export their cargo. Honolulu Harbor on Oahu is the hub of the inter-island cargo distribution system. With the growth of the neighbor islands' populations, tourist industries, construction activities, and diversified agriculture,

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<sup>85</sup> County of Maui. *Maui County Data Book 2006*.

inter-island cargo operations have significantly increased in frequency and tonnage. Inter-island cargo operations account for the largest share of harbor activities on Maui. The cruise ship industry has also grown in the last decade, placing increased demands on Kahului Harbor.

Kahului Harbor provides vital industry support services to key economic sectors including retail, tourism, construction, and agriculture. Maintaining efficient and timely operations at Kahului Harbor is essential for supporting Maui's economy. When necessary harbor improvements are delayed and the efficiency of harbor activities are not maintained, Maui's businesses are negatively impacted.

## **Kahului Commercial Harbor 2025 Master Plan**

The *Kahului Commercial Harbor 2025 Master Plan*, developed by the State of Hawaii Department of Transportation Harbors Division (September 2000), provides a long-range guide for the development of the harbor. The following discussion summarizes key operational issues and major facility improvements recommended in the plan.

### **Long-term Operational Capacity and Facility Improvements**

The study finds that Kahului Commercial Harbor's limited berths and maritime lands are inadequate to accommodate the projected volume of vessel dockings and cargo being shipped through its terminals. To address the shortfall, major facility improvement to 2025 include:

**Container Yard:** The open-yard, container storage locations at all container terminals designated by the carrier in the port.

**Berth:** The water area at the waterfront edge of a wharf, reserved for a vessel, including wharf accessories such as bollards.

- Construct two new piers: Pier 4 between Pier 1 and Pier 3; and Pier 5 at the western breakwater;
- Improve and expand existing terminal and cargo facility;
- Construct additional berth parallel to pier 2 and an inter-island ferry berth; and
- Develop a cruise ship terminal at Pier 5.

The overall goal of the above improvements is to ensure efficiency of harbor operations and safety of passengers disembarking and boarding ships.

### **Facility Planning Issues**

Major facility planning issues include acquiring adequate space for port operations at Kahului Commercial Harbor and identifying an appropriate location for a potential second commercial harbor. In addition, harbor front revitalization is also becoming an increasingly important issue

with the increased number of cruise ships docking at Kahului Harbor and the planned re-development of the Kahului Town Center.

⇒ ***Kahului Harbor Expansion***      Forecasted demand for port lands required by the year 2025 is considerably greater than the land currently available for harbor operations in Kahului. Expansion of the harbor’s maritime lands is restricted by existing commercial and industrial operations surrounding the harbor. The Harbors Division is working with Alexander & Baldwin Properties, Inc., to identify possible expansion opportunities to resolve the shortage of cargo acreage.

⇒ ***New Harbor Facility***      Unlike Oahu, Hawaii, and Kauai, Maui only has one commercial harbor that can accommodate large cargo vessels. In the event of a natural disaster, Maui would be left with no facility for ocean transport. The lack of an alternate harbor is a serious economic and safety issue. Several studies have been conducted to assess the feasibility of developing contingency commercial harbor facilities on Maui; however no potential locations have been identified.

⇒ ***Harbor Front Revitalization***      The primary function of the port system should be the movement of cargo. However, in planning for development near harbors, it is necessary to allocate sufficient land for industrial and high technology businesses, which often benefit from close proximity to harbor infrastructure.

Harbor areas can also provide a great atmosphere for outdoor recreation and entertainment activities. Creating gathering areas for recreation and entertainment near harbor districts has proven to be a successful economic development tool for many port cities such as San Francisco and Seattle. The County should develop a master plan analyzing the potential for harbor front revitalization incorporating the potential for increased recreation and entertainment as one component of the plan.

## **AIRPORTS**

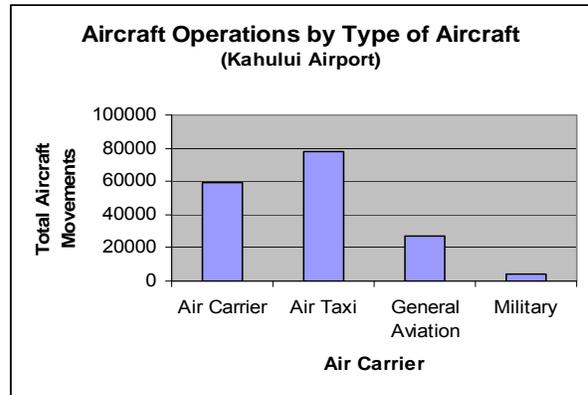
### **Overview**

Being an island, Maui is solely dependent upon air and sea transportation. Air transportation is the most modern form of transportation, and is critical to our island economy and way of life. Each day thousands of Hawaii residents travel through our island airports to conduct business, visit family, shop, and vacation. Our leading industry, tourism, and nearly every other economic activity on Maui, relies upon an efficient, dependable, and affordable air transportation system.

