APPENDIX V4C: LOCAL ECONOMIC DEVELOPMENT ANALYSIS

Introduction

Purpose

This appendix summarizes the background information that informs consideration of alternative strategies for building a robust local economy. Those strategies that are best aligned with Hāmākua's Community Objectives and most feasible will be included in CDP Chapter IV3: "Build a Robust Local Economy."

Importantly, **this appendix is NOT the Hāmākua CDP** – it does not establish policy or identify plans of action. Instead, for issues related to local economic development, including agriculture, renewable energy, ecosystem services, the health care industry, the education field, the visitor industry, retail, this appendix does four things:

- Outlines existing policy, especially County policy established in the General Plan;
- Summarizes related, past planning and studies;
- Introduces alternative strategies available to achieve Hāmākua's community objectives;
- Preliminarily identifies feasible strategy directions.

In other words, this appendix sets the context for identifying preferred CDP strategies. Existing policy provides the framework in which the CDP is operating, related plans identify complementary initiatives, and alternative strategies introduce the "tool box" from which the CDP can choose the best tools for the CDP Planning Area.

This appendix complements Appendices V4A and V4B, which focus on natural and cultural resource management and community building, respectively. In those appendices, issues related to but distinct from economic development are discussed in greater detail, including the preservation of open space and agricultural land, historic preservation, watershed and coastal management, access and trails, cultural centers, land use regulations, infrastructure, housing, human services, schools, parks, and community-based, collaborative action.

Overview

The first section of this appendix, "Understanding Hāmākua's Local Economy," introduces the history, and unique nature of the Planning Area's economy as well as objectives for economic development. Greater economic opportunity is one of the community's highest priorities, but community members have also been clear that economic development must not be at the expense of Hāmākua's ecology, culture, and rural lifestyle.

The second section, "Planning for Economic Development," introduces options for integrating economic development into community planning. It explains government's role in economic development, identifies related policies and actions in the County General Plan, and summarizes economic development strategies proposed in past plans for Hāmākua.

The third section, "Economic Opportunity in Hāmākua: Trends, Assets, and Challenges by Sector," identifies opportunities for the Planning Area in several industries – agriculture, renewable energy, payment for ecosystem services, health and wellness, creative/education/research, visitor, retail, and construction.

The fourth section, "Advancing Community-Based Economic Development," compares different approaches to economic development and introduces *core strategies* for advancing the local,

community-based economic development. Based on *best practices* from similar rural communities, those strategies focus on regional identity, industry clusters, anchor institutions, innovation, business and workforce capacity, democratization, investment, promotion, and network leadership. As appropriate for each core strategy, this section highlights examples of how other communities have applied that strategy, resources available to implement that strategy, and related tools that are specific to particular industries.

CDP Outline

Currently, the CDP is structured as follows. This Appendix is highlighted in green. It will inform the CDP strategy chapter highlighted in blue.

I. EXECUTIVE SUMMARY

II. HĀMĀKUA TODAY – BRIEF SUMMARY OF VALUES, ASSETS, CHALLENGES

III. HĀMĀKUA TOMORROW – BRIEF SUMMARY OF VISION, OBJECTIVES, STRATEGIES

IV. THE PLAN – STRATEGIES: POLICIES, ADVOCACY, AND ACTIONS

1. ʻĀINA: MANAGE NATURAL AND CULTURAL RESOURCES
2. PRESERVE AND STRENGTHEN COMMUNITY CHARACTER
3. BUILD A ROBUST LOCAL ECONOMY
4. BUILD AND STRENGTHEN COMMUNITY CAPACITY

V. APPENDIX

1. HCDP ORDINANCE AND ENABLING LANGUAGE (INCLUDING CDP PURPOSE & SCOPE)
2. PLANNING PROCESS
3. COMMUNITY PROFILE
4. BACKGROUND ANALYSIS & RATIONALE
   - A. *Natural and Cultural Resource Management Analysis*
   - *B. Building Community Analysis*
   - *C. Local Economy Analysis*
5. SUPPORTING MATERIALS
6. IMPLEMENTATION METHODS AND TOOLS
   - A. Required Regulatory Actions

B. Implementation Action Matrix

Notes on this April 2014 Draft

This draft is a work-in-progress. It is largely complete, but some information is still pending, and it is expected that the document will be updated as conditions change and new information is brought to light. Known gaps in information are typically highlighted in yellow.

Note also that some of the formatting is required to keep the document compliant with the American with Disabilities Act (ADA). For example, complete hyperlinks have to be inserted so that reading machines for the visually impaired can correctly interpret Internet addresses.

Feedback Wanted

Because this is an incomplete draft, and because we know that there are plans and strategies that can inform CDP strategies that may not be included, constructive feedback is welcome and encouraged. We ask that you use the feedback form available in the "Draft Analysis Documents" folder at www.hamakuacdp.info. You may also mail or email comments to the Planning Department.

Navigating the Document

This appendix is not designed to be read from start to finish. Consider reading this introductory section and then using the tables of contents, figures, and tables to find material of greatest interest. Internal hyperlinks have been inserted to simplify navigation within the document.

The appendix also has "Bookmarks," which can be seen by opening the Bookmark navigation pane in Adobe Acrobat Reader: View/ Navigation Panels/ Bookmarks. After following an internal link, it is easy to return to the previous point in the document by using either the Bookmark navigation pane or the "Previous View" button, which can be added to the "Page Navigation" toolbar in Acrobat Reader.

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UNDERSTANDING HĀMĀKUA'S LOCAL ECONOMY

Learning from the Past

To understand Hāmākua's current economy, we must first take a look back at the historical, natural and cultural assets of the area. Due to the richness of Hāmākua's volcanic soil and its plentiful rainfall, the region has traditionally been a cornucopia for food production. Ancient Hawaiians successfully used the ahupua'a system of land division to sustainably manage natural resources from the uplands to the sea – and the Hāmākua region was particularly blessed with access to rich upland forests of Koa and 'Ohi'a in the wao region, vast agricultural plains and wet lowlands where crops such as kalo and sweet potato flourished grew in the kula region, and a healthy kahakai region (coastal ecosystem) that provided access to fish and other seafood.

In particular, Waipi'o Valley was renowned for wetland kalo propagation, and it continues to be a major source for kalo and poi products to this day. The introduction of cattle to Hawai'i in the 1790's led to the genesis of the cattle ranching industry in the early 1800's, the Hāmākua coffee industry was already well established by the 1860's, macadamia trees were introduced to the region in 1882, and after the reciprocity treaty of 1875 - the industry of sugar came to Hāmākua.[1]

The growing sugar industry needed a substantial labor force, and so beginning in the 1850's, plantation owners brought over successive waves of Chinese, Japanese, Koreans, Filipinos, Portuguese, and Puerto Rican immigrants to work the fields and process the cane. Sugar production peaked in 1933[2]; however, after the war, the political climate changed and labor costs increased significantly following Hawai'i's statehood. Workers could no longer be treated as indentured servants, and starting in the 1920's, labor unions had begun to strike periodically. The caste system developed by the plantation managers was losing its social and economic power, and global market forces were leading the sugar industry to develop economic footholds in places such as Cuba, the Philippines, and Puerto Rico. Eventually, the processes of globalization shifted its focus of sugar production to Central and South America, and in 1994, the end of sugar came to the region when the Hāmākua Sugar Company harvested their final crop of cane.

The end of Sugar's economic dominance in the state of Hawai'i brought a profound shift from an agrarian to a service economy, and the rest of the state's main economic focus shifted toward tourism. However, unlike former plantation lands on neighboring O'ahu, Maui, and Kaua'i, the Hāmākua region largely escaped major post-sugar resort developments due to various factors.[3] While the model of mono-crop, large-scale, industrial agriculture was no longer viable, agriculture was still the most appropriate and familiar industry for the Hāmākua region, and so in the early 1990's, local area leaders, residents, and lawmakers scrambled to find ways to develop the area's natural assets and previously developed agricultural infrastructure into new economic opportunities. As the last of the Planning Area's sugar plantations were closing, numerous plans were developed to address a post-sugar economic future at the State, County, and Community level (for some examples, see the

1 http://hdoa.hawaii.gov/wp-content/uploads/2013/01/HISTORY-OF-AGRICULTURE-IN-HAWAII.pdf
2 http://hdoa.hawaii.gov/wp-content/uploads/2013/01/HISTORY-OF-AGRICULTURE-IN-HAWAII.pdf
3 http://www.nytimes.com/1996/08/09/us/as-sugar-fades-hawaii-seeks-a-new-cash-crop.html

Hāmākua gional Plan: From Kaia'akea to Waipi'o, 1990[4], the Hilo-Hāmākua Economic Development Plan of 1994, and A Plan for the Hilo-Hāmākua Coast, 2000). [5]

Interestingly, the plans referenced above focused on enhancing regional planning, regional agriculture, and community collaboration. The **Hilo-Hāmākua Economic Development Plan** noted a particular strength about this community in that it "may be very different from other 'communities in transition' in that it has been actively involved in ongoing grassroots-based task forces and committees, along with government, union officials, and the business community." This is a key point - one of the region's best assets is their community's internal capacity for organizing. The plan also noted that even as the sugar industry declined, diversified agricultural activity had been on the rise, so it is not surprising that most of the plans of that era, and since, have focused attention on further diversifying the local agricultural industry into smaller, more diversified, farming projects. The other primary focus was to develop large portions of former sugar cane land for agroforestry (primarily in eucalyptus trees for pulp and timber). However, from the standpoint of employment opportunities, neither of these new agricultural directions were necessarily labor intensive beyond their initial start-up phase, and therefore they did not provide an adequate replacement for the large plantation model from an employment perspective. Subsequently, many former plantation workers took jobs elsewhere –either commuting to the hospitality industry on the West side of the Island or sometimes leaving the area entirely (a 1989 survey showed that 18% (900-1,000) of the South Kohala work force surveyed came from Hāmākua[6]). Furthermore, during the late 1990's, many communities of the Planning Area lost population due to outmigration and employment problems were a large factor in this. From the year 2000-2010, the unemployment rate (at the County level) steadily rose from 4.7% to 9.8%, and as of 2012, remained at 9.5%.[7]

Since the collapse of the sugar industry, the region and nation have seen an economic and construction boom and a subsequent economic recession (2001-2007). Throughout this time period, the region has remained in perpetual transition economically and socially. However, the goal to diversify agriculture into smaller farms has proven to be somewhat successful because, while overall farm acreage has decreased, the number of farms with less than 9 acres increased from 2,009 to 2,865, while farms with between 10 and 49 acres have increased from 818 to 1314[8]. Still, this trend of smaller, diversified farm endeavors, while more sustainable than large mono-crop projects, has not proven to be a large job creator for the area, nor is it projected to become a major employer in the region in the near future.

Despite the limited number of Planning Area residents currently employed in agriculture, the community has articulated a clear intent on developing a thriving economy while remaining true to their agrarian heritage and without sacrificing their rural character and lifestyle. The challenges involved in preserving this lifestyle amidst a shifting economic climate are similar to those faced by many rural communities across the nation. As this is not a unique problem, Hāmākua can benefit from the lessons learned by communities that are successfully preserving their agricultural roots and rural lifestyle while building a robust local economy.

4 http://www.hawaiicountycdp.info/hamakua-cdp/about-the-hamakua-cdp-planning-area/past-and-current-planning-activities-in-the-hamakua-cdp-planning-area/2-Hamakua%20Regional%20Plan-1990.pdf/view
5 http://www.hawaiicountycdp.info/hamakua-cdp/about-the-hamakua-cdp-planning-area/past-and-current-planning-activities-in-the-hamakua-cdp-planning-area/Hilo%20Hamakua%20plan.pdf/view
6 Hilo-Hāmākua Economic Development Plan, 1994. Prepared for the Department of Business, Economic Development & Tourism, State of Hawai'i (DEBEDT) by the Hawai'i Island Economic Development Board
7http://www.doleta.gov/performance/results/AnnualReports/2010_economic_reports/hi_economic_report_py2010_dynamics.pdf
8 Hawai'i County Data Book Table 15. 2-- FARMS, LAND IN FARMS, AND LAND USE, HAWAI'I COUNTY: 2002 AND 2007.

Hāmākua's Community Values, Vision, and Objectives

During the initial round of extensive community input, the residents of the CDP Planning Area identified one **value** specific to economic development: agriculture.

At the same time, the community identified the following **priorities** for the future that are focused on economic development: economically and environmentally sustainable agriculture, local business, jobs, retail, services, dining, renewable energy, and housing.

The Steering Committee summarized community values and priorities in a **Values and Vision Statement**, which states that:

> *Hāmākua is a rural community of distinctive small towns and villages* ***thriving on sustainable agriculture and ranching to provide ourselves and the rest of Hawai'i with healthy food and locally grown products.***
>
> ***Our vibrant economy is based on local businesses that are able to provide living wage jobs and ensure access to goods and services so that our families can work and shop close to home. We produce and rely on clean, renewable energy to power our communities and businesses.***
>
> *Our high quality of life is rooted in our strong sense of 'ohana and community.* ***We support lifetime learning through the expansion of educational opportunities for all residents. Access to quality healthcare, elderly care, and affordable housing is provided. We host festivals for music, culture, arts, and agriculture****, and are known for our parks, gathering places, and recreation programs.*

In addition, when considering the community's values, priorities, and vision along with resources and challenges summarized in the Community Profile and additional research, the Steering Committee adopted six **Community Objectives** that speak directly to economic development:

- Promote, preserve and enhance a diverse, sustainable, local economy.
- Encourage the increase and diversity of employment and living options for residents, including living wage jobs and entrepreneurial opportunities that allow residents to work and shop close to home and that complement Hāmākua's ecology, rural character, and cultural heritage.
- Revitalize retail, service, dining, and entertainment centers that complement the community's rural character and culture.
- Enhance and promote local and sustainable agriculture, farming, ranching, renewable energy, and related economic support systems.
- Preserve traditional subsistence practices and encourage a reciprocity (e.g. bartering) economy as a sustainable complement to Hāmākua's resource-based economy.
- Promote appropriate rural tourism that welcomes guests for an alternative visitor experience. Promote Hawai'i's host culture and Hāmākua's heritage roads, historic plantation towns, and festivals that celebrate our rich multi-cultural music, art, and agriculture.

What is Good for the Land is Good for the People: A Place-Based Approach to Economic Development

The people of Hāmākua do not want to sacrifice their other values and priorities for the sake of economic development. In fact, their three core value areas – 'āina/natural resources, community/'ohana, and country/rural lifestyle – only reference the economy in the context of agriculture's role in the local lifestyle. Moreover, though economic development was clearly the

community's highest priority for the future, the five additional priority areas focused on areas related to quality of life and place – recreation, education, health care, ʻāina, and public services.

In other words, the Planning Area exemplifies the truly place-based understanding at the root of the word "economics" – the Greek term *oikonomia*, which means "management of the household." Management of the household is not only about money. It's about everything that makes for a healthy family, community, and environment. The Steering Committee emphasized the key of that management to begin with the ʻāina, as expressed in the Hāmākua CDP Vision Statement:

> *We, the residents of Hāmākua recognize that the foundation of our life, livelihood, and well-being comes from the ʻāina - the land, the seas, the rivers and streams, the forests, and the skies. As active stewards, we mālama the ʻāina as the source of sustenance for ourselves and future generations. This Kanaka Maoli wisdom guides our actions with the principle that "what is good for the land, is good for the people, or, ʻO ka mea kūpono ʻāina ka mea kūpono kanaka."*

This place-based approach prioritizes natural and cultural resource preservation and enrichment as the core foundation for economic development planning.

The concept of *oikonomia* mirrors that of *ʻohana* in traditional Hawaiian culture. Mary Kawena Pukuʻi emphasizes this holistic "management of the household" in *The Polynesian Family System in Kaʻū* with her focus on the institution of ʻohana.[9] According to Pukuʻi, features of ʻohana include:

- A cohesive force tied by ancestry, birth, and sentiment to a particular locality or ʻāina
- A mutual benefit association that "manifests genuine community spirit"
- An economic community where relationships regulate personal, social, and economic intercourse
- An internal system that includes voluntary giving of food, utilitarian articles, and services as well as communal labor for large-scale projects.

This *ʻohana economic system*, or *ʻohana economy* sustained generations of families in Hawaiʻi. But the introduction of private land ownership and wage labor transformed the Hawaiian social system, to the point where ʻohana went from having full responsibility for making a livelihood to having no direct relationship to the organization of work and production.

However, the *ʻohana economy* remains a vital force in the Planning Area. A prime example of *this* is the vibrant informal economy where money doesn't change hands. Instead, people live off the land, and the medium of exchange is reciprocity. The people of Planning Area, grow food in gardens, gather it from the shoreline and forest, fish for it in the ocean, and hunt for it mauka. More importantly, the people of the Planning Area share what they have. Bounty from the garden or hunt is shared with ʻohana, which includes far more people than those connected by blood.

These practices feed families, bring communities together, and create a means for sharing cultural wisdom from one generation to the next. By sustaining and nurturing the cultural wisdom and relationship with ʻāina that families have used to survive and thrive for generations, the Planning Area's local economy is built on the foundation of the region's unique natural, cultural, and social assets.

Though perhaps most prevalent with food, reciprocity within Hāmākua's community extends to many parts of everyday life. Help with the house, yard, car, school, and other tasks are repeatedly exchanged, often offered with no expectation that the favor will be returned, in a fluid network of informal exchanges.

9 Cheryl Kauhane Lupenui. "The Center for Economic Communities." Draft white paper. 2013

The Reciprocity Economy and the Sharing Community

Sometimes referred to as *sharing communities*, *collaborative consumption*, or a *reciprocity economy*, people around the world are creating ways to share, lend, swap, barter, and gift everything from baby clothes to boats, hardware to homes. Success stories include sharing projects like the Creative Commons[10], Wikipedia, Freecycle[11], and Zipcar.[12] There are also groups emerging that consciously identify with the shift from ownership to access and a global sharing movement that views sharing not as a new fad but as an ancient practice that technology is reinvigorating. These groups focus on education, action, and community-building and advocate for a cultural shift toward widespread sharing.[13]5 Examples of these groups include:

- Unstash:[14] Unstash is a peer-to-peer platform for collaborative consumption that works to facilitate and enhance the sharing experience by making sharing fun, easy, and social.

- Shareable:[15] This online magazine tells the story of sharing – covering the people and projects bringing a shareable world to life as well as the "how-to's" so anyone can make sharing real in your life. In collaboration with the Center for the New American Dream, Shareable created the "Guide to Sharing" community action kit, which outlines steps for organizing a community swap, a tool library, a community time bank, and a co-op.[16]

- Collaborative Consumption:[17] This comprehensive online resource and global network curates news, content, events, jobs, studies and resources from key media outlets and industry blogs.

- P2P Foundation:[18] The P2P Foundation is an international organization focused in studying, researching, documenting and promoting *peer to peer* practices.

Sustainable Economic Development

The field of economic development has come full circle to recognize the wisdom of sharing communities like those in the Planning Area that never forgot the root meaning of economics. In the first three "waves" of economic development, the focus was on business attraction, business retention, and then community- based economic development.[19]

In the emerging "fourth wave," economic development re-integrates the local economy with the preservation and enhancement of each place's unique natural, cultural, and community assets. In other words, the fourth wave of economic development is about localization, holism, stewardship, reciprocity, and genuine wealth. This approach includes strategies that enhance environmental quality and self-sufficiency.

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10 http://creativecommons.org/
11 http://www.freecycle.org/
12 http://www.zipcar.com/
13 http://www.alternet.org/economy/sharing-communities-are-spreading-across-world-wildfire
14 http://unstash.com/
15 http://www.shareable.net/
16 http://www.newdream.org/programs/collaborative-communities/community-action-kit/sharing
17 http://collaborativeconsumption.com/
18 http://p2pfoundation.net/
19 Zheng, Lingwhen. 2009. "Trapped in the Race to the Bottom: Who is Using Business Incentives Now?" Cornell University.

Tied closely to sustainable economic development is Sustainable Local Economic Development (or SLED)[20] which focuses on the local community. SLEDs common principles focus on:

- quality of life (the connection between environment, economy, and social justice)
- fairness and equity
- participation and partnership
- environmental stewardship
- concerns for our future

Even more simply, fourth wave economic development is about wealth creation, retention, and sharing. However, wealth is not limited to financial capital, rather, it includes many different types of capital – human, intellectual, social, cultural, natural, political, etc.[21]

Reframing Economic Prosperity

In Hawaiian, the holistic understanding of *wealth* is *ho'owaiwai*. Fittingly, it is also the name of Hawai'i County's plan[22] for building genuine wealth and the name of the statewide network whose goal is to help families and communities build genuine wealth, and to do so in a way that is appropriate for island people – respecting the relationship island people have with the islands that feed them, both body and spirit.

Oikonomia, the *'ohana economy*, and *ho'owaiwai* require expanding the types of indicators communities use to measure and track prosperity.

In recent history, public policy has been heavily shaped by national measures of social progress that focus exclusively on economic growth and market output, most importantly "gross domestic product" or GDP,

> *…yet the gross national product does not allow for the health of our children, the quality of their education or the joy of their play. It does not include the beauty of our poetry or the strength of our marriages, the intelligence of our public debate or the integrity of our public officials. It measures neither our wit nor our courage, neither our wisdom nor our learning, neither our compassion nor our devotion to our country, it measures everything, in short, except that which makes life worthwhile. (Robert F. Kennedy)*[23]

In that spirit, several alternative indicators have been developed to measure quality of life and to help craft public policy that leads to genuine social progress:[24]

- Environmental – determining the benefits people derive from ecosystems that do not have market prices. This includes the System of Environmental-Economic Accounting (SEEA)[25], ecosystem services valuation, and measurements of communities' "ecological footprint."

20 Newby, Les (February 1999). "Sustainable local development: A new agenda for action?". Local Environment 4 (1): 67–73.
21 Pender, J, A. Marre, & R. Reeder. Rural Wealth Creation: Concepts, Strategies, and Measures. 2012. http://www.ers.usda.gov/publications/err-economic-research-report/err131.aspx#.Uh5gkj_f0vo
22 www.hawaiicountyrandd.net/hoowaiwai, http://assetshawaii.org/
23Robert F. Kennedy Address, University of Kansas, Lawrence, Kansas, March 18, 1968. http://www2.mccombs.utexas.edu/faculty/michael.brandl/main%20page%20items/Kennedy%20on%20GNP.htm
24 http://www.demos.org/publication/beyond-gdp-new-measures-new-economy; http://www.nationalaccountsofwellbeing.org/

- Social – tracking family and community ties, living conditions, health, education, life satisfaction, and other factors that contribute to well-being. Examples of efforts to track social indicators include The World Happiness Report,[26][17] the Gallup World Poll (GWP), the World Values Survey (WVS), the European Social Survey (ESS), and Bhutan's Gross National Happiness Index (GNH Index).

- Household – measuring income, consumption, and savings at the household level to determine how households are affected by changes in the economy.

- Nonmarket – measuring value-creating activities that are not transacted in financial markets, like household production (estimated at 26% of GDP); the family, school, and community *care economy* of mutual assistance (i.e., the 'ohana economy); and public outputs from nonprofits, health care, and government that are not accounted for by GDP.

Several indices have been developed as alternatives to GDP, which balance economic measures with environmental, social, household, and nonmarket indicators – the Genuine Progress Indicator (GPI),[27] the OECD Better Life Index,[28] the Index of Sustainable Economic Welfare (ISEW), and the Happy Planet Index.[29] These indices start with GDP, deduct for the cost of income inequality, crime, environmental degradation, and loss of leisure, etc., and made additions for the services from consumer durables and public infrastructure as well as the benefits of volunteering and housework.

In 2010, Kamehameha Schools used the InVEST model[30] to evaluate the impacts on carbon storage, water quality, and financial return of alternative planning scenarios on its landholding on the North Shore of O'ahu.[31] More recently, the Hawai'i State Environmental Council's 2012 annual report uses the General Progress Indicator to adjust the State GDP by deducting environmental and societal costs, such as pollution or depletion of non-renewable resources, which result from economic growth.[32] The state of Maryland has adopted the GPI for integrated accounting of economic, social, and environmental conditions, and other states are considering similar approaches.

Returning to Hāmākua's values, priorities, and objectives, indicators of *oikonomia*, the 'ohana economy, and ho'owaiwai should account for all three of the community's goal areas – managing and conserving natural and cultural resources, preserving and strengthening community character, and building a robust, sustainable local economy.

25 http://unstats.un.org/unsd/envaccounting/seea.asp
26 http://earth.columbia.edu/sitefiles/file/Sachs%20Writing/2012/World%20Happiness%20Report.pdf
27 http://rprogress.org/sustainability_indicators/genuine_progress_indicator.htm
28 http://www.oecdbetterlifeindex.org/
29 http://www.happyplanetindex.org/
30 http://www.naturalcapitalproject.org/models/models.html; Joshua H. Goldstein, et al. "The Natural Capital Project, Kamehameha Schools, and InVEST: Integrating Ecosystem Services into Land-Use Planning in Hawai`i."
31 http://www.naturalcapitalproject.org/pubs/NatCap_Hawaii_KS_TEEBcase_2010.pdf
32 http://health.hawaii.gov/news/files/2013/05/13-024.pdf

PLANNING FOR ECONOMIC DEVELOPMENT

This section introduces options for integrating economic development into community planning. It explains government's role in economic development, identifies related policies and actions in the County General Plan, and summarizes economic development strategies proposed in past plans for Hāmākua.

Government's Role in Economic Development

Put simply, government can play two roles in advancing economic development. One is essential – government must provide quality basic services and an efficient regulatory environment if it wishes to create economic development. The second role, that of providing further incentives to businesses, is optional and depends on what government can reasonably offer relative to what is necessary to attract firms and the cost of those offerings.[33]

As explained in Appendix V4B, basic infrastructure and services in the Planning Area are provided both by the State and the County, with support from the federal government and nonprofits. As it relates specifically to economic development, in addition to their economic investments through purchasing, grants, and employment, each branch of government has distinct responsibilities:

Federal: The federal government plays the largest role in economic development by providing the basic policy, regulatory, and tax framework for the nation, including payroll and income tax policy, regulation of markets, and macroeconomic policy, including monetary policy and trade.

State: State government plays a lesser but important role, focusing on professional licensing, business registration, real estate, small business development, workforce development, unemployment insurance, consumer protection, and excise and income tax policy.

County: The most direct role that Hawai'i County plays in economic development is through land use regulation and property tax policy (see Appendices V4A and B). For example, taxation of agricultural land has a significant impact on the decision making process of how best to use the property. As explained in Appendix V4A, Section 19-55, Article 7, Chapter 19, of the Hawai'i County Code provides for an Agricultural Dedication Program that allows owners to petition for property dedications of a minimum of ten years, or if in an agricultural park, up to twenty years. In addition, the county uses a general agriculture use rate. The current rate is $8.35 per $1,000 net building or land.[34] Combined these provide a total of $34 million in tax relief to promote agricultural use.[35]

Otherwise, the County seeks to support economic development through the Department of Research and Development.[36] Pursuant Charter Section 6-8.3, the Director of Research and Development shall provide staff leadership for public and private development programs, enterprises and plans, including economic, social and cultural proposals, which enhance and improve the County community. Toward that end, the Department has economic development specialists who focus on business development, agriculture, energy, tourism, and film. It also maintains the County Data Book and provides small grants to advance local economic development.