Maui Island supports three airports: Kahului Airport, Kapalua Airport, and Hana Airport. Kahului Airport is the second busiest airport in the State with 5,692,585 passengers in FY 2005, or approximately 17.5% of the statewide total. Kahului Airport is classified a “Commercial Service-Primary Airport” by the Federal Aviation Administration (FAA) and services both transoceanic flights from the U.S. mainland as well as inter-island flights.

In addition to providing passenger service, Kahului Airport en-planes and de-planes thousands of tons of cargo and mail each year. Kapalua Airport is a small regional airport serving West Maui. The airport was acquired by the State in 1992 from Maui Land and Pineapple Company (ML&P). Future expansion of Kapalua Airport is restricted by an agreement between the State and ML&P. Hana Airport serves the rural communities of East Maui with regular commuter service.

**Fig. 5-1: Aircraft Operations by Type of Aircraft (Kahului Airport)**



## Importance of Air Transportation

Maui’s airports provide passenger, cargo and general aviation capabilities to serve local business and personal travelers, Maui visitors, air cargo shippers, and aircraft operators. The visitor industry is especially dependent upon air transportation. In 2005, there were 2,380,000 visitor arrivals, of which 98% were by air. Each week there are over 201 long haul flights and 774 domestic flights from Kahului Airport.

The airport system is a vital element of Maui’s economy through direct employment created at airport facilities and affiliated businesses, such as air cargo handlers. In addition, air transportation links are essential for leisure and business travelers, as well as for shippers of time-sensitive, high-value cargo. The types of economic impacts generated by airport activities include:

- Direct impacts from transportation and supporting activities;
- Direct impacts from capital expenditures at the airports;
- Indirect impacts from visitor expenditures; and
- Induced impacts derived from direct and indirect impacts.

The Hawaii Tourism Strategic Plan (2005–2015), and final report of the Economic Momentum Commission recommend significant and immediate upgrades to Kahului Airport.

## **Kahului Airport**

The State Department of Transportation, Airports Division, is responsible for managing State airports. The Department, together with the Airlines Committee of Hawaii, prepared an Airport Modernization Plan in March 2006. The plan's goals are two-fold:

- To create a world class airport transportation system that meets the needs of our residents and visitors today and into the future.
- To create efficiencies and effectiveness in operations and increase levels of satisfaction for our residents and visitors.

The plan proposes short- and long-term projects at Kahului Airport designed to enhance existing facilities and adequately accommodate current and projected demand.

## **Facility Planning Issues**

Kahului Airport was originally constructed to accommodate inter-island commuter airlines linking Honolulu with Kahului. With advances in aviation technology and increasingly sophisticated travelers, there has been a dramatic increase in demand for wide-bodied aircraft flying direct from the U.S. mainland. Current airport facilities can accommodate a limited number of wide-bodied aircraft, but accommodating current and projected demand will require both modifications of existing gates and an increased number of gates. Other long-term projects include lengthening of runways, increasing fuel storage capacity, expanding holding room capacity, increasing the number of on-site parking stalls, and constructing a new airport access road.

## **Challenges and Opportunities**

### **Challenges**

#### **⇒ *Public Opposition to Airport Expansion***

Prior efforts to expand Kahului Airport to international airport status have been met with considerable public opposition. Project opponents have expressed concern over the introduction of alien species and the project's growth inducing impacts. Future airport expansion will need to be done in a manner that is consistent with Maui Island's land use, environmental, and economic development objectives.

### **Opportunities**

#### **⇒ *Strengthening local businesses and our tourism industry***

Improvements to Kahului Airport can strengthen local business, enhance the quality of life, and strengthen the tourism industry when done in a manner that the community supports.

⇒ *Linking land use  
planning to airport  
infrastructure*

Airport facilities have become significant generators of employment at and around their facilities. The development of businesses parks, industrial parks, warehousing and freight forwarding facilities, wholesale merchandising, information and telecommunication parks, hotel and entertainment centers, and mixed use development can prosper by being proximate to airport infrastructure. The County should develop a master plan to identify suitable land uses, urban design character, and supporting infrastructure for lands proximate to Kahului Airport. Such a plan would need to be sensitive to the visual character and rural ambiance of Maui.