33 American Planning Association. Planning Advisory Service (PAS) Report 541. "An Economic Development Toolbox: Strategies and Methods." 2008.
34 http://www.hawaiipropertytax.com/Forms/HtmlFrame.aspx?mode=Content/TAXRATES.htm
35 Melrose, p. 99.
36 http://www.hawaiicounty.gov/research-and-development

General Plan Policies

As the policy document for the County, the General Plan speaks to several dimensions of economic development:

Diversify

- 2.2(c): Strive for **diversity and stability** in the economic system.
- 2.2(e): Strive for **diversification of the economy** by strengthening existing industries and attracting 13 new endeavors.

Advance Agriculture

- 14.2.3(l): **Assist** in the development of agriculture.
- 14.2.2(c): **Preserve and enhance** opportunities for the expansion of Hawai'i's Agricultural Industry.
- 14.2.3(e): **Coordinate and encourage** efforts to solve the problems of the agricultural industry in the County of Hawai'i.
- 2.3(a): Assist in the expansion of the agricultural industry through the protection of important agricultural lands, **development of marketing plans and programs, capital improvements and** continued **cooperation** with appropriate State and Federal agencies.
- 14.2.3(c): **Assist other State agencies**, such as the University of Hawai'i, College of Tropical Agriculture and Human Resources, University of Hawai'i at Hilo, College of Agriculture, Forestry and Natural Resources Management, Department of Business, Economic Development and Tourism, Office of Planning, Department of Land and Natural Resources and Department of Agriculture, on programs that aid agriculture.
- 14.1.2(b): Protect and **encourage the intensive and extensive utilization** of the County's important 28 agricultural lands.
- 14.2.3(k): Support the development of private and State **agricultural parks** to make agricultural land available for agricultural activities.
- 14.2.3(o): Support efforts to provide **tax relief and other incentives** to enhance competitive capabilities of commercial farms and ranches, thereby insuring long-term preservation, enhancement, and expansion of viable agricultural lands.
- 2.3(u): Encourage the establishment of open **farmers markets** to allow local agricultural producers to market their products.
- 14.2.3(r): Encourage, where appropriate, the establishment of **visitor-related uses and facilities** that 1 directly promote the agriculture industry.
- 2.3(t): Assist in the promotion of the agriculture industry whose **products are recognized as being produced on the island of Hawai'i**.
- 14.2.3(u): **Encourage other compatible economic uses** that complement existing agricultural and pastoral activities.

Develop Renewable Energy

- 3.3(a): Encourage the development of alternate energy resources.
- 3.3(b): Encourage the development and **use of agricultural products and by-products** as sources of alternate fuel.

- 3.3(e): Ensure a proper balance between the development of alternative energy resources and the **preservation of environmental fitness and ecologically significant areas**.
- 3.3(k): Strive to **diversify the energy supply** and minimize the environmental impacts associated with energy usage.
- 3.3(l): Continue to encourage the development of **geothermal resources** to meet the energy needs 15 of the County of Hawai‘i.

Balance Economic Development with Natural and Cultural Assets

- 2.2(a): Provide residents with opportunities to improve their quality of life through **economic development that enhances the County's natural and social environments**.
- 2.2(b): Economic development and improvement shall be **in balance with the physical, social, and** 20 **cultural environments** of the island of Hawai‘i.
- 2.2(d): Provide an economic environment that allows new, expanded, or improved economic opportunities that are **compatible with the County's cultural, natural and social environment**.
- 2.2(h): Promote and **develop the island of Hawai‘i into a unique scientific and cultural model**, where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.
- 2.3(h): The land, water, air, sea, and people shall be considered as essential resources for present and future generations and should be protected and enhanced through the use of economic incentives.
- 8.3(g): **Promote sound management and development of Hawai‘i's land and marine resources** for potential economic benefit.
- 2.3(y): Encourage new industries that **provide favorable benefit-cost relationships** to the people of the County. Benefit-cost relationships include more than fiscal considerations.

Encourage the Health and Wellness Industry

- 2.3(x): Encourage the **health/wellness industry**.
- 2.3(n): Encourage the development of the **retirement industry**.

Support Appropriate Tourism

- 2.3(c): Encourage the development of a visitor industry that is in harmony with the social, physical, and economic goals of the residents of the County.
- 14.2.3(r): Encourage, where appropriate, the establishment of visitor-related uses and facilities that directly **promote the agriculture industry**.

Support Business Development

- 2.3(p): Identify the needs of the business community and take actions that are necessary to **improve the business climate**.
- 2.3(m): Encourage active **liaison with the private sector** with respect to the County’s requirement for establishing businesses on the island.
- 2.3(o): **Promote a distinctive identity** for the island of Hawai‘i to enable government, business, and travel industries to promote the County of Hawai‘i as an entity unique within the State of Hawai‘i.

Courses of Action for Hāmākua CDP Planning Area

Rural South Hilo

- 2.4.2.2(c): ***Encourage manufacturing*** operations that ***utilize local raw materials, such as macadamia nut shells and timber.***
- 2.4.2.2(d): ***Assist the fishing industry*** through a cooperative effort with State and Federal agencies.
- 2.4.2.2(e): Assist in the formulation and implementation of management education and manpower training programs to strengthen the overall skill levels of its work force to be compatible with existing and emerging industries.
- 2.4.2.2(i): Coordinate with the University of Hawaii at Hilo to ***establish an aquacultural program along accessible areas of the Hilo coast*** for research, demonstration, and development purposes.
- 6.5.2.2(b): ***Identify historic sites*** within the South Hilo District for ***inclusion within the Hawaiian Heritage Corridor Program.***
- 14.2.4.2.2(b): ***Support the University of Hawai'i at Hilo*** and Hawai'i Community College aid in their development of ***programs that assist agriculture***. (**Note:** Although this is in South Hilo, it also applies to NHERC in Honoka'a).
- 14.3.5.2.2(b): ***Assistance to small businesses in obtaining loans and management education classes and manpower training programs shall be encouraged.***

North Hilo

- 2.4.3.2(a): ***Assist the further development of agriculture***. A program to expand agriculture should be developed and implemented.
- 2.4.3.2(b): Work with community groups and organizations to ***identify and develop potential cottage industries.***
- 2.4.3.2(c): Support the ***development of a native hardwood industry.***
- 14.3.5.3.2(a): ***Centralization of commercial activities in the Laupāhoehoe-Pāpa'aloa area shall be encouraged.***
- 14.3.5.3.2(c): ***Do not allow strip or spot commercial development on the highway outside of the primary commercial area.***
- 14.4.5.3.2(b): ***Service oriented Limited Industrial and/or Industrial-Commercial uses may be permitted in the Laupāhoehoe-Pāpa'aloa*** area although the area is not currently identified on the LUPAG map.
- 14.7.5.3.2(a): ***Encourage the development of small-scale visitor related facilities*** near points of interest.

Hāmākua

- 2.4.4.2(a): ***Assist the further development of agriculture*** and continue to cooperate with the agricultural sector and other appropriate agencies to provide the necessary services to assist agriculture.
- 2.4.4.2(b): Allow the development of ***limited visitor facilities that will not detract from the natural beauty of the area.***
- 2.4.4.2(c): ***Develop a tourism industry*** that will promote small business development by ***maintaining the plantation heritage of the area.***

- 2.4.4.2(d): ***Diversify the economic base and enhance historical aspects of the area*** including existing ***ranching operations and the former sugar industry.***
- 2.4.4.2(e): ***Support the growth of a forestry industry*** within the district.
- 2.4.4.2(f): ***Support the growth of astronomical research and development***.
- 6.5.3.2(a): Coordinate with the community to ***identify historical sites and buildings for inclusion in a heritage corridor program.***
- 14.3.5.4.2(a): ***Centralization of commercial activities in the Honoka'a area shall be encouraged***. Urban renewal of the area should be undertaken.
- 14.3.5.4.2(c): Encourage commercial activities within Honoka'a town to ***promote and enhance the history and culture of the paniolo and former sugar plantations.***
- 14.4.5.4.2(b): Encourage the ***rehabilitation of existing service-oriented industrial areas.***
- 14.7.5.4.2(a): Encourage the development of small family-operated hotels.
- 14.7.5.4.2(b): Consider small-scale retreat resort development.
- 14.7.5.4.2(c): Encourage resort development that enhances the natural beauty of the area.

Past Hāmākua Economic Development Plans

Chronology of Economic Development Plans for the Planning Area

North East Hawai'i Community Development Plan (1979)[37] is the first Community Development Plan for the Planning Area contains an economic development element which provided an analysis of the current and potential economic activity in the Planning Area, including the following industry summaries:

- Agriculture – Primarily sugar growing and processing, macadamia nut growing and processing, cattle raising, vegetable crops, and other crops
- Forestry Products
- Tourism
- Scientific Research and Development
- Construction

The Plan made the following economic development recommendations paraphrased below:

1. The County and community should continue to support the sugar plantations efforts to stop discharge of sugar mill waste and polluted water into the ocean per EPA timetable requirements.
2. State, County, and Community should advocate for the enactment of Federal legislation to reinstate the sugar act to stabilize sugar prices.
3. State and county should continue and expand assistance to further develop diversified agriculture in the Planning Area.
4. Study the feasibility of an agricultural park including marketability of proposed products, economic stability of perspective occupants, economic farm size, and location.

37 http://www.hawaiicountycdp.info/hamakua-cdp/about-the-hamakua-cdp-planning-area/past-and-current-planning-activities-in-the-hamakua-cdp-planning-area/Honokaa%20Urban%20Design%20Plan%201979.pdf/view

5. Manufacturing and other operations which utilize local raw materials and waste products should be encouraged by the County.
6. The development of forestry products should be encouraged wherever possible within sound ecological standards.
7. The County and communities should study and evaluate means to tap tourist potential in the Planning Area. A visitor coordinator should be appointed to provide leadership for this purpose.
8. The County should encourage the development of sites and improvement to attract elements of the visitor industry to the Planning Area at a small scale and low-key basis.
9. The State, County, and community should work with private enterprise and community groups to stabilize and encourage existing employment as well as seeking alternative forms of productive employment.
10. County and community should support State and Federal development of the scientific and recreation resources of Mauna Kea and Mauna Loa, but should also insist that uses be consistent with an approved master plan that adequately protects the environmental qualities of the mountains.
11. The State and County with community support should continue technical training at Hawai'i Community College to ensure that skills needed for plantation and industry employment.

Hilo – Hāmākua Economic Development Plan (1994)[38] was developed to help counteract the looming regional economic devastation of the phase-out of the sugar industry. The primary purpose of the plan was to help find alternative sources of jobs to replace the approximately 1,200 direct jobs and significant number of other related jobs that would be lost in the community. The secondary purpose of the plan was to identify productive alternative uses for the approximate 45,000 acres of land being withdrawn from sugar production.

The plan, which covers most of the Hāmākua CDP Planning Area, provided a discussion of the community's values and preliminary vision (though not yet complete when this plan was published). The community's values included:

- Maintaining *local style* living
- Focusing on family
- Sharing and helping neighbors
- Living off the land
- Maintaining open space
- Pursuing slow development and design
- Ensuring the existence of outdoor activities
- Participating in cultural festivals; and
- Maintaining existing resources

38 Prepared for the Department of Business, Economic Development & Tourism, State of Hawai'i (DEBEDT) by the Hawai'i Island Economic Development Board

The Community's preliminary economic vision for the future included:

Agriculture

- Integrated, diversified small family farms run as interconnected, entrepreneur-type operations
- Utilizing recycling and multiple use self –sufficiency systems.
- Coordinated planting, harvesting, processing and marketing programs
- Visitor tours
- Strong linkage to University technical resources and field work
- An industrial park area for value added processing facilities

Visitor Industry

- Hilo-Hāmākua Heritage Corridor and visitor centers
- Community participatory activities including:
    - Craftwork produced through a cottage industry network
    - Agricultural production and process displays, exhibits, and tours
    - Improve road systems for scenic drives (including connector road between Waipi'o and Lakeland)

Future Community Development Planning

- Continued through ongoing grassroots planning processes
- Newsletters
- Active community centers
- Extensive political and community involvement

Natural Resource Protection

- Natural area reserves will be maintained for outdoor activities
- Conservation and stewardship programs
- Preservation of native forests

The plan goes on to provide the following industry analyses, which included existing & proposed activities, opportunities, constraints, and recommendations for removing existing constraints:

- Agriculture/Forestry
- Visitor industry
- Centralized processing centers
- Alternate energy development
- Arts and crafts cottage industry
- Film industry

Based on the preceding analysis, the plan offers the following economic development **Objectives and Strategies:**

- Objective 1: Find replacement jobs for the displaced (sugar) workers

- Strategy 1: Identify those who need assistance and the type of assistance needed
- Strategy 2: Assist displaced workers preparing for employment
- Strategy 3: Assist displaced workers in improving basic/transferrable skills
- Strategy 4: Provide specific occupational skills training for jobs being generated.

- Objective 2: Maintain strong and viable agriculture in the district
  - Strategy 1: Target high value crops for export
  - Strategy 2: Develop news markets for export crops
  - Strategy 3: Promote import substitution for crops that are technically and economically suited for the district
  - Strategy 4: Remove or reduce economic activity constraints identified in industry analysis:
    - Crate agricultural advocacy entity
    - Develop action program to evaluate crops and commodities
    - Develop centralized coordination between farmer, processors, and marketers develop agricultural parks, land leases, and provide training, technical assistance, and product marketing.
- Objective 3: Extend visitor stay by encouraging the growth of ecotourism, cultural and educational tourism
  - Strategy 1: Promote ecotourism
  - Strategy 2: Provide complementary activities to traditional destination resorts
  - Strategy 3: Develop State Heritage Park System
  - Strategy 4: Locate a sugar industry exhibit in Honoka‘a Town.
  - Strategy 5: Develop or expand state recreational areas
- Objective 4: Encourage the growth of other new industries such as forestry, aquaculture, and alternate energy
  - Strategy 1: Capitalize on large and expanding markets for wood products in the Western Pacific, particularly Asia
  - Strategy 2: Evaluate aquaculture opportunities
  - Strategy 3: Pursue and accommodate scientific research and technological advancement of alternative energy sources.
- Objective 5: Promote growth of small and medium sized businesses and new businesses
  - Strategy 1: Continue working with DBEDT and Hawai‘i Island Economic Development Board (HIDEB) to obtain future and/or additional federal grants.

Community Based Heritage Corridor Plans: The State Department of Business Economic Development and Tourism (DBEDT) provided assistance through the Big Island Resource Conservation District (RC&D) to the region for community-based heritage corridor plans after the demise of the sugar plantations. In 1995, four communities prepared heritage corridor plans. The plans were community driven and involved inventorying places/themes of historic value and cultural significance, selection of a “heritage

feature site" and development of a business plan to support the selected site. The four plans are summarized below.

North Hilo. The North Hilo Heritage Corridor Strategic Plan identifies the following places and events as those of historic value and cultural significance:

- ʻOʻōkala Mill Museum, Chicken Fights
- Camps
- Trains
- Waterfalls
- Smallest Post Office in the USA – Nīnole
- The Point, Landing, Old School, Mill
- Old Road to the Point
- Walking Trail
- John M. Ross School
- Pāpaʻaloa
- Interpretive Signs
- Heiau Waipunalei
- Gulches – Ponds
- Destination Signs
- Flume System – water puka
- Sakada Homesite - Kīlau
- Trees
- Horse races – Rodeo Arena Entertainment area
- Holua races
- Soapbox Races
- Slaughter Houses – Puʻualaea and the Point Parks
- Local Newspaper
- Bike routes
- Enhance plantings around town
- Tidal Wave
- History of Laupāhoehoe Point
- Kapehu and ʻOʻōkala Schools
- Train Station
- Churches
- Grave site at Waipunalei

Of these sites and events, the community that participated in the North Hilo Community Heritage Corridor Plan selected the Laupāhoehoe Train dock and keeper's home as the heritage feature site to focus on as a heritage development project. The train station was selected because of the high level of community support, cost, marketability, potential for extending visitor length of stay as well as indirect business potential. The railroad played an important part in the development of Laupāhoehoe and the project's purpose was to reinforce appreciation of the local history while being an attraction to visitors. The museum was opened in 1998 and according to the museum's website (http://www.thetrainmuseum.com/) the museum hosts 5,000 visitors annually. Regionally, the North Hilo Community Heritage Corridor Plan recommended development of an "ecotourism map"; improved signage along the Māmalahoa Highway; and, collective marketing with other heritage areas for island-wide exposure.

Paʻauilo. The Paʻauilo Heritage Corridor Strategic Plan identifies the following places and events as those of historic value and cultural significance:

- Plantation Manager's residence
- Plantation Industrial Relations Building
- Paʻauilo Landing (Koholālele Landing) Hāmākua
- Kūkaʻiau Landing
- Old Hāmākua Mill site

- Water Tunnel
- Field Office Building
- Kim Chee/Bagong factory sites
- Stables
- Train Turn around/old hotel
- Lava Tubes
- Jelly Factory

Of these sites, the community that participated in the Pa‘auilo Community Heritage Corridor Plan selected the Plantation Manager’s residence and the Plantation Industrial Relations building as the heritage feature sites to focus on as a heritage development project. As with North Hilo, these sites were selected based on factors such as community support, cost, marketability, potential of extending visitors’ stay and potential to generate indirect business. The plantation manager’s residence and plantation industrial relations building are highly visible from Māmalahoa Highway and were identified as a complex that could be a center for information about the local area as well as a place for displays and exhibits.

Honoka‘a. The Honoka‘a Community Heritage Corridor Plan included a study bounded by Waipi‘o Valley to the north and Kalōpā State Park to the south. The community involved with the study categorized community resources by those that were in existence and those that needed to be developed. They are as follow:

“Activities/sites already there”

- Biking
- Horseback riding
- Hiking
- Guided Tours (Waipi‘o Valley shuttles)
- Picnic spots
- Fruit stands
- Farmer’s Market
- Kamakawiwo‘ole Church
- Pā‘auhau mauka, plantations manager’s house
- All churches from Kalōpā to Waipi‘o

“Needs To Be Developed”

- Trail system
- Plantation Landings
- Information Booth
- Restroom Facilities
- Murals for all ethnic groups

- Coordination and expansion of existing festivities with cultural heritage corridor such as Haina Mill, museum and cultural center, papaya factory & poi factory
- Okada Hospital
- Jodo Mission
- History of Rickard and Awong families
- Trail system and coastline road
- Waipi'o Trail System
- Three landings with trails
- People's Theatre (picture slide shows)
- Downtown Walking Tours
- Pacific Sugar Mill

Using the criteria of level of community support, cost, marketability, potential for extending visitors' length of stay as well as indirect business potential, the community involved with the project decided to focus on the entirety of Honoka'a town as the area's heritage feature. The consensus philosophy was that if Honoka'a town were **revitalized**; it would have positive benefits to visitor related businesses in the surrounding area. The concept plan included taking advantage of the town's remaining historic architecture, facilitating a mural project that was under way and looking toward development of a historical museum and heritage information center.

A Plan for the Hilo Hāmākua Coast (2000): [39] The Hilo Hāmākua Community Development Corporation (HHCDC) undertook an intensive community engagement process to develop "A Plan for the Hilo Hāmākua Coast", which at the time prioritized the economic, cultural, educational, and infrastructure priorities of the residents of the Hilo Hāmākua coast. Thousands of community comments from area wide surveys and three visioning conferences were categorized and voted upon to prioritize, in order of importance, the community's wishes.

One of the Plans Goals was to promote "Community Based, environmentally sound economic development", such as agriculture, eco-tourism, recreation, and cottage industries…through securing financing, properly managing natural resources, and promoting cultural heritage.

Through a 1999 district visions conference, the sub-regions of the CDP planning Area identified the following priorities:

Rural South Hilo

- Jobs
- Recreation
- Values
- Education
- Public Safety

North Hilo

- Agriculture
- Healthcare
- Transportation
- Tourism
- Environment

Hāmākua

- Healthcare
- Education
- Agriculture
- Hawaiian Culture and Education

39 http://www.hawaiicountycdp.info/hamakua-cdp/about-the-hamakua-cdp-planning-area/past-and-current-planning-activities-in-the-hamakua-cdp-planning-area/Hilo%20Hamakua%20plan.pdf/view

- Environment
- Recreation
- Small Business
- Arts
- Tourism

The plan made the following economic development recommendations:

- Use local knowledge, skills and native raw materials, and increase local business ownership, incubation, and purchasing habits.
- Support regional agriculture
- Develop value-added products and crafts
- Create facilities for small business incubation
- Establish more restaurants, gas stations, laundries, mechanic shops, and services in the area.
- Provide additional computer centers, instructional classes, and distance learning opportunities
- Initiate or find existing, traditional, and alternative sources of financing for entrepreneurial initiatives

Hāmākua Agriculture Plan: Sustaining Rural Hāmākua Through Agriculture (2006)[40]**:** This community-based plan covers the area from the Maulua Gulch in North Hilo, to Waipiʻo Valley in Hāmākua, and was developed as a pre-cursor to the CDP for the area. While planners initially sought to focus on issues important to the success of diversified agriculture, the final document included high community priorities as well. The plan identified the following economic development recommendations:

Goal 1: Support diversified, sustainable agriculture: farms, livestock production, and aquaculture.

- **Implementing Actions**

1. Create and maintain a database of agricultural producers, their crops, and their needs.
2. Create, maintain and make available to agricultural producers a database of resources that address the needs of the farmers and ranchers.
3. Create and promote educational opportunities for farmers and ranchers
4. Work with the North Hawai`i Education Center in providing classes related to agriculture.
5. Keep the community informed about agriculture issues.
6. Encourage the use of the Lower Hāmākua Ditch System.

Goal 2: Promote economic success in Hāmākua agriculture.

- **Implementing Actions**

1. Explore the development and impact of agricultural tourism.
2. Secure funding to create and implement a business and marketing plan for cooperative marketing and processing of Hāmākua grown products.
3. Identify and encourage ways that existing facilities can be fully utilized.
4. Create multi-functional processing, storage and distribution facility(ies).
5. Explore and provide opportunities for the creation of value-added products for Hāmākua grown products.

40 http://www.hawaiicountycdp.info/hamakua-cdp/about-the-hamakua-cdp-planning-area/past-and-current-planning-activities-in-the-hamakua-cdp-planning-area/AG%20PLAN-2006.pdf/view

6. Support and facilitate "farm clusters" that grow similar products and have similar visions and that will help support each other.
7. Work with the University Extension Service, USDA, NRCS and others to facilitate education and economic success.
8. Research and emulate successful agricultural models and encourage local agriculture producers to share their successful practices.

Goal 3: Develop a plan to promote "Hāmākua Grown" Products.

- **Implementing Actions**

1. Design and create a "Hāmākua Grown" trademark label.
2. Register the trademark with the State of Hawai'i.
3. Develop quality standards for the trademark.
4. Create and implement a plan to initiate use of the label.
5. Obtain funding to promote the development and marketing of Hāmākua Grown products.

Hāmākua Farmer Bureau and Hāmākua Livestock Producer's Agriculture Plan (2006): This plan was developed in 2006 by the Hāmākua Farm Bureau and Livestock producers in response to the Hāmākua Agriculture Plan (above). Feeling that their input and feedback to the Hāmākua Agriculture Plan was not incorporated throughout the process, the Hāmākua Farm bureau and Livestock producers drafted their own plan to ensure that the collective recommendations of Hāmākua farmers and ranchers were heard.

This plan borrowed heavily from structure and content of the Hāmākua Agriculture Plan, and focused more on addressing land use policies, economic development and other pertinent areas and resources required to develop, promote, protect, and sustain agricultural in Hāmākua. The plan makes the following economic development recommendations (please note, several recommendations from this plan are the same as the Hāmākua Agriculture Plan above, we have only listed differing/additional recommendations below:

Goal 1: Support diversified, sustainable agriculture

- Courses of Action:
  - Create and further develop infrastructure and resources. Water sources, storage and distribution, processing facilities to add value to agriculture crops and livestock.
  - Create, distribute and maintain a quarterly newsletter to keep the community informed about agriculture issues.
  - Encourage the full use of the Lower Hāmākua Ditch System.
  - Development of additional water sources throughout the district.

Goal 2: Promote economic success in agriculture

- **Courses of Action:**
  - Encourage and support the development of agricultural tourism.
  - Research and emulate successful agricultural models.

Goal 3: Develop a plan to promote "Hāmākua Grown Products"

- **Courses of Action:**
  - Obtain added value grants to promote the development of the Hāmākua Grown Trademark.

Biofuels in Hawai'i: A Case Study of Hāmākua (2009):[41] This case study sponsored by the Kohala Center, and conducted through the Department of Urban and Regional Planning at the University of Hawai'i at Mānoa investigated the issues surrounding competing biofuel/biomass proposals involving the use of the approximately 30,000 acres of planted eucalyptus forest in the Planning Area. Hāmākua is of particular interest to biofuel businesses because of its topography, rich soil, abundant rainfall, land availability, and agricultural heritage.

The study team utilized an interdisciplinary approach, combining expertise in urban and regional planning, community development, and natural resource management. Methodology for the study involved three steps. First, the team conducted a review of existing literature on the relevant issues. Second, the study team interviewed 54 people organized into the following categories: 1) experts in energy, forestry, agriculture, and environmental management; 2) business leaders in forestry and energy; 3) proprietors of diversified agriculture, cattle ranching, and dairy farming operations; and 4) public and private sector professionals in the areas of energy, water, and community planning. Finally, the study team conducted a site visit of the Hāmākua region to gain firsthand experience of the issues and meet with local stakeholders in the community, business, and government.

The study identified the following key findings related the impacts of a biofuel industry to natural resource management in the Planning Area:

- Approximately 14,000 acres are planted in Eucalyptus in the Planning Area on Kamehameha Schools Lands
- Approximately direct 55-79 bio-energy jobs could be created
    - Forestry – Mechanized Harvesting – 15-24 Jobs
    - Conversion – Power Plant Employees – 25-30 Jobs
    - Distribution – Trucking – 15-25
- Potential users for the trees included:
    - Hū Honua Bio Energy (Pepe'ekeo) - Renovating the Pepe'ekeo Sugar Mill for electricity generation through bio-mass combustion. Hu Honua recently signed a Power Purchase Agreement with HELCO (the Island's Electric Utility) to provide 21.5 MW of electricity to the power grid. That agreement was recently accepted the Public Utilities Commission (PUC)[42], however there are environmental impact lawsuits currently being litigated.
    - Tradewinds Forest Products ('O'ōkala) – Initially proposed use the 'O'ōkala Sugar Mill for a veneer operation and bio-mass electricity generation, Tradewinds Forest Products is now defunct. Another company, Tradewinds Hawaiian Woods, plans to mill Eucalyptus and other woods for local and international sale.[43]
    - SunFuels is a biofuel production firm that was seeking to both grow crops for biofuel production and construct a conversion facility on Hawai'i Island. SunFuels proposed to use Biomass to Liquid technology to convert wood chips into a synthetic diesel fuel for use in vehicles such as fire engines, school buses, and construction equipment. SunFuels is no longer planning on using Hāmākua biomass resources for this venture.

41 http://www.durp.hawaii.edu/Library/Document%20pdf/Final_Draft_Biofuels_11_15_09.pdf
42 http://www.bizjournals.com/pacific/news/2013/12/23/puc-oks-hu-honua-bioenergys-contract.html
43 http://hawaiitribune-herald.com/sections/news/local-news/eucalyptus-logging-may-begin-2014.html

- The community is divided on the issue of forestry as part of their economic future. While forestry would add some employment opportunities and fits in with the rural, agricultural character of the community, biofuel production and consumption is accompanied by significant environmental and social concerns. These concerns include:
    - Potential competition between food and fuel crop production;
    - Concerns related to space for agricultural production (particularly ranching); and
    - Environmental concerns surrounding the conversion processes and end uses.
    - Concerns about traffic congestion with logging trucks on rural roadways

Related Hawai'i Island and State Plans

County of Hawai'i Agricultural Plan (1992): Although this report is 20 years old, many of the goals and actions remain relevant, including:

- Land Use and Availability – development of agricultural parks; development of a County "Right-to-Farm" Act; protection of agricultural lands from conversion to other uses
- Taxation – more precisely define commercial agriculture; limit agriculture subsidies to commercial agriculture
- Water – development of a comprehensive plan for agricultural water; use of that plan to lobby for state and federal support for agricultural water development; protection of watersheds
- Housing – increase the supply of agricultural housing; expedite approval process for housing and agricultural buildings; develop alternatives to agricultural housing
- Labor – encourage small-scale farming that can be supported by family labor; support the promotion of agriculture as a profession in schools island-wide; continue county cooperation with other agencies and programs that affect agricultural labor
- Marketing and Competitiveness – investigate the market potential of exportable Big Island agricultural products in both local and foreign markets; support research in integrated production technologies that will also minimize waste, pesticide use, and other negative environmental effects.

Hawai'i Island Tourism Strategic Plan 2006–2015 (2005)[44]

The plan describes a vision for tourism on Hawai'i Island that is consistent with the vision and values identified by Planning Area residents. Four of the plan's six vision components point to an emphasis on place, host, and culture based principles that honor the island's people and heritage; enhance the quality of life for residents; value and perpetuate natural and cultural resources; and engender respect and 1 partnership of all stakeholders including future generations. Within this context, the plan then speaks to tourism contributing to a sustainable economy and providing unique visitor experiences.

To achieve the aforementioned vision, the plan describes an approach to manage the island's tourism industry in a manner that promotes:

1. A high quality of life for residents;
2. Preservation of natural and cultural resources;
3. Quality experiences for visitors; and
4. Economic growth for the County of Hawai'i.

44 http://www.hawaiicounty.gov/rd-tourism

The underlying assumption of this approach is the direct relationship that exists between the health of the land, its peoples, and a sustainable and vibrant visitor industry – *ola ka ʻāina, ola ke kānaka* (healthy land, healthy people).

Biodiesel Crop Implementation in Hawai'i Report (2006):[45] This report included the following recommendations related to economic development in rural communities like the CDP Planning Area:

- It is recommended that because of the current lack of crop selection and its production requirements and the lack of infrastructure for alternate fuels that a biodiesel implementation program be approached methodically and cautiously. Determining which crop(s) will be the most viable, which production protocols to use and which business model(s) are practical for Hawai'i's future are important first steps to implement a sustainable biodiesel agricultural industry.
- The Big Island offers the greatest potential for high-volume production of biodiesel of any island in the State. The Hāmākua Coast, the Puna District, and the Kaʻū District could together supply enough oil for biodiesel processing to supply all of Hawai'i Island's needs, as well as supplementing the needs of other islands.
- The lands along the Hāmākua Coast north of Hilo are currently forested with commercial plantings of Eucalyptus trees. These lands have been forested since the decline of the sugar industry on Hawai'i. Once these forests are harvested, the climate and soils of this region would permit a large-scale operation utilizing oil palm to produce oils for biodiesel. An area approximately 50,000 acres (20,200 ha) in size could produce nearly 38 million gallons (143.8 million liters) of oil, almost enough to meet 2004's island-wide usage of 40 million gallons (151.4 million liters). This area receives 60-150" of rainfall per year and it is expected that no supplemental irrigation would be necessary. Field access would be similar to that used by the old sugar plantations and forestry operations. As oil palms matured, the understory could be managed for other crops to provide a dual use of the land.
- To develop a successful biodiesel operation, high-value by-products are essential. Co-products of biofuel production include:
    - Glycerin – specialty cosmetics, as an ingredient in foods, and, for propylene glycol, with the specialty soaps market being the most likely to be profitable
    - Seedcake – organic fertilizer, animal feed, charcoal, energy.
- Production by Individual Farmers: A small farmer may not be able to implement biofuel production to serve the needs of a single farm operation due to land, time, labor, and equipment limitations. Larger operations that operate on greater than 100 acres, however, would have more resources available to devote to biodiesel production for on-farm sustainability. Although large operators will have greater fuel requirements, their access to more marginal lands that could be dedicated to oil crops and the labor necessary to harvest and process those crops will work in their favor. This method of producing biodiesel could meet the needs of some of the rural communities across Hawai'i, and a support system would have to be in place to assist with the cropping and processing operations. Training would also be necessary for each individual that would wish to pursue individual production for use on-farm.
- Organized Co-operative Production in Rural Communities: Centrally located small-scale operations in agricultural communities could function as cooperatives among farmers where they are the

45 Poteet, Michael. "Biodiesel Crop Implementation in Hawai'i." Hawai'i Agriculture Research Center. Prepared for the Hawai'i Department of Agriculture. September 2006.

suppliers and customers of the biodiesel. There are modular-type processing facilities capable of producing 78,000 gallons or more of biodiesel per year that could be used to scale-up or scale-down to meet local demand. The establishment of such cooperatives could serve the needs of rural communities for some transportation fuels outside of agricultural producers. Such cooperatives of small-scale production could focus on supplying the needs only for a small area of an island and develop by-product markets for their local region. Incentives and government policy for biodiesel development would stimulate the initial stages of development as well as utilization of the available federal grant programs for cooperatives.

- Large Scale Plantations of Oil Crops: The development of large plantations of energy crops is a scenario that would entirely privatize the biodiesel sector in Hawai'i, isolating production to a few large entities. A large plantation would be in a position to use wastes and residues more effectively than any other operation, as sugar plantations have found the most efficient way to utilize bagasse, the primary by-product for the processing of sugarcane, for energy. In the same way, some of the residues and leftover biomass from biodiesel manufacturing may also be used to provide fuel for co-firing operations to supply electricity to the grid of each island.

Island of Hawai'i Whole System Project Report (2007): This study by the Rocky Mountain Institute suggests that the critical element to growth in the agricultural and food productions sectors is the lack of adequate and appropriate processing and distribution systems. It suggests focusing on investments in the following leverage point areas: bringing down input costs, improving availability of farming land, getting higher prices for food, building a direct relationship between the farmer and the consumer, improving market channel infrastructure, and enhancing the sense of an agricultural community.

Strategic Plan: Sustaining Ranching Communities in Hawai'i (2007):[46] The plan articulates a vision for the continued role that the beef cattle industry will play in sustaining Hawai'i's agricultural and economic resources bases and the Hawai'i-specific ecosystem service values. The Plan includes three strategies to ensure viability of such a vision:

- Public policies that support economic sustainability of grazing and other compatible managed open space uses based on an industry-wide policy position and related activities and action goals, spearheaded by a coalition and a chosen leader.
- Viable transportation alternatives to ensure increased access to off-island markets and production opportunities following an economic, resource, and market analysis.
- Education for the general public, including children, policy makers, and stakeholders, on the importance of livestock in Hawai'i.

Kamehameha Schools Strategic Agricultural Plan (2009): Kamehameha Schools owns approximately 36,235 acres of land in the Planning Area, about 8,955 acres of which are designated in the State Land Use Conservation District and approximately 27,280 acres in the State Land Use Agricultural District. The State Land Use Agriculture designated lands are leased for agricultural purposes, mostly for pasture, forest, truck crops, and orchards. Most of the lease agreements expire within the next 10 years. Kamehameha School's long-term agricultural goals include:

- Supply locally grown products to Kamehameha Schools campuses (Kea'au)
- Restore and revitalize traditional agricultural systems
- Explore agriculture research and development opportunities

46 Hawai'i Cattlemen's Council, Inc. Strategic Plan: Sustaining Ranching Communities in Hawai'i. November 2007.

- Strategically invest in agricultural support facilities and infrastructure
- Support agricultural education, business planning, and farmer certification programs
- Actively engage in agricultural marketing
- Contribute to a sustainable clean energy future for Hawai'i through education, energy efficiency gains and renewable energy initiatives
- Steward forestlands in consideration of the full range of ecosystem services and resource extraction activities – including native reforestation, traditional forest products, and energy production.

County of Hawai'i Agriculture Development Plan (2010):[47] Developed by The Kohala Center, this Plan outlines a number of recommendations to help the County to achieve the goals established in the County's 1992 agriculture plan:

- Complete the designation of Important Agricultural Lands (IAL)
- Develop a comprehensive and actively managed agricultural website for Hawai'i Island agricultural information
- Work with U.S. federal and State regulatory agencies, industry stakeholders, and other groups to create and implement a comprehensive strategy to eliminate the introduction of invasive species and safely eradicate existing invasive species.
- Work with U.S. federal and State agencies to improve agriculture inspections systems and storage facilities as Hawai'i Island.
- Undertake or commission a Baseline Study for Increased Food Self Sufficiency.

Island of Hawai'i Green Economy Report (2010): This report introduces the emerging "green economy," "green jobs," key sectors (renewable energy, green construction, sustainable agriculture, conservation, and green products and services), and investments in green workforce development.

Rural Economic Development Report (2010):[48] DBEDT's Rural Economic Development Report identified the following best practices from rural economic development models both locally and nationally:

- Rural Leadership Development: Develop skilled leadership to bring the community together to move in new directions.
- Regional Agriculture Development Programs: Establish a regional agriculture development campaign that includes:
    - Developing regional agricultural associations, produce, and product labels
    - Developing relationships between regional producers and retail food enterprises
    - Promoting and educating about regional food products through a non-profit or regional agriculture association
    - Creating websites with "food maps" indicating where food originates from.
- Agritourism: Group interesting sites, activities, and events into a regional "cluster" of visitor opportunities.

47 The Kohala Center. 2010 County of Hawai'i Agriculture Development Plan. Prepared for the County of Hawai'i, Department of Research and Development.
48 SMS Research & Marketing Services, Inc. Rural Economic Development Report. October 2010.

- Creative Enterprise Industry Cluster: This approach builds upon unique arts and/or crafts skills within a community and supports the heritage and traditional culture of an area. This industry cluster could be bundled with design, entertainment, education, and cultural tourism.
- Support Rural Entrepreneurship: Provide adequate infrastructure and support to identify and exploit comparative advantage. This includes:
    - A nonprofit organization hub to facilitate coordination
    - A process to identify and recruit community members to help lead economic development
    - A mentorship program
    - Develop entrepreneurial and agricultural start-up skills (finance, marketing, business management skills).

Comprehensive Economic Development Strategy (CEDS) (2010):[49] Every five years, the State Office of Planning updates the Comprehensive Economic Development Strategy (CEDS). A CEDS is required as a precondition for funding under most EDA programs. The CEDS identifies industry clusters that provide economic competitive advantages for the State as well as strategies and infrastructure projects to support and strengthen these industry clusters.

The 2010 CEDS identifies the following Hawai'i County Cluster Industries: Agriculture, Energy Development, Efficiency and Renewables, Education, Science and High Technology, Health and Wellness, Visitor Industry (Heritage Tourism, Cruise Industry, Eco-Tourism), and Housing and Resort Development.

- The CEDS also identifies the following Hawai'i Projects: Agriculture
    - Water Infrastructure for development of a multi-use **County Agricultural Park in Kapulena** dedicated to sustainable community-based agriculture, school-based agricultural projects to educate future farmers, and research and production to assist the grass-fed beef industry to increase the industry's market share in Hawai'i County
    - Ka'ū Water System Improvements
    - Kohala Ditch system improvements
    - Feasibility and management plan for shared agricultural consolidation, inspection, disinfestations and distribution centers at Hilo International Airport/Hilo Harbor and 10 Kawaihae Harbor
    - Open ocean research facility and commercial fish farm pilot project mapping and designation of important agricultural lands; feasibility study for agricultural parks
    - **Improvement to various slaughterhouses**
    - Food security plan for integration into disaster management plan
- Energy
    - Feasibility analysis for new development of geothermal

49 http://files.hawaii.gov/dbedt/op/spb/Final_CEDS_2010.pdf

- Public sector facility energy audits and energy-efficiency and renewable energy installations and retrofit projects

- Education
  - Film production grant program to build local production capacity
- Science and Technology
  - Innovation center at NELHA
  - Film production sound stage and training center
  - Feasibility study of island wide capacity and resources for tele-and videoconferencing
  - Carbon dioxide and ocean acidification research and development
  - Utilization of byproducts from energy conversion products; and UH Hilo Science and Technology Center
- Health and Wellness
  - Comprehensive health information technology project
- Visitor Industry
  - Marketing campaign and materials to explain filming protocols in culturally sensitive areas
  - Volcanoes National park infrastructure improvements
  - Heritage District Center and Infrastructure
- Housing and Resort Development
  - Kaloko housing project

Hoʻowaiwai Hawaiʻi Island: Building Genuine Wealth Report (2011):[50] In the County of Hawaiʻi's report Hoʻowaiwai Hawaiʻi Island: Building Genuine Wealth, the stories gathered from families across the island included their perspectives on wealth being more than the accumulation of money and goods. They spoke of intangibles such as ʻohana and the quality of their relationships, of their ability to make it in difficult times with the help of their community networks, and of the chance to share with others and to leave a legacy for future generations. This family resiliency is further supported by subsistence options that are rooted in Native Hawaiian values such as mālama ʻāina (caring for the ʻāina – that which feeds) and manaʻoʻiʻo (respect for nature).

The report's policy recommendations are intended to help families to increase their economic self-sufficiency and resilience through strategies that help them earn a living wage (*Earn It*); reduce debt and 13 better manage their household expenses (*Keep It*); and build their assets (*Grow It*) within Hawaiʻi's culture of sharing and giving (*Share It*) (see "Figure 1: Hoʻowaiwai Hawaiʻi Island Framework").
Specific policy recommendations include:

- County support for workforce and businesses development targeted at high growth sectors that have the capacity to generate jobs, including green job opportunities
- Utilizing cooperative and collective strategies to entrepreneurial development

50 http://assetshawaii.org/Hoowaiwai_FINAL_Draft_Report_For_Network.pdf

- Advancing alternative financing and funding mechanisms such as community development financial institutions
- Encouraging and supporting anchor institutions in purchasing and investing locally.

Figure 1. Hoʻowaiwai Hawaiʻi Island Framework

2012 Health Impact Assessment (2012): [51] In support of the 2010 Hawaiʻi County Agricultural Development Plan, the Kohala Center conducted a comprehensive health impact assessment for Hawaiʻi Island. Findings included:

- Institutional purchasing of local foods is currently limited but has significant potential.
- Food agriculture for the local market is small but growing. There are 30 farmers markets on Hawaiʻi Island; at least six community supported agriculture (CSA) programs, and several local grocery stores that stock and advertise local produce.
- School, home, and community gardening are growing. There are about 60 school gardens in Hawaiʻi County public, private, and charter K-12 schools and an increasing interest in home and community gardening with at least one crop share program that allows residents to exchange their surplus 32 garden produce.

51 http://www.kohalacenter.org/research.html

- Nearly one quarter of Hawai‘i Island residents and an even larger percentage of its children are food insecure. In the third quarter of 2011, preliminary estimates indicate that 23% of Hawai‘i Island residents received SNAP benefits. As of October 2010, approximately 66% of Hawai‘i Island public and charter school students were receiving free or reduced cost school meals.
- While Hawai‘i as a whole has one of the nation’s lowest rates of obesity, the burden of obesity falls disproportionately on Native Hawaiian, rural, and lower income people, which are demographics that are concentrated among Hawai‘i Island residents.
- Employment and income are strongly linked to health. Poor health leads to unemployment, and a decline in economic status leads to poor health. According to the U.S. Census Bureau, the median household income for Hawai‘i County in 2009 was $50,739, compared to $63,741 for the state. In Hawai‘i County in 2009, 14.5% of residents were below the poverty level, significantly higher than the statewide rate of 10.4%.
- A large body of evidence shows that having friends and a good social network improves mental and physical health and increases longevity. The physical environment also affects well-being. Hawaiian culture is particularly well suited to a return to greater home and community gardening because of the historic sense of place and belonging, the importance of stewardship of resources, and the tradition of making do with what is available at hand.

The report’s recommendations include:

- Expand Farm-to-School programs to 1) improve food security, 2) improve the nutritional quality of food consumed by Hawai‘i Island children, and 3) create Hawai‘i Island jobs in agriculture and food processing, thereby strengthening the local economy.
- Increase production of fresh food for the local market would to 1) improve community food security, 2) improve the nutritional quality of food consumed by Hawai‘i Island residents, 3) create jobs, 4) increase farm earnings, and 5) increase state tax revenues.
- Promote home gardening to 1) improve food and nutrition security, 2) increase consumption of fruit and vegetables, 3) increase physical activity, and 4) improve individual well-being and community cultural connectedness.

Increased Food Security and Food Self-Sufficiency Strategy (2012):[52] In October 2012, the Office of Planning at DBEDT, in cooperation with the HDOA, released its “Increased Food Security and Food Self-Sufficiency Strategy” document to increase the amount of locally grown food consumed by Hawai‘i residents. The Strategy has three strategic objectives, each with associated recommended policies and actions:

1. Objective: Increase Demand for and Access to Locally Grown Foods
    a. **Policy: Expand the Statewide Buy Local/It Matters Campaign to Increase Demand for Hawai‘i’s Locally Grown Foods**
        i. Expand the “Buy Local/It Matters” marketing campaign
        ii. Expand and improve branding and labeling programs and provide consumer education programs to help consumers identify local products at the time of purchase.
        iii. Support Promotional Campaigns to Publicize Farmers’ Markets
    b. **Policy: Encourage Public Institutions to Buy Locally Grown Foods**

52http://files.hawaii.gov/dbedt/op/spb/INCREASED_FOOD_SECURITY_AND_FOOD_SELF_SUFFICIENCY_STRATEGY.pdf

i. Establish a pilot farm to school program in the charter schools
ii. Continue the fresh fruit and vegetables program in the schools
iii. Develop good agricultural practices (GAP) standards for school gardens
iv. Establish a policy to buy local produce and support local agriculture and codify that policy in HRS Chapter 226, Hawai'i State Plan

c. **Policy: Increase Access to Markets by Providing Food Safety Certification Assistance**
i. Increase the farm food safety coaching program
ii. Increase the number of farm food safety certifiers
iii. Augment the farm food safety coaching program by providing for translation services

2. Increase Production of Locally Grown Foods
a. **Policy: Provide Suitable Public Lands at Reasonable Cost and with Long-Term Tenure for Commercial Agricultural Purposes**
i. Complete agricultural park projects presently committed and develop additional parks
ii. Complete the transfer of agricultural lands from the Department of Land and Natural Resources (DLNR) to the Department of Agriculture (DOA)
iii. Inventory State lands designated for agricultural use
b. **Policy: Continue to Provide Input into State and County Planning and Land Use Processes to Assure Sufficient Agricultural Land**
i. Review and comment on land use planning and permitting related documents to ensure the availability of agriculturally suitable lands and promote diversified agriculture
c. **Policy: Maintain and Repair State Agriculture Irrigation Systems**
i. **Support Capital Improvement Project (CIP) funding to repair and maintain** 10 **State irrigation systems**
ii. Complete the update of the State agriculture water use and development plan
d. **Policy: Integrate Agricultural Infrastructure in Regions with State Agricultural Lands**
i. Prepare regional agricultural infrastructure master plans in priority areas with a concentration of State agricultural lands and infrastructure
e. **Policy: Encourage Efficient Distribution Systems to Move Food to the Marketplace**
i. Facilitate farmer participation in farmers' markets by working with non-profit organizations such as the Farm Bureau to help farmers meet food safety requirements
ii. Encourage and promote community-supported agriculture (CSA) by including information on CSAs in existing marketing activities
iii. Provide support for multi-functional food hub facilities or food incubator facilities
f. **Policy: Support Pest Prevention, Control and Management**
i. Support and seek stable dedicated funding for programs to prevent, control and 25 manage pests
g. **Policy: Provide an Adequate Supply of Trained Labor for Agricultural Needs**
i. Create greater awareness and improve public interest in and support of the agriculture and natural resource management career fields
ii. Develop More Effective Partnerships between Industry and Academia, and Use Those Partnerships to Recruit and Prepare More Students

iii. **Improve the Preparedness of Students in Agriculture and Natural Resource 32 Management Programs**
iv. **Improve Articulated Academic Programs for Students Interested in Agriculture and Natural Resource Management Careers**
v. Provide Agricultural Training at the Secondary and Post-Secondary School Levels and Propose Improvements as Needed
vi. **Develop a Coordinated Pathway of Agricultural Training at Elementary, Secondary and Post-Secondary School Levels**
vii. Continue to Support the Green Jobs Initiative

h. **Policy: Promote Agricultural Research and Extension Services To Improve Agricultural Practices in Hawai'i**
i. Identify Critical Research and Extension Needs and Prioritize the Budgetary and Academic Resources Required to Address these Needs
ii. Generate Research and Dissemination of Information of Use in the Farmer to Consumer Food Chain.

3. Provide Policy and Organizational Support to Meet Food Self-Sufficiency Needs
   a. Policy: Develop an Organizational Structure to Organize and Support Food Self-Sufficiency Activities
      i. Adopt legislation to establish an Agricultural Development and Food Security Program.
   b. Policy: Provide Market Information and Statistics to Support Production, Marketing, Policy, Planning and Research Functions
      i. Collect Data and Conduct Market Research on In-Shipments and Locally Produced Agricultural Commodities
      ii. Collect and Publish Agricultural Statistical Data through the Publication of Statistics of Hawaii Agriculture
   c. Policy: Provide Policy, Legislative and Advocacy Support for Agriculture
      i. Work to Retain Federal Laws, Programs and Collaborative Working Relationships that Benefit Hawai'i's Agricultural Industry
   d. Policy: Increase Partnerships to Strengthen the Local Food System
      i. Pursue Opportunities for Partnerships to Support Food Self-Sufficiency

2012 Hawai`i County Food Self Sufficiency Baseline (2012):[53] This baseline report concludes with "100 Ways to Increase Food Self-sufficiency", including:

Institutional Buyers:

- Adjust procurement methods to accommodate local purchasing
- Partner with local producers or groups of producers to help provide a consistent, seasonal supply of local meat and produce
- Help to develop the market for local staple foods like sweet potato, taro, 'ulu, banana, and coconut

County Government:

- Continue financial support for Buy Local campaigns
- Continue to support community-based initiatives that build local food system capacity

53 http://geodata.sdal.hilo.hawaii.edu/GEODATA/COH_Ag_Project.html

- Practice Buy Local in County food purchasing
- Revisit the County's Real Property Tax policies related to Agricultural land use to insure that public tax incentives for agricultural land use result in actual public benefits and promote local food production where possible
- Support layering of agricultural and non-agricultural uses (like agritourism) on agricultural lands to improve the economic viability of farms and ranches
- Enable the construction of commercial kitchens that will be available for value-added processing of agricultural products
- Maintain an agricultural specialist on staff to interface with the agricultural community and to broker support to address local problems and opportunities
- Research County initiatives and laws across the U.S. that have removed barriers and added incentives to redevelop local food systems

Department of Education:

- Expand institutional buying for local fresh fruits and vegetables for breakfast, lunch, and snack programs
- Continue to expand support for school gardens as a context for learning about local foods and the practice of agriculture
- Provide funds to coordinate and expand the role of school gardens and agriculture in the school system
- Develop a track from high school to the community college that provides future farmers with business skills

Farmers:

- Participate with other farmers and processors in cooperative efforts to assert farm interests, organize bulk purchasing programs and share marketing and distribution efforts
- Explore new crops and traditional targeting import replacement and the expansion of local products in the marketplace, including staple foods, animal feed, fertilizer, and biofuel stock crops
- Be creative – explore new methods and markets
- Diversify the farm revenue stream, plan for year round income and build diverse markets.

ECONOMIC OPPORTUNITY IN HĀMĀKUA:

TRENDS, ASSETS, AND CHALLENGES BY SECTOR

Given Hāmākua's rich, place-based heritage, it will always be important to evaluate its economic health through lenses that incorporate natural, cultural, social, and community resources and consider the informal, nonmarket economy. Two of the four main sections of the CDP are focused specifically on strengthening those aspects of Hāmākua's communities.

At the same time, few families can survive completely outside the market economy, so equal attention should be given to more conventional economic conditions and strategies for increasing economic opportunity in the region. That is the purpose of this section, which identifies opportunities for Hāmākua in several industries – agriculture, renewable energy, payment for ecosystem services, health and wellness, creative/education/research, visitor, retail, and construction.

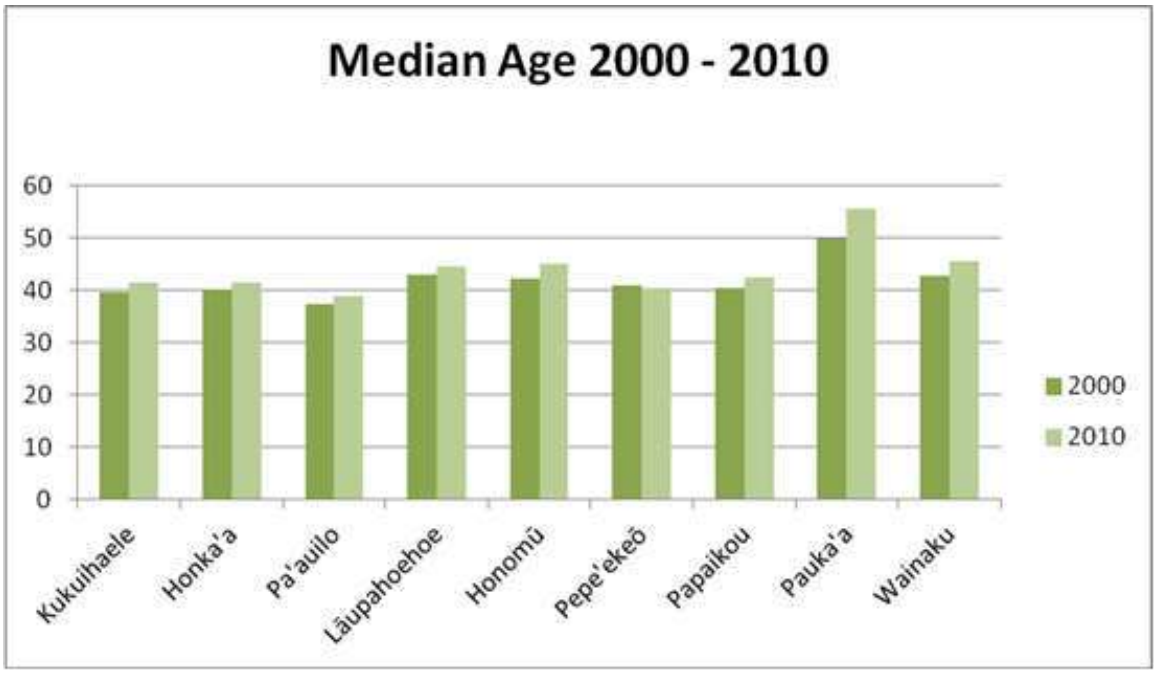
Overview

Planning Area Demographics

Median Age

As indicated in Figure 2, the median age of the population is growing older with an approximately 7 percent increase in the average median age from 41.8 to 43.9 between 2000 and 2010. The Planning Area's median age is slightly older than the County 2010 median age of 41.4.

Figure 2. Median Age 2000-2010

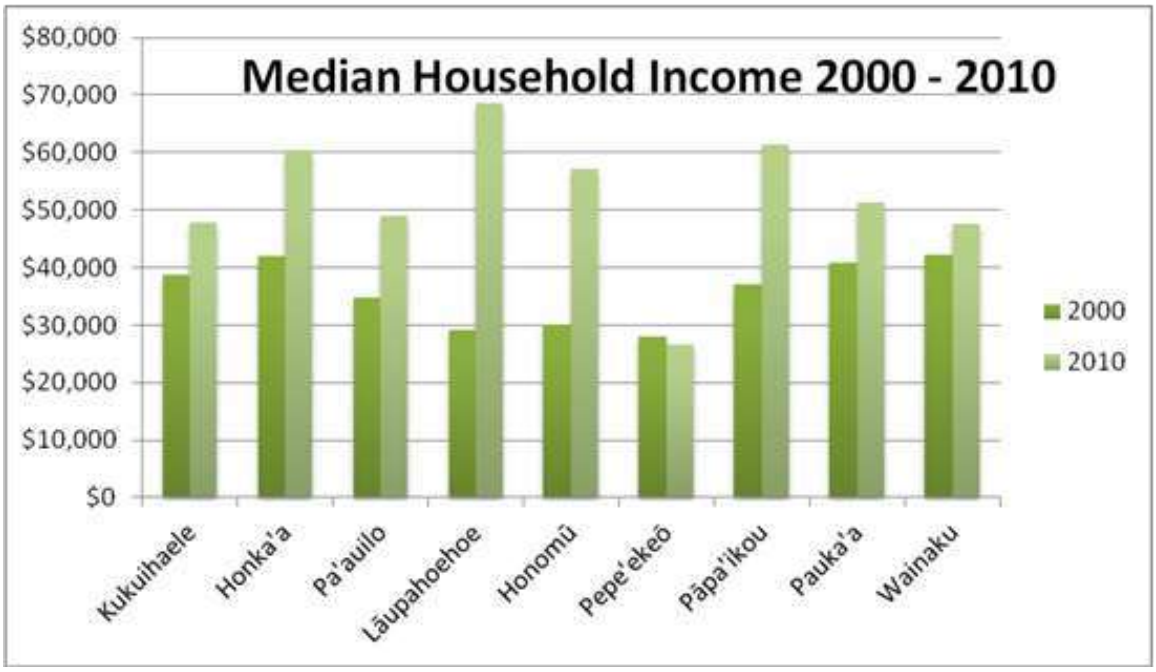


Household Income

According to 2011 American Community Survey estimates, the median household income in the Planning Area in 2010 ranged from a low of $26,484 in Pepe'ekeo to a high of $68,500 in Laupāhoehoe. This higher end of the range is significantly higher than the estimated median household income of $50,285 for Hawai'i County.

With the exception of Pepe'ekeo, the median income for all Census Designated Places with the Planning Area grew considerably between 2000 and 2010, with an overall average increase of 45 percent. This is a much higher rate of growth in household income as compared to the 26 percent increase in household income during the same time period for Hawai'i County.

Figure 3. Median Household Income 2000-2010

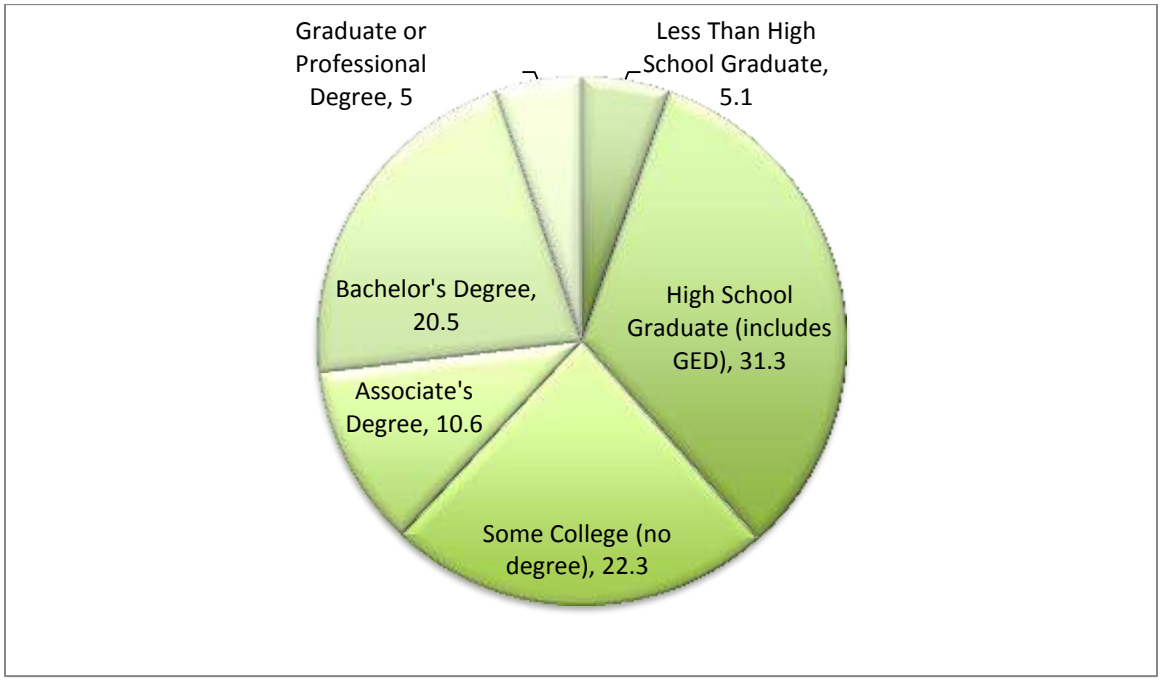


Planning Area Education Attainment

According to the 2012 American Community Survey estimates, the education attainment levels of the Planning Area compare favorably overall to the education attainment levels at the National and State level, and the Planning Area's education levels are within one percentage point of Hawai'i's County's education attainment levels at the levels of bachelor's degrees and higher degrees. [54]

54 According to the American Community Survey, 2012 5-Year Estimates and http://quickfacts.census.gov/qfd/states/15000.html

Figure 4. Planning Area Educational Attainment



Current Employment Profile

In 2012, about 6,711[55] of the approximately 7,774 people[56] in the Planning Area's labor force were employed. The respective unemployment rates of the three sub-regions in the Planning Area are:

- Hāmākua - 10.2%;
- North Hilo - 7.9%;
- Rural South Hilo - 10.3%.[57]

A significant percent of the Planning Area's employed held jobs in education, health, social services, as well as Arts, entertainment/recreation and accommodation/food services (see "**Figure 5. Percent of Employment by Major Industry in Hāmākua, North Hilo, Rural South Hilo**").

More than 33% of residents in Hāmākua, 20.3% in North Hilo and 7.3% in the Rural South Hilo travel for more than an hour to work.[58] Employed Planning Area residents must travel for more than an hour to employment centers outside of the region, accruing higher commuting time and transportation expenses than other residents of Hawai'i County (see "**Figure 6: Hawai'i Island's Employment Centers**").

55 Total number of employed people of 3,381 in Hāmākua (Census tracts 219.02 & 220), 1,057 in North Hilo (Census tract 221.02) and 2,273 in Rural South Hilo (Census tracts 201)
56 Total number of civilian labor force of 2,238 in the North Part of Hamakua (219.02), 1,527 in the South part of Hamakua (220), 1,148 in North Hilo (221.02), and 2,534 in Rural South Hilo (201)
57The US Census. 2012. 2008-2012 American Community Survey 5-year Estimates. Selected Economic Characteristics
58 2008-2012 ACS, Commuting Characteristics by Sex

Figure 5. Percent of Employment by Major Industry in Hāmākua, North Hilo, Rural South Hilo

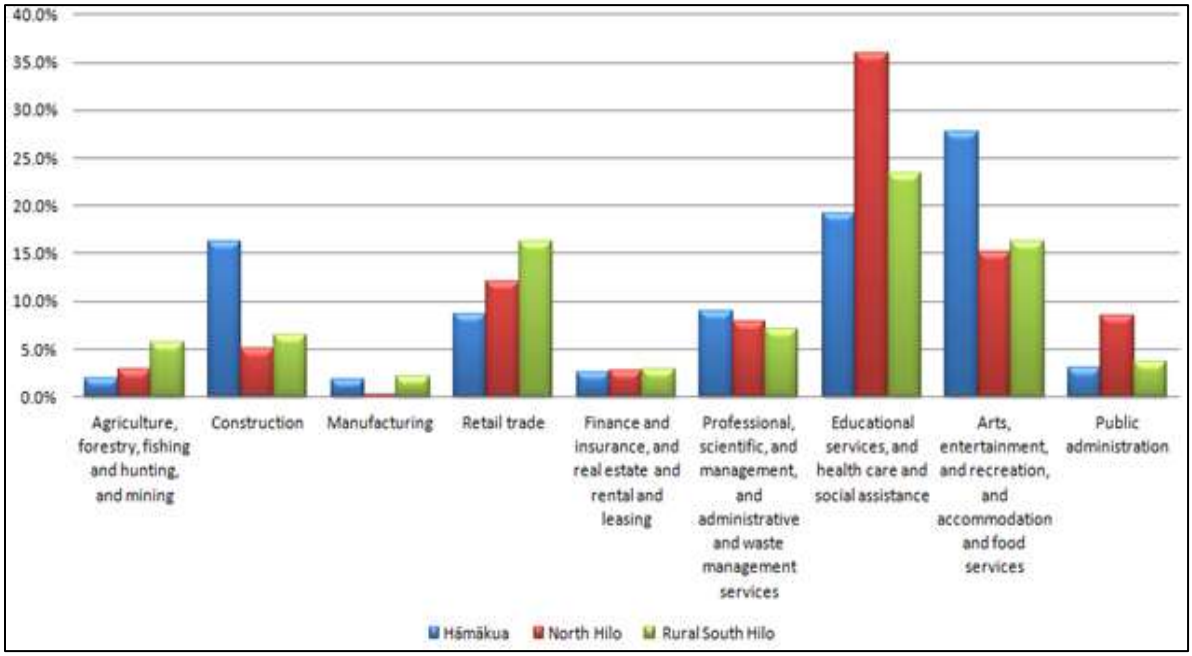
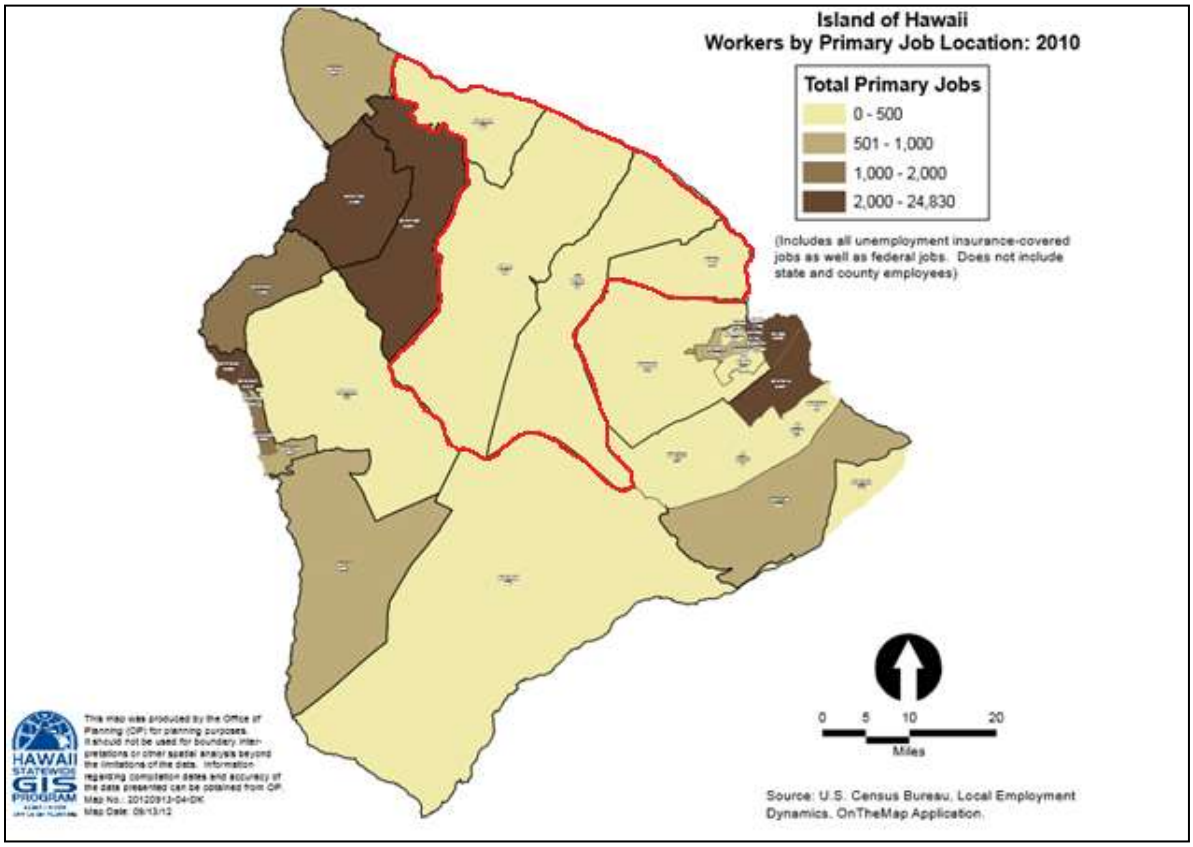


Figure 6. Hawai'i Island's Employment Centers



Existing Sectors

With a growing and aging population, educational, health, and social services can be expected to also grow. Developing such targeted and emerging industries as health and wellness, aging in place, and particular aspects of the creative and educational sectors (i.e., culture and the arts, research, and specialty education) will also help to bolster Hāmākua's traditional sectors.

Although a small percentage of Planning Area jobs are in agriculture, the community has identified diversified, sustainable farming as the focus of its preferred economic future. With more than an estimated total $34.2 Million spent on food by Planning Area residents annually, there is great potential for capturing some of the leakage and directing such resources at supporting farms, ranching activities, and related ventures. This, however, will take significant investments and creative approaches to addressing the major challenges currently facing the industry.

Also, with the natural and cultural resources in the Planning Area drawing more visitor s each year (i.e. 'Akaka Falls and Waipi'o Valley), some appropriate capture of the visitor market would provide new opportunities for entrepreneurial endeavors and increased viability of existing businesses. The challenge for the Planning Area will be to do this on its own terms and in ways that provide authentic experiences for both residents and visitors that enhance and maintain the region's cultural, natural, and historical resources.

Emerging Sector Opportunities

Specific opportunities by sector include:

Agriculture: Ranching, forestry, macadamia nuts, truck crops, are potential areas of growth, which are supported by processing facilities, farmers markets, community and school gardens, and agricultural tourism. However, expansion of the agriculture sector, especially for small farming operations, will require addressing the issues of infrastructure, input costs, and capital and technical support.

Payment for Ecosystem Services: Tools for measuring ecosystems services are available, and distinct markets for payments for those services are coalescing quickly. Private landowners may already receive direct payments and tax incentives through government programs focused on the preservation of ecosystem services. Other opportunities may exist to earn payments for stewardship of public lands and recreational resources through the markets for carbon credits, water quality trading, and conservation banking. Given its extensive and diverse natural resources, the Planning Area is also an attractive site for investments in research and education related to ecosystem services.

Health and Wellness: Together, strong growth in the health and wellness sector and the aging population in Hāmākua create significant opportunities for job growth and entrepreneurism in the following areas:

- Retirement community that offers a spectrum of care
- Medical transportation
- Visiting nurses; home life care
- Senior activities

However, training and education opportunities are needed to address the workforce gap and to prepare for aging in place opportunities, as well as changes in coverage, service delivery, and technology.

Due to the broad reach of the health and wellness sector, a growing sector in Hāmākua could provide an opportunity to leverage outside resources and investments in a way that holds true to the community's vision of development. This could also be a further opportunity to engage with educational institutions to provide necessary training.

Creative, Education, & Research: Due to the area's significant natural and cultural assets as well as the growth trends in the creative, educational, and research sectors, there is employment and entrepreneurial potential in these sectors in in the Planning Area. Specifically, potential appears high in cultural activities, and natural resource management as well as education and research in agriculture, environmental/natural science, astronomy, and geology.

Visitors: By pursuing initiatives that preserve the Planning Area's natural and cultural resources; perpetuate Hāmākua's cultural traditions; and are scaled to strengthen its sense of community, history, and identity, real connections and relationships of reciprocity can be made with visitors from around the world. Consistent with the place-based, Native Hawaiian *ho'okipa* model, the focus could be on place-based investments, agri-/ eco-/ edu-/ and wellness tourism, and authentic experiences for repeat visitors.

Retail: Given the relatively low population, the potential for growth in the retail sector in the Planning Area is modest, but opportunities may lie in concurrent development with other emerging sectors, expanding business support networks and resources, and the promotion of locally produced services and goods.

Construction: The construction sector is still struggling, particularly with new homes, so limited, future construction growth will likely be in home remodeling and opportunities created by growth in other sectors.

Opportunities and challenges in each of those sectors are explored in more detail in the sections that follow below.

Agriculture

Agriculture and the food supply chain offer a wide variety of job opportunities in:[59]

- Production: including skilled jobs focused on pest management, plant health, multi-species husbandry, soil management, habitat maintenance, landscape design, seed saving and crop rotation as well as emerging specialized practices like aquaponic and other high density farming technologies.
- Processing: including butchering, cleaning, and packaging meats, fish, and poultry; milling grains; pressing oils; and preparation and packaging of value-added goods (canned, dried, pickled, frozen, preserved). Many of these trades require working knowledge of building science and facilities operations, water conservation and energy efficiency, plant and agricultural science, construction trades and industrial machinery, and packaging design and manufacture.
- Distribution: which may require knowledge in agriculture, handling, logistics, environmental stewardship, recycling, composting, energy efficiency, and local food system issues, and literacy in biodiversity and product species.
- Retail: which may require familiarity with nutrition, labeling and certification, culinary arts, and marketing.
- Waste: which may require knowledge and skills in the development, implementation, operation, and management of new waste recovery systems and processing technologies.

59 http://greenforall.org/resources/reports-research/green-jobs-in-a-sustainable-food-system/

Agriculture has a long and rich history in Hawai'i and the Hāmākua CDP Planning Area. For much of the 20th century, Hawai'i's agricultural experience was in plantation agriculture (particularly sugar), but as international competition and other various factors began to influence the industry, these plantations were no longer viable. The following agriculture industry analysis is a brief summary of key data relevant to the Hāmākua CDP Planning Area. It is beyond the scope of this analysis to explore individual feasibility of particular crop, floral, or livestock industries or the related components (such as production, processing, distribution, retail, and waste). Further detail can be found in several recent studies conducted by the County.[60]

Agriculture Trends in Hawai'i County

Jobs: According to the State's most recent *Targeted and Emerging Industries Report*, there were 23,300 jobs in agribusiness in 2012, with farm production jobs providing for 57% of the total jobs, while processing jobs accounted for 27% of the jobs.[61] Through the period of 2002 to 2012, overall agribusiness lost a small amount of jobs (.2%). However, farm production, agricultural inputs, agricultural support services, and aquaculture production all showed increases in the amount of jobs over this period.[62]

Land in Production: There is an abundance of agricultural land in Hawai'i County, but much of it is un-used. As documented in the *Baseline Study for Food Self Sufficiency in Hawai'i County*, Hawai'i Island contains roughly 2,580,000 acres, of which 1,185,000 acres are designated as Agricultural by the State Land Use System. [63] Of those agricultural acres just 4% is in active crop production, 2% is in commercial forestry, and 40% is in pasture use. The remaining 54% of state designated agricultural land is un-used.[64] Of the 42,700 acres in crop production, 21,000 are in macadamia nuts, 6,000 in coffee, and 1,700 in flowers. In addition, vegetable crops, taro, tropical fruits, banana, papaya, aquaculture, and specialty food crops account for 10,400 acres.[65]

Farm Growth: From 2002 to 2007, the number of farms in Hawai'i County increased from 3,216 to 4,650.[66] The overall farm acreage total decreased during this period, but the number of farms with less than 9 acres increased from 2,009 to 2,865, while farms with between 10 and 49 acres increased from 818 to 1314.[67]

Revenue: In 2007, the total value of agricultural products in the County was $202,572,000, while sales per farm were $43,564.[68] To put this statistic into perspective, the self-sufficiency income for a family of four in Hawai'i County stood at $59,730 in 2011.[69] This provides insight into the fact that, of the

60 Melrose, Jeff and Donna Delparte. (2012). Hawai'i County Food Self-Sufficiency Baseline 2012. Hawai'i County Department of Research and Development; Kohala Center. (2010). The 2010 County of Hawai'i Agriculture Development Plan. Hawai'i County Department of Research and Development; Hawai'i Department of Business, Economic Development & Tourism . (2012). Hawai'i's Targeted & Emerging Industries. December 2012. DBEDT Research and Analysis Division.
61 DBEDT, Hawai'i's Targeted and Emerging Industry Report, Dec. 2012. pg. 18.
62 Ibid, pg. 19
63 Melrose et al. (2012). the Baseline Study for Food Self Sufficiency in Hawai'i County. Hawai'i County Department of Research and Development
64 Ibid. Pg. 32
65 Melrose et al. (2012). the Baseline Study for Food Self Sufficiency in Hawai'i County. Hawai'i County Department of Research and Development
66 2007 Census of Agriculture. U.S. Department of Agriculture, February, 2009.
67 Hawai'i County Data Book Table 15. 2-- FARMS, LAND IN FARMS, AND LAND USE, HAWAI'I COUNTY: 2002 AND 2007.
68 Hawai'i County Data Book Table 15.1-- MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD: 1978, 1982, 1987, 1992, 1997, 2002 AND 2007
69 HI DBEDT. Self-Sufficiency Income Standard: Estimates for Hawai'i 2011. Hawai'i Economic Issues, pg. 5.

3,279 full owners, only 2,261 worked full time in farming and a total of 1,697 farmers worked more than 200 days off of the farm.[70]

Agricultural Tourism: In 2002, eight farms in Hawai'i County (3.4% of all farms) were engaged in providing agriculture related experiences to visitors.[71] In 2007, there were 58 farms (17.1% of all farms) involved in this activity.[72] In 2002, income from agriculture tourism statewide accounted for 8.4% of gross farm income[73]. In 2007, that percentage jumped to 49.2% of gross farm income.[74] Statewide, small farms (<9 acres) earned on average $30,000, while medium-sized farms (10 – 49 acres) earned $80,000 per farm from agriculture tourism[75]. Large farms (50 – 1,999 acres) did considerably better with $550,000 in agricultural tourism income per farm.[76]

This reflects a growing trend across the nation of farms tapping a range of revenue generating options to ensure the viability of their operations. Agriculture visitor experiences include a range of activities, such as: farm visits with retail sales of locally-grown produce; longer-term farm stays; bicycle, walking and automobile tours throughout a farming region; farm-related bed and breakfast accommodations; restaurants serving regional cuisine; agricultural fairs and festivals; farmers markets; and living history farms.[77]

Agriculture Trends in the Hāmākua CDP Planning Area

There are approximately 348,384 acres of agriculturally zoned land in the district. Sugar, which once dominated the agricultural industry within the district, saw its end with the closing of the Hāmākua Sugar Company in 1994. Agriculture remains the economic mainstay and the regional cultural identity of the Planning Area's communities.

A band of Prime agricultural lands extends across the lower elevations of the Planning Area occupying much of the kula region (roughly, from the shoreline to the forest line). Interspersed through the lower elevations, and in Waipi'o Valley, are lands that are classified by this system as Unique. The "Other" designation is applied to much of the mauka lands in the Planning Area. Land classified as ALISH is one criterion for being eligible to be declared Important Agricultural Lands (IAL).

Crops grown in the district include taro, flowers, ornamentals, vegetables, tropical fruit, cattle, dairy, macadamia nuts, bananas, coffee, tropical forestry, and specialty crops (i.e. 'awa, cacao). A significant amount of State, County, and privately owned lands are available for agricultural leases. Current agricultural Infrastructure includes: the Lower Hāmākua Ditch, Hawai'i Beef Producers Slaughterhouse, Post-Harvest Processing Facilities, and the Big Island Dairy. Most agricultural water needs are met from rainfall or from a variety of potable and non-potable water systems, including the Lower Hāmākua Ditch. DWS charges a reduced rate for agricultural use, but non-potable agricultural use is one of the first uses to be restricted in times of shortage, when the irrigation needs are usually the highest. In addition, cattle ranching utilize vast acreage of grazing lands. A growing issue is related to Genetically Modified

70 Hawai'i County Data Book Table 15. 3-- TENURE AND CHARACTERISTICS OF FARM OPERATOR AND TYPE OF ORGANIZATION, HAWAI'I COUNTY: 2002 AND 2007.
71 2007 Census of Agriculture. US Department of Agriculture. Retrieved from http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Hawaii/st15_2_006_006.pdf
72 Ibid
73 Ibid
74 Ibid
75 Ibid
76 Ibid
77 Ibid.

Organisms (GMOs), which has catalyzed energy and pushed farmers to take sides as based on their approach to farming.

2012 Hawai'i County Food Self-Sufficiency Baseline:[78] The Hawai'i County Food Self-Sufficiency Baseline study was commissioned by the County of Hawai'i Research and Development Department to help inform the public and policy makers about the current status of food production on the island of Hawai'i in order to set a baseline from which to measure change in the islands local food system. This plan was prepared by the University of Hawai'i at Hilo's Geography and Environmental Studies Department in partnership with Island Planning.

Key findings related to management of agricultural lands in the Hāmākua CDP Planning Area include:

- The Planning Area's Kula region was an intensive agriculture area pre-contact.
- Today, the lands between Wainaku and Wailea-Hakalau, Around the Dairy in 'O'ōkala, and lands between Pa'auilo and Waipi'o Valley three (3) of Hawai'i Island's ten "core croplands." Core croplands are the lands from which additional food self-sufficiency is most likely to emerge because it is where the conditions that support sustained agriculture already exist.
- Approximately 31% of Hawai'i Island's pasture area is in the CDP Planning Area, totaling close to 198,000 acres.
- The Planning Area close to 30,000 acres in Eucalyptus, about 4,000 acres in macadamia nuts, over 2,500 acres in truck crops, over 2,500 acres in dairy, nearly 2,000 acres in tropical fruits, 851 acres in flowers, foliage, and specialty crops, 237 acres of bananas, and 150 acres in coffee[79].
- Waipi'o Valley continues to be the center of Hawai'i Island's wetland taro with 51 acres in production.
- Many small farm opportunities (i.e., agricultural-zoned lots 20 acres or smaller) are scattered throughout the entire Planning Area.
- Big Island Dairy in 'O'ōkala (2,352 acres) is one of two remaining dairies in the State.
- Hāmākua's core agricultural lands have good access to water, including rainfall between Wainaku and Wailea-Hakalau, and the Lower Hāmākua Ditch system serving areas between Kukuihaele and Pa'auilo.

Nearly 30,000 acres in the Hāmākua district were formerly owned by the Hāmākua Sugar Co[80]. After the bankruptcy of this company in 1992, their lands in foreclosure were purchased by Kamehameha Schools. The School subsequently leased the land for mainly pasture and forestry use. The Hāmākua district has a long history of ranching traditions due to pasturelands on the upper slopes of Mauna Kea. Cattle operations remain a major land user in the district today (Dairy 2,352 acres). [81]

There is excellent potential for agriculture and local food production to be a primary contributor to developing a viable local economy for the region.

78 http://geodata.sdal.hilo.hawaii.edu/GEODATA/COH_Ag_Project.html
79 The Food Self Sufficiency baseline indicates 11 acres of coffee in the Planning Area, but additional research as indicated that there are more acres of coffee in the Planning Area.
80 Ibid
81 Ibid

Challenges for Agriculture in the Hāmākua CDP Planning Area

Despite the agricultural assets of the Planning area, there are daunting challenges to the future development and viability of the agriculture industry.[82] Fundamentally, farmers are caught between two very strong forces – the first is the societal demand that food be cheap. The second is the use of land as a medium for investment and the expectation that land will continually increase in value. Other persistent challenges to agriculture in the Planning Area include:

- **Limited Farm Employment/Labor**: The Hāmākua CDP planning area has a long and rich agricultural history and heritage, however, agriculture, forestry, and fishing jobs currently only account for 2.6% of employment in Honokaʻa, 5.1% in Paʻauilo, 3.9% in Laupāhoehoe, 4.8% in Pepeʻekeo, 15.4% in Pāpaʻikou , 3.5% in Paukaʻa, , and 5.4% in Wainaku in 2011.

  As such, many farmers struggle to find the necessary regular and intermittent workforce that is reliable and skilled. Also, newer diversified agricultural operations, ranching, and forestry are not labor as intensive as sugar, thus don't create a lot of steady, consistent employment opportunities.

- **Idle Land:** Over 60 percent of the land zoned for agriculture in Hāmākua is not being utilized for agricultural purposes.

- **Invasive Species/Crop Disease:** Including Banana Bunchy Top Virus, Ring spot virus, which wiped out Hāmākua's papaya industry in the late 1990's and the industry has not come back to the Planning Area. [83] Other pests/diseases include the coqui frog, coffee berry borer, little fire ant, invasive and noxious botanicals (e.g., Gorse,fireweed, strawberry guava, etc.)

- **Climate Change**: The "Global Climate Change Impacts in the United States" report (U.S. Global Change Research Program, 2009) forecasts an increased frequency of heavy downpours during summer months for the Pacific and an increase in hurricane (typhoon) rainfall rates. An increase in the frequency of heavy downpours may be expected to result in an increased risk in the frequency of precipitation and flood-related landslides and inland cliff erosion. In addition, the Planning Area, particularly in the Hāmākua District, has experienced increased drought conditions, putting a heavy toll on ranchers & farmers.

- **Land Tenure**: In some cases the inability to buy agricultural land impedes farming/ranching ventures. Where farmers must rely on leasing land, it is important to secure long-term leases to justify investments in the soil and infrastructure and to plan for and mitigate risks.

- **Input Costs**: Input costs are a significant factor contributing to unfavorable price competitiveness for many local farmers. Since 2002, the USDA estimates that total production costs have risen by 74.5% to $143 billion.[84] The biggest factor in the rise in expenses since 2002 were higher input prices. The prices-paid index for Production Items, Interest, Taxes, and Wage Rates (PITW), calculated by the National Agricultural Statistics Service (NASS), has risen 85% since 2002.[85] A 2011 comparative analysis of Hawaiʻi's agricultural input costs estimates that labor accounts for 35% to 40% of total costs – by far the most significant input cost[86]. Fuel and electricity prices are a significant challenge, as well. These costs increased 12.9% from 2001-2008 while only increasing

82 For a detailed discussion of factors affecting local food production, see the Hawaiʻi County Food Self-Sufficiency Baseline 2012, Chapter 8.
83 http://www.hawaiibusiness.com/Hawaii-Business/November-2005/The-Coast-Is-Clear/
84 http://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/2012-farm-sector-income-forecast.aspx
85 Ibid
86 Ibid

4.9% for the rest of the country. Hawai'i would rank 5th in electricity prices if designated as a separate country.[87]

- **Access to Capital**: Historically, banks and other lending institutions have not invested heavily into agriculture, making it difficult to find funding support. There is a range of federal, state and local efforts that attempt to address this issue, but it remains an ongoing challenge.[88]
- **Business Capacity**: Particularly for new and small-scale farmers, it is difficult to simultaneously produce high quality products, market those products successfully, and manage the business behind the production and marketing.
- **Subsistence Impediments**: Challenged access to public hunting, gathering, and shoreline areas and the closure of the Planning Area's only boat ramp in Laupāhoehoe have eroded the community's ability to hunt, fish, and provide supplemental nutrition to their families.
- **Limited Agricultural Cooperation:** Many farmers have not developed effective relationships and networks with other local famers, their supply chains, and their customer base. This lack of cooperation can hinder opportunities to learn best practices strategies, engage in reciprocity activities between businesses, and employ collective marketing strategies to reduce input costs.

Agricultural Assets in the Hāmākua CDP Planning Area

To address these challenges and capitalize on opportunities, there are a number of existing assets and initiatives building momentum to encourage the growth of agriculture and local food production in the Planning Area. (see "**Figure 7. Hāmākua Regional Agriculture Map – Hāmākua**"; "**Figure 8: Hāmākua Regional Agriculture Map – North Hilo**"; and "**Figure 9. Hāmākua Regional Agriculture Map – Rural South Hilo**").

Local Support for Agriculture: According to keypad polling undertaken in March/April 2012 at the CDP Regional Workshops in Honoka'a and Pāpa'ikou, community participants expressed strong support of buying local products. When asked if it is important for them to shop for products that are locally grown/made, 57% of Honoka'a participants and 75% of Pāpa'ikou participants "strongly agreed". Also, for Pāpa'ikou participants, the highest ranking answer to a question on what the most important factor in choosing where to buy food was the availability of "locally grown/made" products. In response to where participants do most of their shopping for fresh foods/produce, the largest responses were "direct from local farmers (including farmers' markets, stands, and CSAs)". Regarding farmers ability to boost or diversify their agricultural income with other types of agricultural tourism endeavors, both workshop's participants strongly supported various supplementary activities, with the strongest support for: farmers' markets, value-added retail, agricultural festivals and events, and farm tours.

Agricultural Land Availability: Agricultural lands available for lease include the following:

- Agricultural Parks (State)
    - Hāmākua Agricultural Park is composed of 509 acres subdivided into 11 lots. (No available lots at this time

87 Parcon, Hazel, et. al. A Comparison of Agriculture Input Prices: Hawai'i vs. its major export competitors. College of Tropical Agriculture and Human Resources, University of Hawai'i at Mānoa. October 2011, pgs. 2-7.
88 National Young Farmers' Coalition. 2011. Building a Future with Farmers.

Figure 7. Hāmākua Regional Agricultural Map - Hāmākua

Hāmākua Regional Agriculture Map
Hāmākua

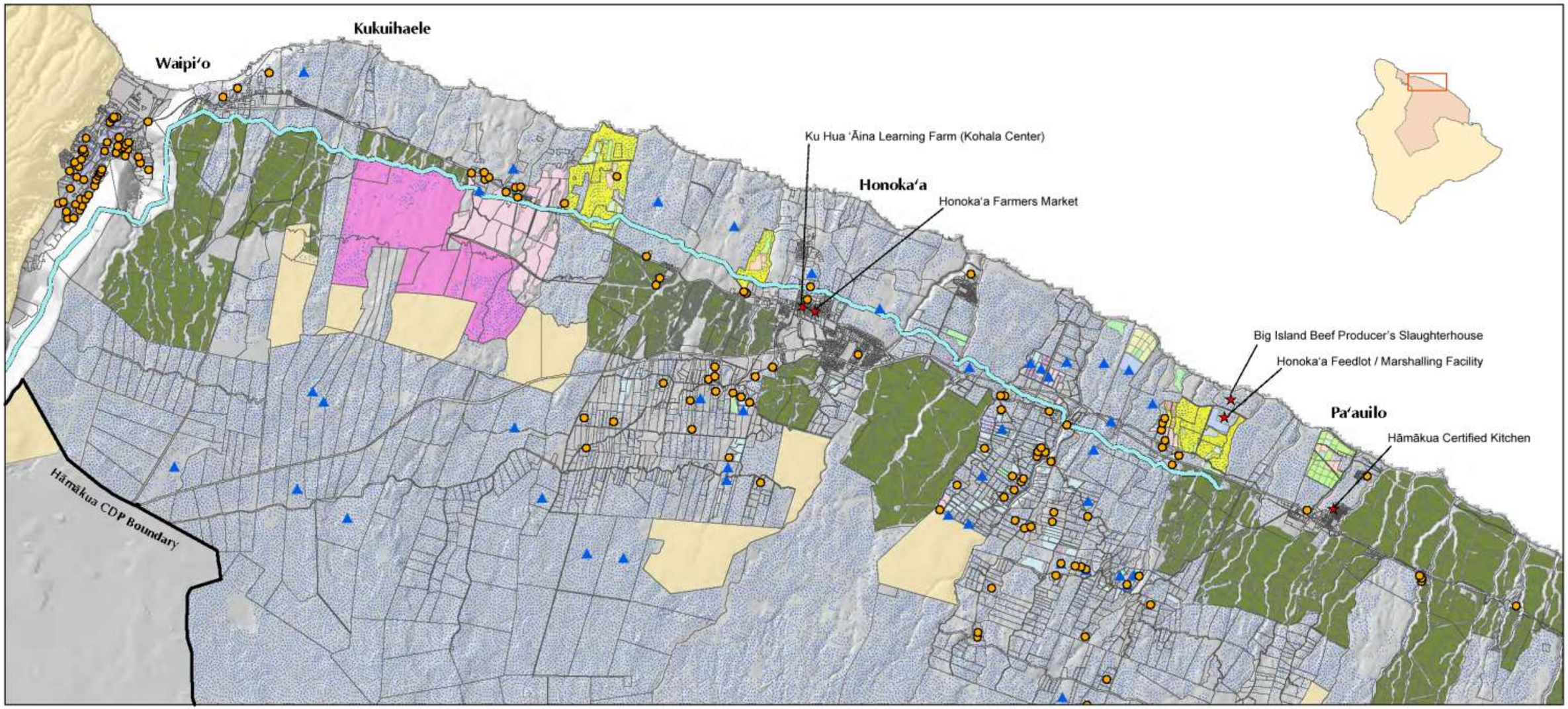
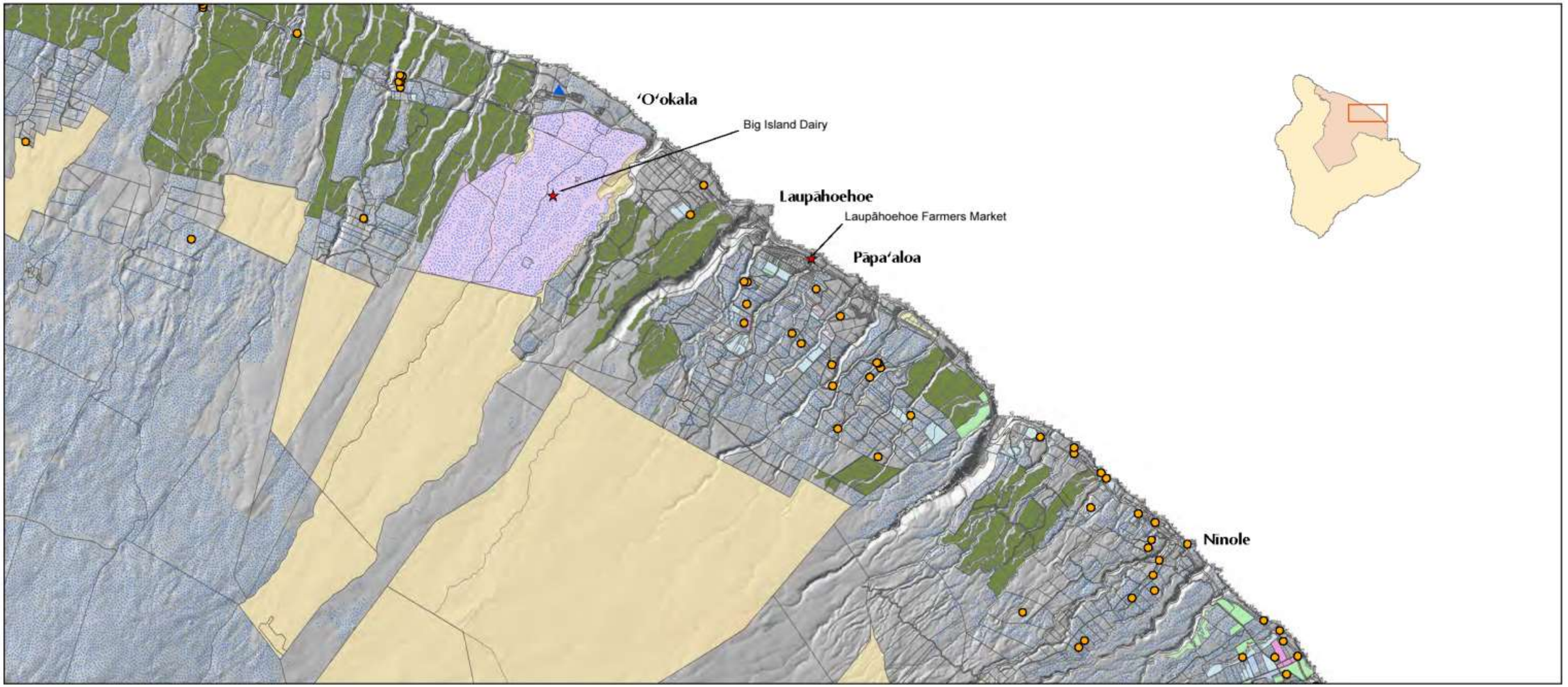


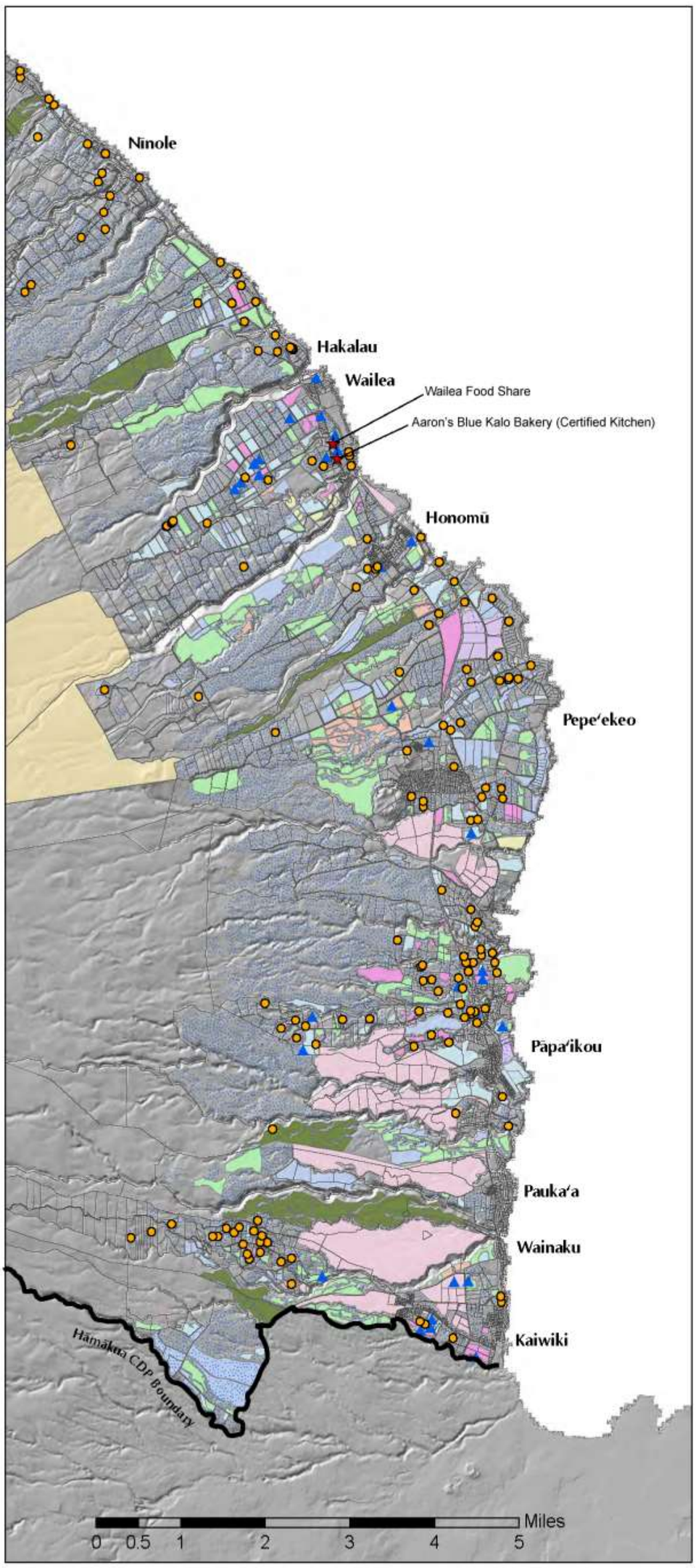
Figure 8. Hāmākua Regional Agricultural Map - North Hilo

Hāmākua Regional Agriculture Map
North Hilo



County of Hawaii Planning Dept GIS
March 2014

Hāmākua Regional Agriculture Map
Rural South Hilo



- Agricultural Facility
- Ag Tax (Use or Dedication)
- Ag Water Meter
- Aquaculture
- Banana
- Dairy
- Flowers & Foliage
- Macadamia Nuts
- Special Crops
- Taro
- Tropical Fruits
- Truck Crops
- Vacant (No Crops)
- Pasture
- Commercial Forestry
- Public Hunting

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County of Hawaii Planning Dept GIS
November 2013

Figure 9. Hāmākua Regional Agricultural Map - Rural South Hilo

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- Hāmākua Agricultural Cooperative[89] - was originally formed in 1994 to create opportunities for the displaced sugar workers when the Hāmākua Sugar plantation closed its operations. The HNAC holds the master lease of 1,000 acres of land and continues to serve the local residents of Hāmākua offering affordable, long-term leases of agricultural land. HNAC lands are located between Pa'auilo and Honoka'a, sit at a low-elevation with irrigation water available from the Lower Hāmākua Ditch and have been divided into 100 farm lots that range in size from 5 to 10 acres.

- Agricultural Parks (County) - County of Hawai'i acquired 4,400 acres in Hāmākua (the majority of which are in Pa'auilo and Kapulena) in payment of roll-back tax liabilities from the Hāmākua Sugar Company. In 2012, the County of Hawai'i with Assistance from the Hāmākua Farm Bureau today opened the 1,739 acre Kapulena Agricultural Park, just northwest of Honoka'a. Fencing and roadway work has been done and the lands are beign cleared by cattle and being prepared for lease by farmers and ranchers.

- Kamehameha Schools, the region's largest private landowner lessor of agricultural land. Much of its land is in cattle ranching and forestry leases in Hāmākua and in farm crops with roughly 20 farmers in Rural South Hilo.

Agricultural Infrastructure:

- **The Lower Hāmākua Ditch**:[90] The Honoka'a-Pa'auilo Irrigation System (Lower Hāmākua Ditch), runs 26 miles from an intake at Waipi'o to Pa'auilo Makai serving 4,755 acres of land, providing supplemental irrigation and small-scale energy production to operate farming and ranching. The Lower Hāmākua ditch is running at its ideal capacity, moving 15 MGD to 20 MGD, enough to irrigate 2,500 acres of cropland and provide drinking water for 2,600 head of cattle.

- **Agricultural Produce Processing and Marshalling Facilities**

  - Hāmākua Slaughterhouse in Pa'auilo Makai is operated by Hawaii Beef Producers, LLC. The facility currently processes over 1.2 million pounds of beef annually.

  - Hāmākua Livestock Marshalling/Feedlot provides consolidating, inoculating/branding, transshipping, and transportation services for cattle.

- **Post-Harvest Processing Facilities:** The Planning Area has the following existing and planned post-harvest processing facilities:

  - Certified/Commercial Kitchens:

    - Hāmākua Incubator Kitchen (Pa'auilo) – Developed when the plantations closed, this commercial kitchen is operated by the HCEOC and is available for post-harvest processing and value-added product development.

    - Aaron's Blue Kalo (Wailea) – this storefront commercial kitchen makes kettle-cooked kalo, 'ulu, and purple & yellow sweet potato chips and cookies. They also make their kitchen available for rent for value added product development.

  - Planned Post Harvest Facilities

89 http://www.hamakuaagcoop.org/index.html
90 Melrose et al. (2012). the Baseline Study for Food Self Sufficiency in Hawai'i County. Hawai'i County Department of Research and Development

- Kamehameha Schools (KS) Post Harvest Facility (‘Alae) – KS is planning a Post-Harvest Facility as a pilot project to support KS lessees in the ‘Alae Ahupua‘a by providing a certified “clean area” with the necessary infrastructure to wash and pack produce after it is harvested from the field.
- Hāmākua Harvest (Honoka‘a) - At the core of Hāmākua Harvest is a state-of-the-art, energy efficient postharvest facility equipped for adding value to a wide array of locally grown products. It is planned to encompass a broad variety of processing capacities beyond the basic functions of food safety certification, washing, cutting, packing, and refrigeration; depending on producer feedback and market analysis such capacities may include juicing, dehydrating, baking, canning, flash freezing, pressing oil, and milling grains, as well as more refined packaging, bottling and labeling. Some examples of Hāmākua products that could be developed commercially include coconut, macadamia, kukui and pili nut oils and salad dressings, Hāmākua chocolate energy bars, breadfruit (`ulu) flour, and tropical fruit smoothies.
- Haina Food Hub (Haina) – In 2012, the Kohala Center was awarded a USDA Rural Business Enterprise (RBEG) grant to provide technical assistance in cooperative development and capacity building for the Hāmākua Agricultural Cooperative. Additionally, grant funds are intended to help facilitate the creation of the Haina Food Hub, a food safety certified, value added, post-harvest processing facility for agricultural products.

Accessibility to supports: [91] Land owners like Kamehameha Schools and Large farm operations like Hāmākua Springs, support smaller farmers by leasing lands and helping product marketing. UH Hilo and Hawai‘i Community College also provides agricultural training programs. In 2006, UH Hilo established North Hawai‘i Education and Research Center (NHERC)[92] to provide outreach education in the North part of Hawai‘i Island in part to support agricultural education. The Kohala Center has also been instrumental in supporting agricultural training and cooperative development in the Planning Area.

Opportunities for small-scale farmers: [93] The availability of County lands in the district for agricultural leasing may offer more opportunities for residents to start new farms and ranch operations. Small agricultural lots in the upper homesteads like Kalōpa, Pa‘auilo and Āhualoa offer the potential for new small-scale farming innovation and local food production.

Farmer’s Markets: Downtown Honoka‘a Farmer’s Market where opens every Saturday from 8 am. Laupāhoehoe Farmer’s Market opens every Sunday from 9 am to 1 pm. Local residents and visitor can buy locally grown produces. In addition, every Tuesday from 4:00 to 5:30, there is a food-share gathering near the Veterans Park in Wailea where farmers, backyard producer, and the community gather to barter and sell their crops/value added products and well as get together, talk story, and interact as a community.

Soil & Water Conservation Districts (SWCD): The Planning Area includes a portion of the Mauna Kea SWCD[94] and the Hāmākua SWCD (see Appendix V4A). The districts are self-governing sub-units of State

91 Ibid
92 http://hilo.hawaii.edu/academics/nherc/
93 Melrose et al. (2012).
94 http://www.maunakeaswcd.org/

government that have the following powers that provide support to agriculture related activities and entities:

- Provide survey and research support and carry out preventive and control measures related to soil and water conservation;
- Furnish financial or other aid to any agency or any occupier of lands within the district for carrying out soil and water control conservation and operations; and
- Coordinate and facilitate local public/private partnerships in identifying and implementing projects and practices.

Hawai'i Farm Bureau Federation (HFBF): HFBF is a non-profit organization of farming families united for the purpose of analyzing problems and formulating action to ensure the future of agriculture, thereby promoting the well-being of farming and the State's economy. HFBF's guiding policies originate at the County Farm Bureau level with the ideas, opinions, and contributions of its membership. The Hāmākua County Farm Bureau represents a portion of the Planning Area.[95]

Community/School: The Hawai'i Island School Garden Network helps island schools build gardening and agricultural programs that contribute to the increased consumption of locally produced food by involving students, their school communities, and their family networks in food production. The network currently works with over 50 public, charter, and private schools, including the planning area's schools.[96] In the planning area, Honokaa High School, Pa'auilo Elementary and Intermediate School, and Laupāhoehoe High and Elementary School currently have their school gardens.[97]

Subsistence: Subsistence activities, like hunting, fishing, gathering, and food production, provide families with essential resources to obtain food and to compensate for low income. These activities also enhance family and community cohesion and provide a basis for sharing and gift giving within the community. The traditional practice of subsistence cultivates a sense of environmental kinship which is guided by spiritual beliefs concerning respect for 'āina, the virtues of sharing and not taking too much, and an ecological perspective that emphasizes balance and coexistence. Subsistence activities are critical elements in building family and community resilience – the ability of families and communities to respond to and eventually adapt to the situations and crises encountered over time to achieve balance, harmony, and, therefore, health and economic well being.[98]

Estimated Spending on Food in the Hāmākua CDP Planning Area

Nationally, food is the number three household expense after housing and transportation, with average consumer food purchases $6,599 per person[99] in 2012. In Hawai'i County, food is the number one cost for a family of four, accounting for 23% of the total Self-Sufficiency Family Budget for Hawai'i Island families.[100]

In the Planning Area, about 12% of consumer spending by residents is spent on food and beverage related costs either at home (7.5%) or away from home (4.5%). That represents approximately

95 http://hfbf.org/about.shtml
96 http://www.kohalacenter.org/schoolgardenhui/pdf/HFSSGH_Final_Summary_Report_2012_HI_Island.pdf
97 http://Hāmākuatimes.com/spring-tours-and-tastings-at-school-gardens-p1280-105.htm
98 McCubbin, M.A., & McCubbin, H.I. (1993). Families Coping with Illness: The Resiliency Model of Family Stress, Adjustment, and Adaptation, in Danielson, C.B, Hamel-Bissel, B, Winstead-Fry, P. Families Health & Illness: Perspectives On Coping & Intervention (pp 21-64). St. Louis : Mosby-Year Book
99 http://www.bls.gov/news.release/cesan.nr0.htm
100 Hawai'i Department of Business, Economic Development & Tourism. 2012. Self-Sufficiency Income Standard.

$6,960.49 in annual spending per household– $4,357.45 on food at home, and $2,603.04 on food away from home.[101]

By some estimates, 85 to 90% of the food consumed in Hawai'i is imported. This translates to $3.1 billion local dollars leaving the State. If an additional 10% of food was Hawai'i-sourced, it would amount to $313 million, or $94 million at the farm gate.[102] **Table 1. "Annual Food Spending Estimates for the Hāmākua CDP Planning Area"** includes estimates of what could be spent by the Planning Area's households on locally produced foods. If just 5% of Planning Area spending went to local food purchases, approximately $1.7 million dollars would stay in the Hāmākua Planning area, translating into jobs and income for local residents.

Table 1. Annual Food Spending Estimates for the Hāmākua CDP Planning Area[103]

	Food Spending in the CDP Planning Area	Local Spending @ 5%	Local Spending @ 10%
Food	**$34,196,903**	**$1,709,845.15**	**$3,419,690**
Food Away from Home	**$12,788,749**	**$639,437.45**	**$1,278,875**
Food at Home	**$21,408,154**	**$1,070,407.70**	**$2,140,815**
Bakery and Cereal Products	$3,048,465	$152,423.25	$304,847
Meats, Poultry, Fish, and Eggs	$4,638,813	$231,940.65	$463,881
Dairy Products	$2,346,873	$117,343.65	$234,687
Fruits and Vegetables	$3,997,203	$199,860.15	$399,720
Snacks and Other Food @ home	$7,376,800	$368,840.00	$737,680

Summary: Prospects for Agriculture in the Hāmākua CDP Planning Area

The Planning Area has a solid base from which the agricultural industry will continue to grow moving forward:

- **Ranching**: Approximately 31% (198,000 acres) of the island's pasturelands are located in the Planning Area. About 4,500 acres below the Hāmākua Ditch are used as pasturelands and some of the lands are the best pasturelands on the island. The availability of stock and irrigation water from the ditch make it possible to expand pasture areas in this district. The state-owned and privately operated Hawai'i Beef Producers (HBP) slaughterhouse is located in Pa'auilo, which is one of only two certified slaughterhouses on the island. This facility is contributing to supply local grass-fed beef to the local market. Kamehameha Schools, the largest landowner in the district, is also taking a more active role in encouraging new pasture management approaches in support of grass-fed beef and in promoting the use of its land for increased food production.
- **Forestry:** The largest intensive agricultural crop in the Hāmākua region is eucalyptus forestry with 17,300 acres in commercial forestry production. Most of forestry lands are leased by KS and Parker

101 ESRI BIS 2013, Market Profile
102 Leung PingSun and Matthew Loke. Economic Impacts of Increasing Hawai'i's Food Self Sufficiency. University of Hawai'i at Mānoa Cooperative Extension Service. Economic Issues, Dec. 2008, pgs. 2 & 6.
103 (ESRI BIS 2013, Retail Goods and Service Expenditures)

Ranch and operated by mainland based forestry companies. The eucalyptus forests were planted to produce wood fibers to export to mainland for paper productions on 7-8 year rotations. Since changing market conditions and leasehold ownership and having export infrastructural issues, the eucalyptus forests have not been harvested yet. Twenty years later, eucalyptus forests remain in the Planning Area. There are several ways to use the forests to develop a forest industry (i.e. producing biomass fuel and timbers). The future of eucalyptus forests (12,000 acres) in North and South Hilo district are also not certain; though it is likely the trees will be harvested primarily for their value as fuel to drive electrical production. Larger trees may have a future as dimensional timber or veneer, the economic viability of that market is yet unknown.

- **Macadamia Nuts**: 778 acres of Macadamia nuts orchards in the Hāmākua district are managed by small landowners/ lessees. Each owner/lessees maintains 5 to 20 acres of a non-irrigated orchard that relies on rainfall.

The largest single crop in the North Hilo/Rural South Hilo region is macadamia nuts (4,300 acres) that were largely planted by C. Brewer in the early 1980's as part of their Mauna Loa Macadamia operation. These fields have since been subdivided and sold in 10 to 40 acre lots; many farms now have attractive homes embedded in the orchards. The macadamia market has been variable in recent years and many of the small producers on the coast have had difficulty finding a market for their nuts. In 2010, the market began to improve and in 2012, there is a robust market for nuts and this has invigorated orchard management island-wide. [104]

- **Truck Crops**: There are a number of small, independent farms in the planning area that produce various vegetables and fruits. The State of Hawai'i is leasing 1,000 acres of lands below the Hāmākua ditch between Pa'auilo and Honoka'a for small-scale farmers through the Hāmākua Agricultural Cooperative. The lands are divided into 100 farms and each farm has from 5 to 20 acres. These farms have irrigation water available from the Hāmākua Ditch. In the planning area, a total 2,566 acres of lands are used for truck farms. The South Hilo district has the largest area of truck crops (1,907 acres) within the three districts. There's great potential for added growth in this sub-sector, particularly with increased spending by residents on locally produced fruits and vegetables.

- **Kalo Farms**: Waipi'o Valley is the center place of wetland taro production on Hawai'i Island. Most of the taro lands are leased from the Bishop Museum.. There are approximately 12 taro farmers. Some taro growers process their taro into poi and sell them to local consumers directly. Since the demands of taro decreased in Hawai'i Island and statewide as well, some taro farmers used their lo'i for educational purposes by inviting students and visitors.

- **Other Crops**: The Planning Area has nearly 2,000 acres of tropical fruits (including Lychee, Rambutan, Longan, etc.), 851 acres in flowers, foliage, and specialty crops (cacao, hearts of palm, mushrooms, corn, etc.) 237 acres of bananas, and 150 acres in coffee. [105]

These potential growth areas for agriculture are also supported by the growth in agricultural tourism, farmers markets, and community and school gardens. All of these endeavors raise awareness and educate the general public about the need to support locally produced food.

104 Melrose et al. (2012). the Baseline Study for Food Self Sufficiency in Hawai'i County. Hawai'i County Department of Research and Development

105 The Food Self Sufficiency baseline indicates 11 acres of coffee in the Planning Area, but additional research as indicated that there are more acres of coffee in the Planning Area.

However, for expansion to occur, especially for small farming operations, the following challenges will need to be addressed:

- **Infrastructure** – access to water, affordable lands, and processing and production facilities
- **Labor/Input Costs** – access to reliable labor and affordable energy
- **Capital & Technical Coordination/Support** – access to capital, marketing, distribution, and research and development support systems.

Renewable Energy

The energy sector has a strong influence on all other industries in Hawai'i, as most of the economy relies on energy to operate. Hawai'i is the most energy insecure state in the nation, with 90% of its power coming from imported oil, and the state suffers from electricity costs that are five times more than the national average.[106] Hawai'i Island is blessed with several sources of renewable energy, and while a few of these sources (Hydroelectric and Biomass) are located in the Planning Area, this sector faces several challenges and has little potential to be a major economic driver in the Planning area.

Energy Job Trends in Hawai'i

Hawai'i's energy sector provided roughly 14,000 jobs in 2010, which is about 1.7% of total jobs in the state.[107] This is considered a lower estimate because most renewable energy projects in Hawai'i are still in the planning or R&D stages. Energy sector jobs increased an average of 3.0% per year between 2002 and 2010, significantly higher than the 1.3% growth rate of total jobs.[108] The largest category of jobs in the energy sector are energy-related construction and contractor jobs (37.4%), which increased an average of 2.2% per year between 2002 and 2010[109]. The second largest category is energy products wholesalers, retailers, and fuel dealers, which made up 23.2% of total energy sector jobs.[110]

Hawai'i County Energy Plans: On Hawai'i Island, more than 37% of electricity production is generated from geothermal, hydropower, wind, and solar resources; however, this represents only 5% of the island's total energy use.[111] To address this and better contribute to the goals of the HCEI, Hawai'i County developed a five-year roadmap for energy sustainability. The initiative is guided by the following principles:

- Eliminate reliance on imported fossil-based energy and replace with it sustainable and secure energy sources
- Reduce the price paid for energy services
- Maintain the reliability and safety of the island's energy infrastructure
- Encourage innovation, invest in healthy communities, and respect the natural environment.

106 http://www.eia.gov/state/?sid=HI
107 http://hdoa.hawaii.gov/wp-content/uploads/2013/05/GreenEconomicTrendsReport.pdf
108 Burnett, Kimberly & Christopher Wada. 2012. Foundations for Hawai'i's Green Economy: Economic Trends in Hawai'i Agriculture, Energy, and Natural Resource Management. The Economic Research organization at the University of Hawai'i, UHERO.
109 Ibid. pg.21
110 Ibid, pg. 21.
111 The Kohala Center, prepared for County of Hawai'i Department of Research and Development (2012). County of Hawai'i Energy Sustainability Program: Five Year Roadmap, December

According to Hawai'i County's energy sustainability roadmap, the primary challenges facing the Island include:

- Petroleum Dependence – reliance on imported petroleum fuels for 95% of energy needs
- Cost – the high cost of energy disproportionately impacts low-income households. Hawai'i Island electricity rates have risen by over 40% over the past six years, are 35% higher than O'ahu's, and exceed the mainland average by more than 300%.
- Transportation – this sector constitutes more than half of energy demand and relies heavily on fossil fuels.
- System Limits – HELCO is accepting all renewable energy that the system can handle. However, because the steam plants need to modulate the fluctuations in both solar and wind energy production, there are limits on how much renewable energy the system can handle.
- Permitting Process – confusing, inconsistent or even absent permitting processes discourage those with the motivation and resources to generate their own clean electricity.[112]

The roadmap recommends the following:

- Energy Program – creation and empowerment of an energy program that enables the County to protect a variety of interests in energy policy-making (e.g., advocacy at the Public Utilities Commission and State legislature)
- Revolving Fund – establishment of a revolving fund with energy savings to provide dedicated and predictable funding for energy programs
- Transportation – reducing transportation energy demand through mass transit system improvements, County-wide transportation laws and regulations, and improved efficiencies for County vehicles and operations
- Renewable Electricity – maximizing production of renewable energy, developing smart renewable energy policies, and supporting development of technologies that help achieve energy goals for the future
- Energy Efficiency – creating policies through property taxes, building codes, and permitting that encourages energy efficiency.

Energy Market Innovations in Hawai'i

Distributed Energy Systems: In contrast to conventional centralized systems, which distribute energy over the electrical grid from large energy production facilities, distributed systems facilitate the local production, distribution, and consumption of energy. Owners of small energy systems enjoy free electricity after initial cost recovery, increased property value, and relief from high and volatile prices of other forms of electricity.

Communities benefit from distributed systems in the form of local jobs in sales, maintenance, and installation; emergency back-up power; local energy independence; and reliability and power quality of the electricity grid. According to the U.S. Department of Energy, there are two main reasons why smaller scale renewable energy technologies offer an economic advantage:

- Labor Intensive – they are labor intensive, so they generally create more jobs per dollar invested than conventional electricity generation technologies; and

112 American Wind Energy Association. 2008. Policies to Promote Small Wind Turbines: A Menu for State and Local Governments. Washington, D.C.: American Wind Energy Association.

- Indigenous Resources – they use primarily indigenous resources, so most of the energy dollars can be kept at home.[113]

Net metering and "feed-in tariff" (FIT) are examples of distributed or decentralized energy systems. A Net Energy Metering law (HRS §269-101 through 269-111) was enacted in 2001 that allows customers with personal electric generation capacity to feed excess energy back to electric utilities. In October 2010, the PUC approved a FIT regime, which allows companies generating up to 500 kilowatts of renewable energy to use a standard contract for pricing, terms, and conditions when selling power to Hawaiian Electric Co. (HECO) on O'ahu, Maui and Hawai'i Island (see "Table 2: Feed-in Tariff Rates Per Kilowatt Hour (in cents)"). In the past, renewable energy project developers have had to enter into lengthy negotiations with HECO to sell electricity to the utility. That effectively excluded companies with smaller projects and budgets from entering the market.[114]

Table 2: Feed-in Tariff Rates Per Kilowatt Hour (in cents)[115]

	Smaller Systems	Larger Systems
Photovoltaic	21.8	18.9
Concentrated solar power	26.9	25.4
Hydropower	21.3	18.9
Wind power	16.1	13.8

Hawai'i Energy Tax Credits: [116] Originally enacted in 1976, the Hawai'i Energy Tax Credits allows individuals and corporations to claim an income tax credit of 20% of the cost of equipment and installation of each wind system and 35% of the cost of equipment and installation of each solar thermal or photovoltaic (PV) system.

In November 2012, the Hawai'i Department of Taxation issued temporary administrative rules for *photovoltaic systems installed on or after January 1, 2013.* A taxpayer may claim a pro-rated amount of credit for one system that does not meet the total output capacity threshold in the case of multiple systems being installed on a single property. For commercial installations, a "system" must have the capacity to produce 1,000 kW. There can be multiple systems installed, but each must meet the total output capacity of 1,000 kW before any additional tax credit may be claimed. A taxpayer may claim a pro-rated amount of credit for one system that does not meet the total output capacity threshold in the case of multiple systems being installed on a single property. For multi-family residential, a "system" must have the capacity to produce 0.360 kW per unit per system. In all installation types (residential, commercial, multi-family residential), if the total output capacity requirement is not met, the tax credit may be calculated on the one and only PV system installed.

Green Energy Market Securitization (GEMS): GEMS is a financing model designed to make clean energy improvements more affordable and accessible to underserved community members. Under GEMS,

113 Ban-Weiss, George. 2005. Solar Energy Job Creation in California. University of California at Berkeley.
114http://www.staradvertiser.com/business/businessnews/20101014_Revamped_tariffs_streamline_selling_of_power_to_HECO.html
115 Yonan, 2010
116 http://energy.hawaii.gov/developer-investor/financing-and-incentives-for-renewable-energy-projects/state-of-hawaii-and-federal-incentives

Hawaii's underserved markets, including low- and moderate-income homeowners, renters, and non-profits, will be able to finance the purchase and installation of energy saving devices without the typically high upfront costs. Payment for the devices would be made over time through one's electricity bill and paid for with the energy savings. The state's Department of Business, Economic Development, and Tourism (DBEDT) will facilitate the GEMS financing program via the Hawaii State Energy Office. GEMS is targeted for implementation in 2014.

Community Energy Investment in Hawai'i: During the 2013 session of the Hawai'i State Legislature, bills were introduced (Senate Bill 1330 and House Bill 1363) that would allow consumers to invest in and benefit from solar and wind energy systems even if those systems are not sited on their property.

Renewable Energy Subsectors

Solar Water Heating Systems: In 2010, the state of Hawai'i became the first in North America to require solar water heaters in new homes. Conventional water heaters are typically the largest electricity consumer in the average household, responsible for nearly 40% of consumption.[117]

In 2013, Hawai'i Energy, the state's energy conservation and efficiency program, increased its instant rebate on new, qualifying residential solar water heating systems from $750 to $1,000.[118] The $1,000 instant rebate, combined with applicable state and federal tax credits, reduces the cost of the average solar water heating system from approximately $6,600 to about $2,000.[119] A typical household of four or more that switches to a solar water heater can save up to 40% (about $600 a year) on its electric bill, so the payback period on the upfront investment is just over 3 years. For those who need to finance the initial cost while waiting on the tax credits and savings, Hawai'i Energy offers a "Hot Water Cool Rates" program.[120]

Photovoltaic (PV) Systems: The amount of energy generated from residential PV systems statewide doubled nearly every year between 2005 and 2010, according to data compiled by the Hawai'i Solar Energy Association[121]. In terms of number of watts of electrical power provided by solar electricity, Hawai'i Electric Light Company (HELCO) was twelfth in the nation.[122]

Photovoltaic power systems can either be completely independent of the utility power grid (referred to as off-grid systems) for their on-site power needs only, or part of HELCOs Net-Metering program where HELCO agrees to buy the power produced from a system installed on either a residential or commercial structure.

A combination of tax credits and financing options have facilitated growth of this industry. A 30% federal tax credit is for systems placed into service before December 31, 2016. In addition, the Hawai'i state tax credit for PV system installations is 35%, up to $5,000 per system, on a single-family residential property. The payback period for a photovoltaic system depends on several variables, including the cost of the system, the amount of sunlight received, and the cost of electricity from the grid. The break-even point can be under six years – and under nine even without the State tax credit.[123]

117 http://www.ecogeek.org/content/view/1830/
118 http://www.hawaiienergy.com/the-cost-of-a-solar-water-heating-system
119 Ibid
120 Ibid
121 http://www.hsea.org/about
122 http://www.hawaiicleanenergyinitiative.org/imported-20101004182628/2013/4/17/helco-ranks-12th-in-nation-for-solar-power.html
123 http://www.uhero.hawaii.edu/assets/UHERO-PolicyBrief-SolarTax.pdf

There are also multiple options for financing PV systems, including finance-to-own, lease, and power purchase agreements. In the latter, the PV system is owned by a financing party such as a PV development company, and the homeowner signs a contract with the PV financier to buy the PV electricity at an agreed-upon price per kilowatt-hour.[124]

According to a recent report released by the Hawaiian Electric Company, more solar photovoltaic systems were installed by homeowners and businesses in Hawai'i in 2012 than the previous six years combined. Continued growth is expected in 2013 for the residential solar business as a sector.

However, the industry as a whole in Hawai'i will slow down dramatically because of the challenges facing large-scale projects that have long development cycles and complicated financing structures. Big solar farm deals may not succeed if investors and lenders seek other solar opportunities with less incentive volatility in other markets.[125] However, given the relative small size of HELCO's electrical circuits and the relatively large amount of "alternative" power tied to the grid, the majority of the many of the island's circuits are at or close to "saturation", which is generally pegged at 15% of peak load. This means that for additional PV to be added to the grid, the utility may require an interconnectivity study which is expensive and slows the process down.[126]

The solar industry requires a workforce that has competencies in the areas of research and development, product design, product manufacturing, sales (retail and wholesale), installation, and operations and maintenance. It has great potential in generating entrepreneurial opportunities in each of these functional areas for the industry. Statistics show that 20 manufacturing job-years and 13 installation job-years are created for each megawatt power of solar panels installed. The majority of jobs created are white-collar or highly skilled craft labor such as engineers, assemblers, sales representatives and installers. In addition, between 1.8 and 2.3 jobs are created in other segments of the economy.[127]

Small Wind Systems:[128] Wind turbine technology has advanced considerably in recent years, making small wind turbines quieter, more reliable, and better able to blend in with surrounding aesthetics. A small wind turbine is technologically advanced but mechanically simple, with only two or three moving parts. Most feature three blades of 2-15 feet in length, a generator located at the hub, and a tail. The turbine is mounted on a steel tower 35-140 feet high. The Small Wind Certification Council, a recently-launched program to certify small wind turbines to a safety, performance, sound, and reliability standard, will likely further improve performance and increase consumer confidence.[129]

Unlike large turbines that power entire cities, small wind systems are used to primarily produce power on-site for a single user. Tens of thousands of homes, farms, small businesses, schools, and other institutions throughout the country use small wind turbines to generate their own clean, safe, and reliable energy for on-site use, to lower or eliminate their electricity bills, and help the environment.[130]

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124 http://www.heco.com/

125 Honolulu Star Advertiser, February 5, 2013. www.staradvertiser.com

126 http://www.hawaiianelectric.com/heco/Clean-Energy/Integration-Tools-and-Resources/Locational-Value-Maps?cpsextcurrchannel=1

127 Ban-Weiss, George, David Larsen, Sonny Li, Dano Wilusz. 2004. Job Creation Studies in California for VOTESOLAR. University of California, Berkeley.

128 American Wind Energy Association. 2008. Policies to Promote Small Wind Turbines: A Menu for State and Local Governments. Washington, D.C.: American Wind Energy Association.

129 http://www.smallwindcertification.org/

130 American Wind Energy Association. 2008. Policies to Promote Small Wind Turbines: A Menu for State and Local Governments. Washington, D.C.: American Wind Energy Association.

The purchase and installation of a system large enough to power an entire home costs $30,000 on average, but the price can range from $10,000 to $70,000 depending on system size, height, and installation expenses. The purchase and installation of very small (<1 kW) off-grid turbines generally cost $4,000 to $9,000. The federal government and many states, including Hawai'i, have rebate or tax credit programs in place to encourage investment in small wind[131], which significantly reduce the cost and cost recovery time.

Although thousands of towns and counties already have installed small wind systems, many have not included small wind systems in their zoning codes to allow their use. This is often simply due to a lack of familiarity with the technology, which results in a desire to avoid setting a controversial precedent. As such, the permitting process often becomes the biggest obstacle for would-be consumers and prevents the installation of small wind systems.[132] Permitting requirements in Hawai'i County include the following: [133]

- Federal and state regulations require adequate surveys to be conducted in order to determine the level of potential for conflict with birds and bats, as well as opportunities for mitigation. DOFAW administers the Habitat Conservation Plan (HCP) and Incidental Take Licenses (ITLs) and has created a document specifically for wind projects that need to complete the HCP/ITL process.
- A County building permit is required.
- Wind turbines are exempt from zoning district height limits provided that each machine shall be set back from all property lines one foot for each foot of height, measured from the highest vertical extension of the system.

In 2008, ten thousand small wind turbines were sold in the U.S., and demand is rising sharply in all 50 states. The market for small wind systems grew 26% in 2010 with a 53% increase in sales revenue.

Like the solar industry, small wind creates manufacturing jobs but also jobs in the areas of tower manufacturing, transportation, installation, education, and repair and maintenance. Installation materials, services, and labor account for about 30% of total costs, thereby, supporting local jobs at local small businesses. Training and education-related jobs will also increase as demand for installation increases. At 50 jobs created per megawatt installed, small wind produces more jobs per unit of installed capacity than any other power generation resource.[134]

Biofuels: Currently, biofuels are more expensive than petroleum fuels. In 2012, the House and Senate Armed Services Committees decided to block the Navy's $200 million plan to invest in biofuels due to concerns over the cost effectiveness of biofuels.[135] The two committees have since moved to ban the military from spending on alternative fuels priced higher than fossil fuels.

However, biofuel prices are anticipated to drop in coming years. A recent report by the Department of Energy's Biomass Program anticipates that the cost of producing biofuels could drop as low as $2.32 per gallon by 2017. In comparison, the US Energy Information Administration forecasts that the production cost of motor gasoline will be $3.65 per gallon by 2017 (both figures are not weighted for inflation).

131 DSIRETM: Database of State Incentives for Renewables and Efficiency; http://dsireusa.org/incentives/incentive.cfm?Incentive_Code=HI01F&re=0&ee=0; accessed on December 27, 2012.
132 Ibid
133 http://energy.hawaii.gov/wp-content/uploads/2011/11/wind_guidebook.pdf
134 American Wind Energy Association. 2010. 2010 U.S. Small Wind Turbine Market Report.
135Gardner, Robert. (2012). Budgeting for Biofuels: Military Investment Could Produce a Competitive American Industry. Retrieved October 30, 2012 from http://americansecurityproject.org/blog/2012/budgeting-for-biofuels-military-investment-could-produce-a-competitive-american-industry/

Although these figures are subject to variation, it is probable that biofuels will be cost competitive within the decade.[136]

A 2006 report on biodiesel crop implementation in Hawai'i identified great potential for production of biodiesel in the State and Hawai'i County, specifically. It recommends that biodiesel implementation be approached methodically and cautiously to determine which crop(s) are the most viable and which production protocols are practical for Hawai'i.

The report also recommends that small-scale biofuel production be organized and managed by cooperatives among farmers who are the suppliers and principal customers of the biodiesel. There are modular-type processing facilities capable of producing 78,000 gallons or more of biodiesel per year that could be used to scale-up or scale-down to meet local demand. The coops could also develop a range of by-product markets for their local region.[137]

Geothermal:[138] Puna Geothermal Venture (PGV) started commercial operations in 1993 on the lower East Rift Zone of Kilauea. It uses a closed-loop system with near-zero emission of hydrogen sulfide.

Since geothermal steam is considered a mineral owned by the State, PGV pays royalties to the State based on annual sales. PGV typically pays about $2 million to $3 million a year in royalties, roughly 10% of the company's revenue. The state takes 50% of the royalties, which go into a Special Land and Development Fund to fund certain DLNR divisions. The Office of Hawaiian Affairs receives 20% of the royalties and uses that for general operations as well as grants, services, and projects in the community. The remaining 30% of royalties goes to the County of Hawai'i, and it is the only share that is used exclusively for the benefit of the Puna residents PVG puts $50,000 every year in to a fund that compensates Puna residents who have been adversely affected by geothermal development.

Geothermal hot spots have been identified in Ka'ū, on Hualalai Volcano above Kona, and in other places on the island of Hawai'i. HELCO issued a request for proposals in February 2012 to add up to 50 megawatts of geothermal energy from geothermal resource developers at prices not tied to the cost of oil. HELCO is pursuing geothermal technologies that provide renewable energy and firm capacity to allow the utility to schedule and control output and thus integrate intermittent renewable resources (such as wind and solar) while maintaining reliable service.[139]

However, some of the challenges facing geothermal development include the high cost of exploration wells needed to identify specific spots for geothermal development;[140] the potential negative impact on native fauna and flora; potential concerns from residents relative to perceptions about health and safety impacts; interference with Native Hawaiian practices; and hydrogen sulfide and other air quality issues.[141]

Based on the idea that indigenous land and resource owners have the right to participate in the renewable energy development process, the Native-to-Native (N2N) model for community benefits from geothermal ventures has been developed as an alternative arrangement for future geothermal ventures. The model allows community input, guarantees a community role in venture governance, and offers equity-like compensation as returns to the community. The model suggests a percentage of

136 Ibid.
137 http://www.hawaiicountycdp.info/kau-cdp/about-ka-u/past-economic-development-studies/biodieselreportrevised.pdf/view
138 http://www.hawaiibusiness.com/Hawaii-Business/November-2010/Geothermal-039s-Second-Chance/
139 HELCO. News Release. February 28, 2013.
140 http://russellruderman.com/wp-content/uploads/RudermanMAY2013Update1.pdf?a7146b
141 http://geoheat.oit.edu/bulletin/bull23-3/art4.pdf

revenue be shared with the community, with options such as equity ownership or equity like returns on investment, and shared profits in project surpluses.[142]

In April 2013, the Board of Trustees of the Office of Hawaiian Affairs voted to invest $1.25 million into Huena Power Consortium. The Consortium includes Innovations Development Group, a geothermal company based in Honolulu, and Eastland, a New Zealand company. Innovations Development Group is seeking a $50 million geothermal contract with HELCO. IDG would utilize the native-to-native model to implement the contract.

Renewable Energy in the Hāmākua CDP Planning Area

Hydropower: Hydropower was the island's first source of electric power. Back in 1894, the Hilo Boarding School powered a string of 12 electric lights using a small waterwheel-powered electric dynamo fed by a nearby stream.[143]

Hydropower plants have provided power for sugar mills and utilities in Hawai'i for many decades, continuing to produce significant amounts of electricity on the islands of Kaua'i, Maui, and the Island of Hawai'i. All of Hawai'i's hydropower plants operate on "run-of river" flows and do not have dams. Because Hawaii's stream flows vary considerably according to seasonal rainfall, hydropower is considered an "intermittent" resource on the islands.[144]

The hydro resource on the island is concentrated in the Kohala area and the Hāmākua coast. And the following sites in the Planning area have been identified as potential hydropower development areas:

- Kaula, Koholaele, and Luahala: These three potential project areas are located on the Hāmākua coast and they drain between the towns of Pa'auilo and 'O'ōkala. Water is used for irrigation.
- Umauma: 15 MW potential. The Umauma Stream is located on the Hāmākua coast and drains just north of Hakalau.
- Kawainui: 6 MW potential. The Kawainui Stream is located on the Hāmākua coast south of the Umauma project.

Additionally, in 2011 the Army Corps of Engineers produced a **Hydroelectric Power Source Alternative Assessment for the State of Hawai'i**[145] in order to determine if there is a federal interest for USACE to participate in a cost-shared feasibility phase study that will identify, evaluate and recommend solutions to address the potential hydroelectric power needs in the State of Hawai'i. The study identified approximately 15 sites (out of 160 statewide) in the Planning Area with potential for hydroelectric generation. Moreover, the study identified environmental & economic considerations as well as public concerns to account for when considering hydroelectric generation (see "**Table 3: Hydroelectric Environmental, Economic, and Public Considerations**")

Finally, in the late 1980's, a proposed hydro project on the Honoli'i Stream was denied a permit in the due to concerns over potential effects on surfing conditions and aquatic life. This highlights a general hurdle for any new hydroelectric project on any of the islands.

Plantation Infrastructure Hydroelectric: Hāmākua Springs Country Farms plans to power the farm's entire 600-acre operation by diverting water from the Waia'ama Stream via a flume and then flowing

142 http://geothermalenergyhawaii.com/community/native-to-native/
143 HELCO (May 2009). Big Island cloudy skies have silver lining. Consumer Lines, 28 (5). Retrieved from http://www.heco.com/vcmcontent/CorporateCommunications/ConsumerLines/HELCO_Consumer_Lines_May09.pdf
144 https://www.eere-pmc.energy.gov/states/Hawaii_Docs/cpsre07.pdf
145 http://energy.hawaii.gov/wp-content/uploads/2011/10/HydroelectricPowerAssess.pdf

the water back into the stream. The hydropower plant gives the energy-conscious farmer an abundant supply of essentially free electricity[146]. The plant will produce 70 kw on a regular basis, about double what the farm needs.[147] The farm is currently waiting for approval from Hawai'i Electric Light Co. to connect the farm's power supply with its customers before turning it on. [148]

Table 3. Hydroelectric Environmental, Economic, and Public Considerations

Environmental Considerations	Economic Considerations	Identified Public Concerns
Known aquatic Habitat Impacts	Capacity	Endangered Species and Critical Habitat
State Water Classification	Calculated Incremental Energy Costs	Cultural: Impact of loss or alteration of water resources to traditional cultural activities of native Hawaiians
Conservation Distract	Accessibility	Recreation/Tourism
Cultural Impacts		Possibility of higher electricity cost
Recreational/Commercial Impacts		Distrust of dams; safety concerns
		Legal: On-going stream flow litigation
		Agriculture: Reduction in irrigation waters

Additionally, there may be some potential to develop the Planning Area's irrigation tunnels/systems for hydropower production. The US Department of Agriculture is also a potential funding source for these types of ventures.[111]

Biofuels/Biomass: A 2006 report on biodiesel crop implementation in Hawai'i identified the Hāmākua Coast, Puna, and Ka'ū Districts as having the greatest potential for high-volume production of biodiesel in the State.

The firm, Hū Honua Bio Energy is currently renovating the Pepe'ekeo Sugar Mill for electricity generation through bio-mass combustion. Hu Honua recently signed a Power Purchase Agreement with HELCO (the Island's Electric Utility) to provide 21.5 MW of electricity to the power grid. That agreement was recently accepted the Public Utilities Commission (PUC).[149]

Solar: Many homes, businesses, and institutions (e.g. Honoka'a People's Theatre[150] and NHERC) use grid tied solar photovoltaic (PV) electricity for their power needs. Additionally, the majority of homes off-grid use solar power. However, given the relative small size of HELCO's electrical circuits and the relatively large amount of "alternative" power tied to the grid, the majority of the Planning Area is at or

146 http://hawaiitribune-herald.com/sections/news/local-news/power-water-Hāmākua-springs-aims-cut-energy-dependence.html
147 Ibid
148 Ibid
149 http://www.bizjournals.com/pacific/news/2013/12/23/puc-oks-hu-honua-bioenergys-contract.html
150 http://westhawaiitoday.com/sections/news/local-features/solar-powered-popcorn-historical-hamakua-theater.html

close to "saturation", which is generally pegged at 15% of peak load. This means that for additional PV to be added to the grid, the utility may require an interconnectivity study, and this process adds cost and slows the development of PV down.[151]

Summary: Prospects for Renewable Energy in the Hāmākua CDP Planning Area

Given the eucalyptus plantations in the Planning Area, biomass/biofuel production may be a viable renewable energy subsector. However, the production of biomass for energy is highly controversial due to environmental impacts (e.g., air quality around biomass plant), community opposition to plantation forestry (e.g., viewplane issues, food vs. fuel, ranching), and difficulties finding a viable market for the trees.

Although hydroelectric energy generation makes sense from a resource availability perspective, implementation is difficult due to an extensive/time consuming permitting process expense, and ecological concerns. Hydroelectricity on a large scale is not likely to play a major role in Hāmākua's energy future. Smaller scale applications such as Hāmākua Springs Micro-Hydro generation are possible, but still face the similar challenges as larger scale applications.

It seems unlikely that renewable energy will be a major economic sector for the CDP Planning Area in terms of jobs created, however, smaller scale applications of renewable energy can play a supporting role for other sectors, such as agriculture and construction.

Payment for Ecosystem Services

Globally, there is a movement to redefine the way society measures the value provided by intangiblefactors such as the environment and local culture. The movement has matured to the point where *ecosystem services* – the benefits people obtain from ecosystems – can be assigned financial value, and markets for *payment for ecosystem services* are emerging.

As detailed in Appendix V4A, the ecosystem services assets of the planning area are tied to the richness and diversity of its natural and cultural resources, including, mauka forests, watersheds and riparian corridors, agricultural lands, and coastline. Based on the preceding, ecosystem services can assist in preserving the values and rural character of the Planning Area while directly providing economic benefits to the community in a way that supports the primary industry sectors of agriculture, health and wellness, and the visitor sector.

Ecosystem Services Valuation

Historically, ecosystem services have been excluded from conventional approaches to cost-benefit analyses. Yet there is a growing awareness that that the natural environment provides complex services that keep our ecosystems – and by extension our societies – functioning at a high level, and that it is important to consider the value of those services when making decisions that impact the environment.

The Millennium Ecosystem Assessment, a four-year United Nations assessment of the condition and trends of the world's ecosystems, categorizes ecosystem services as[152]:

- Provisioning Services – products obtained from ecosystems, such as food, fresh water, fuel, fiber, biochemical, and genetic resources;

151 http://www.hawaiianelectric.com/heco/Clean-Energy/Integration-Tools-and-Resources/Locational-Value-Maps?cpsextcurrchannel=1

152 http://www.unep.org/maweb/en/Framework.aspx

- Regulating Services – benefits obtained from ecosystems, such as climate, water, and disease regulation as well as water purification and pollination;
- Supporting Services – services necessary for the production of all other ecosystem services, such as soil formation and nutrient cycling; and
- Cultural Services – non-material benefits obtained from ecosystems, such as spiritual and religious, recreation and ecotourism, aesthetic, inspirational, educational, sense of place, and cultural heritage.

Numerous organizations have developed systems for determining the financial value of ecosystem services. For example:

- The Natural Capital Project:[153] The Natural Capital Project develops simple, use-driven approaches to valuing nature, works closely with decision makers, and provides free, open source ecosystem service software tools to a broad community of users. The Project is a partnership among Stanford University, the University of Minnesota, The Nature Conservancy, and the World Wildlife Fund. The Project has collaborators worldwide, including the California Coastal Commission, the Center for Ocean Solutions, and NOAA.
- ARIES: [154] ARIES is a web-based technology that assists with rapid ecosystem service assessment and valuation (ESAV) to make environmental decision-making easier and more effective. ARIES helps users discover, understand, and quantify environmental assets and the factors influencing their values for specific geographic areas and based on user needs and priorities.
- Earth Economics:[155] Earth Economics is a non-profit organization dedicated to researching and applying ecosystem service valuation. It conducts ecosystem valuation studies (ESV) to quantify the value of ecosystem services; analyzes job creation through ecosystem conservation projects; helps resource managers adopt management approaches that value ecosystem services; and develops funding plans for support ecosystem restoration projects.
- Ecosystem Valuation Toolkit:[156] Earth Economics has also developed the Ecosystem Valuation Toolkit. The Toolkit offers a self-service tool for ecosystem service valuation and natural capital appraisal; an inventory of ecosystem service valuation studies; a database of published valuation data; a resource library of materials for education, best practices, communication, and policy; and matchmaking services to connect ecosystem service valuation experts and those who need them.

Structures of support have also emerged to coordinate the range of valuation efforts. For example:

- The National Ecosystem Services Partnership (NESP):[157] NESP engages both public and private individuals and organizations to enhance collaboration within the ecosystem services community and to strengthen coordination of policy and market implementation and research at the national level. NESP is currently developing a work program with federal agencies to collaboratively develop guidance to make ecosystem services approaches to planning and management more routine and tractable for resource managers.

153 http://www.naturalcapitalproject.org/
154 http://ariesonline.org/about/intro.html
155 http://eartheconomics.org/
156 http://www.esvaluation.org/
157 http://nicholasinstitute.duke.edu/ecosystem/nesp

- Ecosystem Commons:[158] The Ecosystem Commons is a networking tool and collaborative workspace where the broad-based community of practice on ecosystem services (scientists, practitioners, decision makers, and other stakeholders) can exchange information and pool resources to advance the rapidly evolving arena of ecosystem services, including research, markets, policy, monitoring, valuing, quantifying, and developing tools to aid decision making.

Thousands of studies have been completed to value ecosystems services – over 3,400 in the United States alone. For example, NOAA estimates that the value of coral reefs exceeds $29 billion per year, including nearly $9 billion from tourism and recreation, over $8 billion from coastal protection, nearly $6 billion from fisheries, and over $5 billion from biodiversity.[159] In Hawai'i, the direct economic benefits of coral reefs are estimated to be $360 million per year.[160]

Emerging Markets for Ecosystem Services

Several distinct sub-markets for ecosystem services are developing, including climate stabilization (carbon sequestration in trees, plants, and marine ecosystems); hydrological regulation (water quality, groundwater recharge, flood control); and biological diversity benefits (scenic beauty, ecosystem resilience, pollination, pest control, disease control, etc.).[161] Some examples are highlighted below.

Climate Stabilization

Greenhouse gas (GHG) offsets, also known as carbon credits, are marketable certificates representing reductions in greenhouse gas emissions. Offsets generated by emission reductions in one place, the theory goes, may be used to cancel out excess greenhouse gas emissions anywhere in the world. GHG offsets and carbon credits are generally sold as tons of carbon dioxide (CO2) or carbon dioxide equivalent (CO2e), with each credit representing a pollution reduction of one ton worth of CO2.

Regulatory Markets: There are both compliance/regulatory and voluntary carbon markets. Compliance or regulatory markets are driven by regulatory caps on the amount of atmospheric pollution an entity or individual can emit without incurring fines. Several regulatory frameworks have driven this market, including:

- The 1997 **Kyoto Protocol** to the UN Framework Convention on Climate Change sets binding emission targets for developed countries. The Protocol creates three market-based mechanisms: Joint Implementation, which allows industrialized countries to meet required cuts in GHG emissions by paying for projects that reduce emissions in other industrialized countries; the Clean Development Mechanisms, which allows companies in industrialized countries to fund greenhouse gas reduction projects in the developing world in exchange for carbon credits; and Emissions Trading, which is a market mechanism that allows emitters to buy emissions from or, sell emissions to, other emitters.
- The European Union Emissions Trading Scheme (EU ETS or, simply, ETS) is the world's largest mandatory carbon dioxide (CO2) emissions-trading scheme. European Union Allowances (EUAs) are the currency of the ETS.
- The New South Wales (Australia) Greenhouse Gas Reduction Scheme aims to reduce greenhouse gas emissions associated with the production and use of electricity by using project-based activities to offset the production of greenhouse gas emissions.

158 http://ecosystemcommons.org/
159 http://coralreef.noaa.gov/aboutcorals/values/
160 Ibid
161 http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?section=about_us&page_name=glossary#g_9

Voluntary Markets: Voluntary activity by businesses and individuals wanting to reduce GHG emissions for reasons other than statutory compliance grew substantially in the last decade. This side of the market essentially represents consumer demand for action on global warming. The Chicago Climate Exchange (CCX) was North America's only voluntary, legally binding GHG reduction and trading system for emission sources and offset projects in North America and Brazil. CCX employed independent verification, included six greenhouse gases, and traded greenhouse gas emission allowances from 2003 to 2010. In November 2010, the Climate Exchange stated that it would cease trading carbon credits at the end of 2010, although carbon exchanges will still be facilitated.

Outside of the CCX, there is a wide range of voluntary transactions that make up the voluntary market. Because this market is not part of a cap-and-trade system, where emission allowances can be traded, almost all carbon offsets purchased in this voluntary market originate from project-based transactions. Organizations have developed more than a dozen third-party standards and methodologies to which project developers can have their emissions reductions certified, helping to ensure baseline quality in the marketplace. Building on the establishment of standards, a new feature of the voluntary carbon market infrastructure is sprouting up across the globe: carbon credit registries. These registries, like the American Carbon Registry[162], are designed to track credit transactions and ownership as well as reduce the risk that a single credit can be sold to more than one buyer.

Voluntary demand for carbon offsetting grew 4% in 2012, when buyers committed more than $523 million to offset 101 million metric tons of greenhouse gas emissions. Private sector buyers flocked to offsets earned by planting trees, saving tropical forests, or distributing clean cook stoves in the developing world[163]. Two examples of community-based projects that have benefited from this growing market include:

- Bosques Pico Bonito:[164] This mission drive, for-profit venture generates carbon credits by planting native trees in the Pico Bonito National Park. The credits are sold through the World Bank's BioCorbon Fund to countries aiming to meet their carbon emissions reduction targets and a share of profits go back to the communities near the Park who are implementing the actual forestry practices.
- Scolel Te Program:[165] Farmers in Chiapas and Oaxaca, Mexico agree to responsible farming and reforestation practices in exchange for payment of carbon offsets, which comes from the sale of Voluntary Emissions Reduction (VERs) to private groups at a price of $13 per ton.

Hydrological Regulation

Water Quality Trading:[166] Water quality trading is an innovative approach to achieve water quality goals more efficiently. Trading is based on the fact that sources in a watershed can face very different costs to control the same pollutant. Trading programs allow facilities facing higher pollution control costs to meet their regulatory obligations by purchasing environmentally equivalent (or superior) pollution reductions from another source at lower cost, thus achieving the same water quality improvement at lower overall cost. There are over 40 EPA-sanctioned water quality trading programs in 28 states, not including Hawai'i.

162 http://www.americancarbonregistry.org/
163 http://www.forest-trends.org/vcm2013.php
164 http://www.bosquespicobonito.com/
165 http://www.piqqoprojects.com/projects/view/project/49
166 http://water.epa.gov/type/watersheds/trading.cfm

The Ohio River Basin Trading Project is an example of a complex trading program. The Electric Power Research Institute spearheads a collaboration of power companies, wastewater utilities, farmers, state and federal agencies, and environmental interests under the Ohio River Basin Trading Project to develop a regional interstate water quality trading framework that uses a market-based approach in the Ohio River Basin.[167] In August 2012, Ohio, Indiana, and Kentucky signed the trading plan, which aims to reduce nutrient run-off by allowing emitters to purchase nutrient reductions from another source. The pilot is currently functioning and research and data is still being gathered.

Trading works best when

- A "driver" motivates facilities to seek pollutant reductions, usually a Total Maximum Daily Load (TMDL) or a more stringent water quality-based requirement in an NPDES permit (National Pollutant Discharge Elimination System);
- Sources within the watershed have significantly different costs to control the pollutant of concern;
- The necessary levels of pollutant reduction are not so large that all sources in the watershed must reduce as much as possible to achieve the total reduction needed; and
- Watershed stakeholders and the state regulatory agency are willing to try an innovative approach and engage in trading design and implementation issues.

Wetland Mitigation Banking: The US Clean Water Act mandates that whenever a developer wants to build on or near a wetland, the developer is required to compensate (or mitigate) for any wetland damage by restoring a former wetland, enhancing a degraded wetland, creating a new wetland, or, in some very rare cases, preserving an existing wetland. The law states that developers can fulfill this compensatory mitigation by paying third parties to mitigate for damage in their stead. They have several options. For example, they can buy "wetland credits" from a mitigation bank, or they can pay "in-lieu fees" to public entities or private not-for-profit organizations that use the money to "protect, enhance, or restore" wetlands. As a result of these requirements, a burgeoning market for wetlands mitigation has developed in the US estimated to be worth hundreds of millions of dollars.

Biological Diversity

Conservation Banking:[168] Conservation banking is the application of the *mitigation* or *offset* approach to endangered species. When developers expect to harm an endangered species, they are forced to offset or mitigate the damage through the creation of habitat for a similar number of plants and animals somewhere else. Many developers are now finding that they would prefer to buy mitigation credits from a conservation bank that has obtained approval from the Fish and Wildlife Service to sell mitigation credits. The US Fisheries and Wildlife Service has approved more than 105 conservation banks in 10 states, including Hawai'i, conserving more than 90,000 acres of valuable habitat for more than 60 threatened or endangered species.

Opportunities Across Ecosystem Service Markets

Agriculture and Food Security:[169] The Natural Resources Management and Environment Department of the Food and Agriculture Organization (FAO) of the United Nations explores instruments that provide positive incentives to users of agricultural land and provide ecosystem services through sustainable

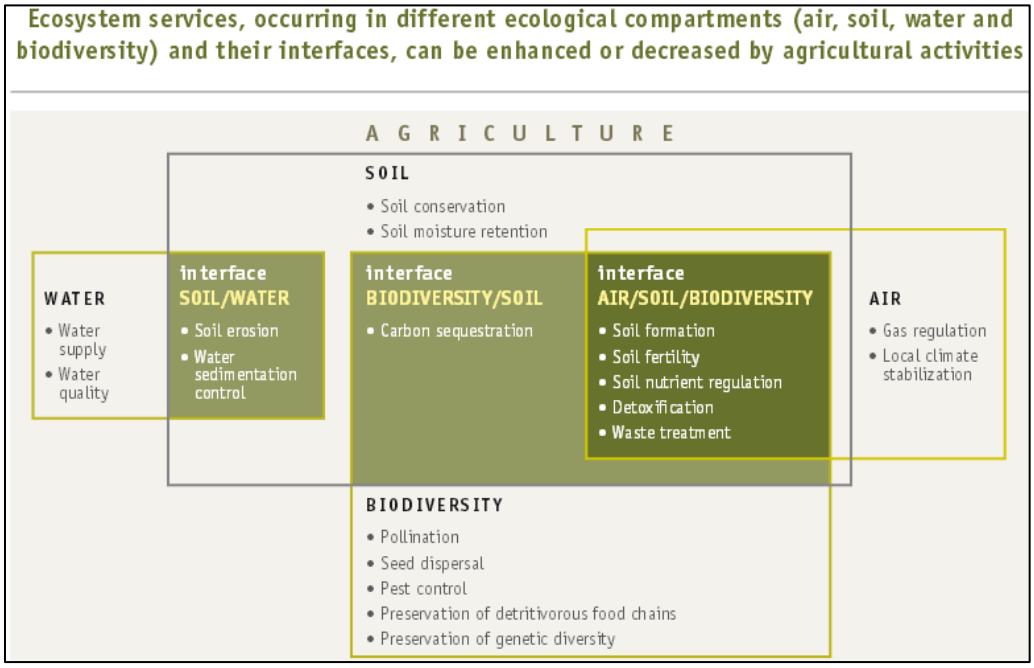
167 http://wqt.epri.com/
168 http://www.fws.gov/endangered/landowners/conservation-banking.html
169 http://www.fao.org/docrep/014/i2100e/i2100e.pdf

agricultural production. As demonstrated in "Error! Reference source not found.," agriculture has the potential to provide carbon, water, and biodiversity services.

Forest Preservation: [170] In Vietnam, the United States Agency for International Development (USAID) and Winrock International's Asia Regional Biodiversity Conservation Program (ARBCP) has been supporting the Government of Vietnam since 2006 in implementing a pilot program of payment for ecosystem services. The policy delineated three types of forest environmental services: water regulation, soil conservation, and landscape aesthetics. The policy also identified service buyers, which consisted of publicly owned electric and water utilities as well as tourism operators who would pay for those services. The policy also identified service providers, which consisted of local farmers, local farming households, and local farmer communities who had been allocated forestland and would be the primary beneficiaries of the policy.

Within four years, payments totaling $4.46 million were made to 22 Forest Management Boards and forestry businesses and 9,870 households, which represented an almost 400% increase over previous forest-protection services. In addition, following the approval of the local Biodiversity Conservation Action Plan, 479,825 hectares of forestland fell under a comprehensive management plan. Most importantly, however, local agribusiness models have had a significant impact on local livelihoods as well as local management of forestlands.

Figure 10. Agricultural Ecosystem Services



Payment for Ecosystem Services

As demonstrated in Vietnam, payment for ecosystem services (PES)[171] agreements can provide supplemental revenue while rewarding landowners and land stewards for their preservation efforts. Under PES agreements, a user or beneficiary of an ecosystem service provides payments to individuals

170 Nyugen Thi Bich Thuy, et. al. Payment for Forest Environment Services: A Case Study on Pilot Implementation in Lam Dong Province, Vietnam 2006-2010.
171 ec.europa.eu/environment/integration/research/newsalert/pdf/30si.pdf

or communities whose management decisions and practices influence the provision of ecosystem services. PES agreements can take a variety of forms, and the most effective ones typically involve multiple partnerships across the public and private sectors. There are six main PES tools currently in use: [172]

- **Direct Public Payments**: [173] Direct public payments are payments the government makes directly to providers of ecosystem services. This form of payment for ecosystem services is the most common, with governments around the world paying rural landowners to steward their land in ways that will generate ecosystem services. The Conservation Reserve Program in the United States, for instance, pays out over $1.5 billion to farmers each year in exchange for their protection of endangered wildlife habitat, open space, and/or wetlands. Appendix V4A provides more detail about the programs in place to compensate landowners for land-use changes and conservation, including the following:
    - Hawai'i County Public Access, Open Space, and Natural Resources Preservation Commission (PONC)
    - DLNR DOFAW Forest Legacy Program (FLP)
    - DLNR DOFAW Natural Area Partnership Program (NAPP)
    - DNLR DOFAW Forest Stewardship Program (FSP)
    - USDA NRCS Environmental Quality Incentives Program (EQIP)
    - USDA NRCS Agricultural Management Assistance (AMA)
    - USDA NRCS Conservation Stewardship Program (CSP)
    - USDA NRCS Farm and Ranchland Protection Program (FRPP)
    - USDA NRCS Grassland Reserve Program (GRP)
    - USDA NRCS Conservation Resource Enhancement Program (CREP)
    - USDA NRCS Wildlife Habitat Incentives Program (WHIP)
    - USFWS Landowner Incentive Program (LIP)
    - USFWS Partners for Fish and Wildlife
    - USFWS Community Forest Program.
- **Tax Incentives**:[174] Tax incentives are a form of indirect government compensation for landowners protecting ecosystem services. In exchange for committing resources to stewarding ecosystem services, individuals receive tax breaks from the government. Tax incentives are used, for instance, to encourage landowners in the United States to put their land under conservation easements. Appendix V4A provides more detail about existing tax incentive programs, including the County agricultural and forest dedications.

172 http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?page_id=7183&section=about_us&eod=1#pes_5
173 http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?page_id=7183&section=about_us
174 http://www.ecosystemmarketplace.com/pages/dynamic/web.page.php?page_id=7183&section=about_us

- **Cap-and-Trade Markets**:[175] A cap-and-trade program is one in which a government or regulatory body first sets a limit or "cap" on the amount of environmental degradation or pollution permitted in a given area and then allows firms or individuals to trade in order to meet the cap.
- **Direct Private Payments**:[176] Direct private payments function much like the public payments described above, except that non-profit organizations or for-profit companies take the place of the government as the buyer of the ecosystem service in question. Markets for direct private payments are often driven by cap and trade, or other regulatory programs.
- **Voluntary Markets:**[177] As explained in the discussion of climate stabilization above, voluntary markets are markets in which buyers and sellers engage in transactions on a voluntary basis. Generally businesses and/or individual consumers engage in voluntary markets for reasons of philanthropy, risk management, and/or in preparation for participation in a regulatory market.
- **Certification Programs**: [178] When consumers buy certified products, they are paying not just for the product itself, but also for the manner in which it was produced and brought to market. Since such production and transport are often expensive means of production and transport, price premiums associated with certified products can be considerable. When consumers choose to pay the price premiums associated with products that have been labeled as ecologically friendly, they are choosing, in a sense, to pay for the protection of ecosystem services. Certification programs designed to reward producers who protect ecosystem services have been developed for a variety of products, including wood, paper, coffee and food, among others.

Payment for Ecosystem Services in Hawai'i

Government Programs: As noted above, a number of programs and initiatives exist in Hawai'i to compensate land stewards for ecosystem services. Most of the government-related programs and initiatives are related to land-use changes and conservation of land, particularly focused on the conservation or reclamation of land for the preservation of native flora and fauna.

Plans: A number of local plans also make brief references to ecosystem services, including the Kamehameha Schools Strategic Agricultural Plan,[179] Strategic Plan: Sustaining Ranching Communities in Hawai'i,[180] and Diversified, Localized, and Sustainable Agriculture on Kaua'i: Assessing Opportunities and Addressing Barriers.[181]

Initiatives: There are also applications of ecosystem valuation and efforts to advance PES in Hawai'i:

- **The North Shore O'ahu Natural Capital Project** is a partnership between the Natural Capital Project and Kamehameha Schools to develop sustainable business models, implement payment for ecosystem services, map and value ecosystem services, obtain more data on Koa reforestation and

175 Ibid
176 Ibid
177 Ibid
178 Ibid
179 Kamehameha Schools (2009). Strategic Agricultural Plan; http://www.ksbe.edu/land/pdf/LAD_StrategicPlanWeb.pdf; accessed on 28 December 2012.
180 Hawaii Cattlemen's Council Inc, Hawaii Department of Agriculture, Hawaii Farm Bureau Federation, CTAHR Beef Initiative Program Team, College of Tropical Agriculture and Human Resources, University of Hawaii Mānoa (2007). Strategic Plan: Sustaining Ranching Communities in Hawai'i, March.
181 Brower A, (2010). Diversified, Localized, and Sustainable Agriculture on Kaua'i: Assessing Opportunities and Addressing Barriers, Draft, Mālama Kaua`i, September.

water-related ecosystem services, and provide input in policy discussions around ecosystem services.[182]

The Project piloted its InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) tools, which map and value natural goods and services through the use of scenario inputs to produce maps that are scalable on multiple levels and present results in biophysical or economic terms.[183] InVEST was specifically used as a part of a stakeholder consultation process to evaluate seven planning scenarios, which incorporated qualitative observations about cultural as well as ecosystem services. The resulting scenarios looked at contrasting land use combinations to achieve greater food and energy security as well as other natural benefits, including biofuel feedstock, food crops, forestry, livestock, and residential development. Each of these scenarios demonstrated a positive financial return relative to the status quo but also highlighted the trade-offs between carbon storage and water quality as well as environmental improvement and financial return.

As a result, the Project developed business models for ecosystem services payments around Koa restoration, initiated the design of a carbon sequestration project, provided data through mapping to value ecosystem services, and began to include policy-makers. Ultimately, the Project provided data and projections about an area that has been hard to explicitly visualize and has begun to pull in key business and political stakeholders along with community members to make informed decisions about policies, resource management, and development decisions that affect their communities.

- **The Hawai'i Grazing Lands Conservation Initiative**[184] is a partnership of grazers from Hawai'i's beef, dairy, sheep, and goat industries who are committed to furthering the grazing industry's contribution to natural resource and ecosystem conservation. The GLCI offers support or funding to groups interested in partnering on projects to improve grazing land health, educate the public, develop new technologies, or valuate ecosystem services from grazing lands.
- **Private Voluntary PES**: Private efforts to enter the PES market include:
    - McCandless Land & Cattle Co., LLC: [185] Located in South Kona, the company entered into a memorandum of understanding to sell carbon credits and offsets by planting native 'Ohi'a and Koa trees through Ecosystem Restoration Associates Hawai'i Inc. in 2010.

Ecosystem Services Assets in the Hāmākua CDP Planning Area

As detailed in Appendix V4A, the ecosystem services assets of the planning area are tied to the richness and diversity of its natural and cultural resources, including, mauka forests, watersheds and riparian corridors, agricultural lands, and coastline and offshore waters.

Several landowners have already taken steps to preserve local ecosystem services:

- The Federal government manages approximately 33,000 acres of the **Hakalau Natural Wildlife Refuge** primarily for conservation purposes and is currently considering adding an additional 20,000 acres.
- The State manages large tracts of forest and natural area reserves.
- **Kūka'iau Ranch** owner who wants to preserve the rural character of the Hāmākua Coast has donated a conservation easement on 4,500 acres of its property to The Nature Conservancy in

182 http://www.naturalcapitalproject.org/ConEX/Hawaii_ConEX_Brochure_100608.pdf
183 http://www.naturalcapitalproject.org/InVEST.html
184 http://www.grazinglandshawaii.org/
185 http://www.staradvertiser.com/news/hawaiinews/20100718_Ranch_to_sell_carbon_credits.html

2009.[186] The DeLuze's - the Kūka'iau Ranch owner - worked with the conservancy, Hawai'i Island Land Trust and the Natural Resources Conservation Service to develop a management plan that will guide conservation and reforestation efforts on the ranch.[187]

- **Hawaiian Legacy Hardwoods** (HLH) Reforestation Program:[188] Located on the Hāmākua Coast, HLH houses a 2,700 acre Koa plantation and intends to plant 1.3 million trees by 2016, which is supported by the sale of carbon-offset credits. HLH has two programs to help its mission of restoring native forests: The Legacy Koa Tree program, where donors can buy a Koa tree to honor an individual or commemorate an event, and its Forest Investment program, where investors finance the planting of trees that will eventually be logged, at which point they will get a return on their initial investment. A new partnership with Hawaiian Islands Land Trust is tied to the company's Legacy Koa Tree program. When someone buys a tree, Hawaiian Islands Land Trust will receive a minimum of $1 for each $60 tree planted. Hawaiian Legacy Hardwoods had a similar partnership with The Nature Conservancy from 2011-2012. Since 2008, Hawaiian Legacy Hardwoods has formed 40 major partnerships nationwide.[189]
- There are nine (9) DNLR DOFAW Forest Stewardship Program (FSP) projects in the Planning Area.
- The Planning Area hosts two active Soil and Water Conservation Districts.
- In addition, the vast majority of the Planning Area's privately-owned conservation and prime agriculture land is eligible for the DLNR DOFAW Forest Legacy Program (FLP).

Summary: Prospects for Payment for Ecosystem Services in the Hāmākua CDP Planning Area

Ecosystem services can assist in preserving the values and rural character of the Planning Area while directly providing economic benefits to the community in a way that supports the primary industry sectors of agriculture, health and wellness, and the visitor sector.

Tools for measuring ecosystems services are available and distinct markets for payments for those services are developing quickly.

Private landowners may already receive direct payments and tax incentives through federal, State, and County government programs focused on the preservation of ecosystem services.

Public landowners may also be able enter the market for carbon credits and other ecosystem services. Moreover, community-based organizations that assist in the monitoring and management of public lands may be able to receive a portion of payments made to government agencies. However, more research should be done in this area to confirm these possibilities.

A more ambitious effort would involve local community organizations, businesses, landowners, and farmers seeking compensation for their efforts to preserve, restore, and manage natural resources through the markets for carbon credits, water quality trading, and conservation banking, . For example, a local carbon credits system could be funded through ecotourism. Payments could also be received for the protection of recreational assets, such as access for hiking, fishing, hunting, or birding. A pilot study or project could be implemented to explore the implications of a voluntary fee to be able to access specific lands. Local residents could serve as guides to assist with these recreational activities, and a fee could be charged for their services with an additional small fee to contribute to the care of the land.

186 http://the.honoluluadvertiser.com/article/2009/Dec/30/bz/hawaii912300318.html
187 Ibid
188 http://www.hawaiianlegacyhardwoods.com/home.php
189 http://m.bizjournals.com/pacific/blog/morning_call/2013/07/hawaiian-legacy-hardwoods-land-trust.html

Part of the experience could include educational information on the threats to the natural areas and how the local community is trying to care for the area and protect it against those threats. As such, the community could simultaneously protect important resources, generate revenue to support those efforts, and educate visitors.

Finally, active efforts to receive payments for ecosystem services complement growth in the agriculture and renewable energy sectors and could attract valuable research and educational opportunities focused on developing models, frameworks, and processes to establish ecosystem services as a viable economic option for rural communities.

Health & Wellness

The health and wellness sector is broad, encompassing primary care dentists, physicians, nurses, home care and nursing, and traditional healing practitioners as such, below is a suggested strategy for a health and wellness approach.

Growth and Potential of the Health and Wellness Field

Demand Exceeds Supply: There is a 20% shortage of primary care physicians in Hawai'i.[190] In Hawai'i County, the shortage areas for primary care physicians include Hāmākua, Puna, and Ka'ū.[191] Hawai'i County also lacks specialist dental practitioners and averages only 60 dentists per 100,000 population, which is below the national average of 64, and well below the O'ahu average of 88.[192]

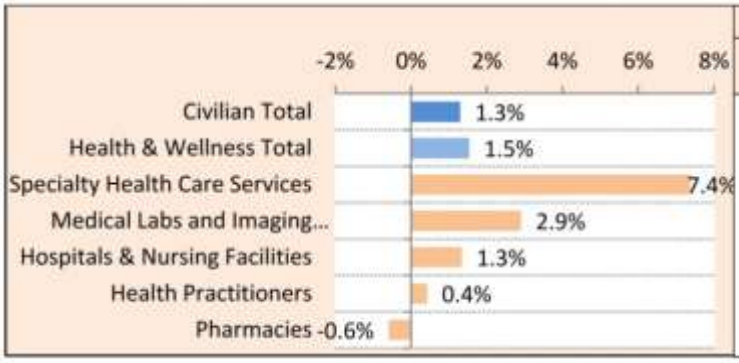
In addition, Hawai'i ranks 41st among all 50 states in nursing, with only 75 nurses per 10,000 residents, which is below the national average of 82 nurses per 10,000. Moreover, Hawai'i's nursing population is aging without adequate replacements in the pipeline.[193] Of Hawai'i's registered nurses, 79% were over the age of 40 in 2001, compared to a 68% national average, and only 6% were under the age of 30, relative to 9% under the age of 30 nationally.

According to the state of Hawai'i primary care need assessment data book 2009, all of the islands except for some portions of O'ahu are federally designated as medically underserved areas (MUA). On Hawai'i Island, there is a shortage of health professionals on the south Kohala/eastern coast of Hawai'i Island and in the Hāmākua, Puna, and Ka'ū communities.[194]

Past Growth: The Hawai'i State Department of Business, Economic Development, and Tourism has identified the health and wellness industry as a targeted and emerging industry in Hawai'i. In Hawai'i, it is among the higher performing sectors, exceeding not only the state average on terms of job growth but also performing better than other states.[195] Between 1990 and 2007, Hawai'i's private-sector health care workforce grew by 55 percent, more than 3 times greater than the overall statewide job market. Health care was one of the few sectors in Hawai'i's economy that grew throughout the 1990s. Despite the economic crisis and the sharp decline in pharmacies (a retailing industry which includes drug stores) in recent years, the overall health and wellness sector added jobs as the rest of the economy lost jobs (see "Error! Reference source not found.").[196]

190 https://www.aamc.org/download/100598/data/)
191 Health trends in Hawai'i: http://www.healthtrends.org/resources_underserved.aspx
192 Health trends in Hawai'i: http://www.healthtrends.org/resources_overview.aspx
193 Health trends in Hawai'i: http://www.healthtrends.org/resources_conven_nurses.aspx
194 Ibid, p 21
195 Hawai'i's Targeted & Emerging Industries, 2012, p 4.
196 Hawai'i's Targeted & Emerging Industries, 2012, p 21

Figure 11. Hawai'i Jobs in Health and Wellness: Average Annual Growth over 2002-2012



	Annual Job Growth				Jobs in 2012
	2002-2012	2002-2007	2007-2012	2011-2012	
Civilian Total	1.3%	2.9%	-0.3%	1.6%	806,581
Health & Wellness Total	**1.5%**	**2.3%**	**0.7%**	**1.2%**	**53,570**
Specialty Health Care Services	7.4%	13.5%	1.6%	6.0%	8,021
Medical Labs and Imaging...	2.9%	5.2%	0.7%	1.6%	1,778
Hospitals & Nursing Facilities	1.3%	2.1%	0.6%	-1.2%	18,975
Health Practitioners	0.4%	-0.3%	1.1%	1.3%	21,361
Pharmacies	-0.6%	1.3%	-2.5%	3.1%	3,435

Hawai'i's health and wellness sector accounted for an estimated 53,570 jobs in 2012. Jobs in all of the health and wellness industry groups except pharmacies grew from 2002 to 2012, with "Specialty Health Care" growing most quickly.[197] Moreover, average annual earnings in the industry are above the U.S average in the same sector, exceeding the national average in 2012 by nearly 8%.

Care for seniors has also shown significant growth, in a variety of settings. "**Table 4. Growth of Health Occupations and Professions in Home Health Care, Nursing Homes, and Non-Nursing Residential Homes, U.S., 2000-2010**" provides information on the health occupations and professions that experienced growth over the 2000 – 2010 period.

Projected Growth: Of the top 30 fastest growing occupations predicted by the bureau of labor statistics in 2010-2020, 16 are in the health or medical fields.[198] According to the Bureau of Labor Statistics, the healthcare and social assistance industry will create almost 34.4% additional jobs on a national level between 2010-2020.[199]

The 2010 State Comprehensive Economic Development Strategies Report identifies health and wellness tourism as a newer and targeted niche tourism market. The potential market includes upper income individuals in Asia-Pacific region and the aging baby boomer population in the U.S. The emerging Chinese and Korean markets are of particular priority for new market development for the health and wellness industry in Hawai'i.[200]

Table 4. Growth of Health Occupations and Professions in Home Health Care, Nursing Homes, and Non-Nursing Residential Homes, U.S., 2000-2010

	Overall	Home Health	Nursing Homes	Residential Care
General Health Care				
Physician Assistants	54%	Not available	24%	70%
Registered Nurses	26%	70%	36%	70%
Licensed Practical Nurses	20%	70%	23%	45%
Nursing Aides	24%		24%	70%
Home health Aides	47%	70%	24%	53%

197 Hawai'i's Targeted & Emerging Industries, 2012, p 22
198 Employment Projections program, U.S. Department of Labor, U.S. Bureau of Labor Statistics
199 Employment outlook: 2010–2020: http://www.bls.gov/opub/mlr/2012/01/art1full.pdf
200 Ibid, p 18

Personal care Aides	63%	70%	67%	87%
Medical and Health Services Managers	32%	36%	24%	70%
Therapy				
Physical Therapists	33%	61%	29%	61%
Physical Therapist Aides	46%	87%	36%	87%
Physical Therapist Assistants	45%	87%	36%	87%
Occupational Therapists	34%	68%	34%	68%
Occupational Therapist Assistants	40%	87%	36%	87%
Occupational Therapist Aides	45%	87%	36%	87%
Respiratory Therapists	35%	70%	24%	70%
Respiratory Therapy Technicians	35%	70%	24%	
Speech-Language Pathologists	39%	11%	24%	70%
Oral Health				
Dentists	6%	Not available	24%	70%
Dental Hygienists	37%	Not available	24%	70%
Dental Assistants	37%	Not available		71%
Mental /Behavioral Health				
Mental Health and Substance Abuse Social Workers	39%	70%	24%	87%
Medical and Public Health Social Workers	32%	104%	36%	70%
Child, Family, and School Social Workers	27%	70%	24%	70%
Psychologists	18%	64%	19%	70%
Medication and Nutrition				
Pharmacists	24%	70%	24%	70%
Pharmacy Technicians	36%	70%	24%	
Pharmacy Aides	19%	70%	24%	
Dietitians and Nutritionists	15%	70%	-1%	70%

Elderly Care/Aging in Place

Between 1980 and 2000, Hawai'i's older adult population increased over three times faster than its total population. Over this twenty-year period, the number of older adults increased by 82% while the total population increased by only 26%.[201] From 2007 to 2035, it is expected that the population of residents 65 and over will increase by more than 3 percent annually in Hawai'i, more than doubling between 2007 and 2035.

It is projected those householders in the Hāmākua CDP Planning Area who are 50 years or older will increase from about 54.5% of the total population to a projected 59.7% of the total population by 2018 (see "T**able 5. Ages 50+ Projected Population Increase in the Hāmākua CDP Planning Area**Error! Reference source not found.").

201 Profile of Hawai'i's older adults and their caregivers: http://Hawai'i.gov/health/eoa/Docs/2006.pdf

To meet the increasing needs of elderly population in Hawai'i, aging in place strategies will be needed that allow seniors the ability to continue residing in their current housing setting, either at home or in a non-health care environment, and using products and services to allow and/or enhance their ability to stay and age without having to move as circumstances change.[202] The aging population, together with increased health care demands, will likely stimulate future increases in the health care workforce. The number of health services workers is forecasted to increase nearly 54 percent from 2007 to 2035.[203]

As the elderly population continues to increase, there will likely be an increase in demand for health and medical services in the planning area. While many of these occupations require specific educational requirements, several positions in long-term care are entry points for younger persons.

Table 5. Ages 50+ Projected Population Increase in the Hāmākua CDP Planning Area

	Total Population	Population 50+	% of population 50+
Census 2010	13,767	5,642	40.98%
2013	13,975	5,859	41.92%
2018	14,477	6.231	43.04%

18

Changes in Service Delivery: With this rapid graying of the population, new demands will be placed on the health care system that will not only include a need for greater numbers of health care workers but may also involve changes in the way services are currently provided to older adults. New opportunities will develop for health care personnel in settings in which they are not currently well-represented; for example, physician assistants and nurse practitioners may work more often in long-term care settings.

Health care workers in some professions may need to find new ways of providing services. This may include more services being provided at the homes of patients, in group settings, in nursing homes and assisted living facilities, or through the Internet.[204] Home health and assisted living settings are expected to employ many more health professionals in the next 10 years. Employment in nursing homes is expected to also rise, although more moderately. The scope of practice for many professions/occupations may also change as a response to greater demand due to an aging population. Many assistant professions and occupations (e.g., pharmacy technicians, dental hygienists, therapy assistants, nursing aides) might potentially assume a greater role in the provision of services to patients if shortages occur in the corresponding primary professions.

Changes in technology may also be necessary to offset potential workforce shortages. From automated pill packaging in pharmacies to video links that allow urban medical specialists to "see" a rural patient and consult with the primary care physician, to sensors that ensure Alzheimer's patients don't wander away from home, to microchips that record a patient's nutritional intake, technology will play a growing role in heightening productivity among health professionals by allowing them to serve more patients/consumers.[205]

202 http://www.bizjournals.com/pacific/print-edition/2012/03/09/states-aging-population-spawns.html?page=all
203 Ibid p 10
204 Center for Health Workforce Studies School of Public Health, University at Albany. 2006. The Impact of the Aging Population on the Health workforce in the United States.
205 Center for Health Workforce Studies School of Public Health, University at Albany. 2006. The Impact of the Aging Population on the Health Workforce in the United States.

Federal Affordable Care Act: The Affordable Care Act will help to soften the impact of high long-term care costs for the 65+ population in Hawai'i with the Community Living Assistance Services and Supports (CLASS) provision. This provision of health insurance will provide cash benefits if one has a qualifying disability that limits day-to-day living and can also help pay for non-medical services and supports such as home-modification, assistive technology, transportation and personal care. CLASS can also be used to pay part of the cost of living in nursing home care.[206] CLASS is welcome news in Hawai'i as the cost of nursing care is becoming prohibitively expensive and nursing home facilities are nearly full. Under this new law, one can use the insurance money to pay family caregivers who provide medical care to the elderly in their own homes, encouraging them to live independently and to age in place.[207]

Likewise, the Affordable Health Care Act also expands coverage for preventive care, provides annual wellness visits, and offers mammogram screening for certain cancers and diabetes at no additional charge to the 65+ population in Hawai'i.[208]

The Affordable Care Act will also likely have positive impacts for all age groups within the population, and may diminish the percentage of uninsured. The far-reaching effects of the new healthcare provisions are yet to be seen, however the affordability and possibly expanded services covered under this provision may ultimately lead to improvements in facilities, staffing, and medical technology.

Challenges and Opportunities for the Health and Wellness Industry in Hawai'i

A number of factors challenge the successful development of a health and wellness and aging in place workforce. These include:

High Rate of Uninsured: Hawai'i County has the highest number of medically uninsured in the state.[209]

Lack of a Health Workforce Pipeline: According to Jerris R. Hedges, Dean of the John A. Burns Medical School, the lack of the systematic development of a health workforce pipeline will worsen the existing physician shortage on Hawai'i Island. This will lead to decreases in access to healthcare and continue the loss of millions of dollars annually to unnecessary healthcare expenditures.[210]

Lack of Standardized Payment & Job Specifications for Home Health Care Providers: While in-home care is the single fastest growing job in the US, projected to grow 70% between 2010 and 2020, these workers barely make minimum wage (some receive below the federal minimum wage), do not receive benefits, and are inadequately trained.[211]

Lack of Value for Aging-in-Place Services and Education: Generally, limited value is ascribed to the aging services field and the occupations within that field, the importance of geriatric and gerontological education and training often goes unrecognized, and this results in limited investments in education and training that are knowledge- and competency-based across the full spectrum of professions.[212]

Cost: According to the United States Census Bureau, the Hawai'i median household income in 2005 for those aged 65 and older was estimated at $24,509. Of seniors 65+, 7.4% live below poverty levels, while

206 Health reform to support aging in place: http://www.aarp.org/health/health-care-reform/info-05-2010/health-reform-to-support-aging-hi.html
207 Ibid.
208 http://www.aarp.org/content/dam/aarp/health/healthcare_reform/2013_01/aca-factsheet-means-to-65-plus.pdf
209 http://www.hicore.org/media/assets/041511KPHICommunityVoicesOnHealth.pdf,
210 http://www.hawaiihealthcarealliance.org
211 http://money.cnn.com/2013/03/11/news/economy/fastest-growing-job/index.html
212 Stone, Robin & Linda Barboratta. 2010. Caring for an Aging America in the Twenty-First Century. Generations, Journal of the American Society on Aging. Winter, 2010.

10.4% of the 85+ age group live below poverty. Low income levels make it difficult for seniors to pay for supportive services and home modifications that would enhance aging in place.[213]

Availability of Nursing Home Beds: Ten thousand seniors in Hawai'i are at risk of needing nursing homes, while Hawai'i's beds per capita is about the lowest in the nation.

Language Barriers: Many of Hawai'i's seniors are immigrants that may lack adequate English language skills. As such, there are added issues of communication with the staff of various care agencies.[214]

Accessible Building Standards in Private Homes: Accessible building standards allow older Americans to remain in their homes longer, instead of either spending money on retrofits or relocating to other housing. Although the Americans with Disabilities Act (ADA) requires any building built after 1992 to be "readily accessible to and usable by" those with disabilities, it does not apply to private housing, unless that housing was funded through state and local government housing programs. Further, the Fair Housing Act applies only to multifamily housing.[215]

Health and Wellness Assets in the Hāmākua CDP Planning Area

Facilities & Organizations: The planning area has a range of facilities and organizations that provide a base of community resources and assets upon which this sector could build. These include:

- **Hospitals & Clinics**
  - **Hāmākua Health Center, INC.**[216] is a Non-Profit Organization and provides accessible, affordable, quality health care and educational services for communities in the North Hawaii. [217] There are 3 medical doctors, 1 physician assistance, 1 family nursing practitioner, 1 social worker, and 1 dentist as the center's staff. A patient base of approximately 8,000 people with 30,000 patient encounters annually. This center is operated by the federal funds (Federal Government, Bureau of Primary Health Care) and provides services to low-income/ uninsured people (A Sliding Fee Scale system that is based on family income and size). Their services are Primary Medical care, behavioral health services, oral health services, patient and family education, family planning, women's health services, group supports, and translation services and transportation to and from appointments. They also have a dental care service by running "the Amazing Tooth Bus" between Honoka'a and Kapa'au with rotating months at each site.
  - **Hale Ho'ola Hāmākua**[218]is a state-operated hospital in Honoka'a and provides general medical and surgical treatment with ER, Emergency, Medicine, ICU, Nurse, Doctor, Physician, and treatment facilities. The hospital currently has 48 beds and they are constructing new additional wing building that add 28 long-term care beds and add more job opportunities in the Hāmākua area[219]
- **Mental Health and Home Healthcare Services** – Nai'a Aloha Child, Youth and Family Counseling is located in Honoka'a and provides psychotherapy including play therapy for children, youth, families

213 http://www.generationshawaii.com/wrapper.php?is=0801&pg=todays
214 http://health.hawaii.gov/eoa/files/2013/07/Profile-of-Hawaiis-Older-Adults-and-Their-Caregivers-2006.pdf
215 http://assets.aarp.org/rgcenter/ppi/liv-com/aging-in-place-2011-full.pdf
216 http://www.hamakua-health.org/
217 http://www.Hāmākua-health.org/about/what-we-do/
218 http://health.usnews.com/best-hospitals/area/hi/hale-hoola-Hāmākua-6950055/detail
219 http://Hāmākuatimes.com/the-Hāmākua-community-resource-fair-provides-a-sense-of-hope-during-challen-p387.htm?twindow=Default&smenu=133&mad=No

and adults. North Hawai'i Adult Mental Health Services is also providing services for mental health patients in the North Hāmākua district. Nurses R' Us provides professional home healthcare services in Honoka'a.

- **Senior Services** – There are several facilities for senior services in the Planning Area.
  - **Pāpa'aloa Elderly Housing Complex (Pāpa'aloa)**
    - Five plantation style buildings with two units per building. There are eight two-bedroom/one bath, one one-bedroom/one-bath, and one studio/one-bath units. (Total units: 10)
    - All tenants are provided with wireless emergency pendants at no extra costs
    - Coordinated Services provides transportation into Hilo for elderly residents.
    - Property owner: Pāpa'aloa Housing, Inc. Property managing: Big Island Housing Foundation
  - **Hale Ho'ola Nursing Home (Honoka'a)**[220]
    - 24-hour in-patient care is provided in this nursing care facility and as a minimum includes medical services such as physician care, skilled nursing, dietary and pharmaceutical services
    - 66 beds
    - The facility had 59 residents indicating that it is 89% occupied which is about average within the state of Hawai'i (2013)
  - **Honomū Adult Day Center (Honomū)** - Located in the Hilo Coast United Church of Christ Fellowship Hall, Honomū Adult Day Care Center is run by Hawai'i Island Adult Care (HIAC), a 501c3 Non-Profit organization that has served East Hawai'i community since 1976. HIAC's purpose is to provide community based care for the daily life needs of frail elders, Alzheimer's patients, and physically or mentally challenged individuals, thus giving them the opportunity to remain living in their own homes, providing dignity and self-worth, and helping them maintain their independence as much as possible in the community. Preventing premature institutionalization into long-term care and providing much needed respite for caregivers and the opportunity to continue employment are among the HIAC goals for the community.

Existing Industry Strength: The education, health, and social services sector already employs a significant number of those working in the region (approximately 36% of N. Hilo Employees, 23% of Rural South Hilo Employees, and 19% of Hāmākua employees), thus provides a foundation to attract new investments in the community through existing community infrastructure[221].

Availability of Traditional and Non-Traditional Practitioners: Many traditional and non-traditional health and wellness practitioners are available to collaborate with mainstream practitioners, which is an added advantage to the flourishing health and wellness industry on Hawai'i Island.[222] These include Honoka'a Massage Therapy Clinic, Aloha Rejuvenation Therapy, Bamboo Harmony Acupuncture Clinic,

220 https://www.ourparents.com/hawaii/honokaa/hale_ho_ola_Hāmākua
221 US Census Bureau, 2007-2011 American Community Survey
222 Honoka'a Business Association. 2013. Hāmākua Directory

Energy Healing Therapy, the Studio: Center for Holistic Arts, and Traditional Chinese Acupuncture & Chinese Herbs.

Summary: Strategy for the Health & Wellness Sector in the Hāmākua CDP Planning Area

Together, strong growth in the health and wellness sector and the aging population in Hāmākua create significant opportunities for job growth and entrepreneurism in the following areas:

- Retirement community that offers a spectrum of care
- Medical transportation
- Visiting nurses; home life care
- Senior activities

However, training and education opportunities are needed to address the workforce gap and to prepare for aging in place opportunities, as well as changes in coverage, service delivery, and technology.

Due to the broad reach of the health and wellness sector, a growing sector in Hāmākua could provide an opportunity to leverage outside resources and investments in a way that holds true to the community's vision of development. This could also be a further opportunity to engage with educational institutions to provide necessary training.

Creative, Education, & Research Sectors

The Creative, Education, and Research Sectors encompass a variety of activities including: media, arts, and culture, as well as education delivery and research. These are broad sectors, so the analysis below focuses on areas central to the Hāmākua CDP planning area's vision and values, all of which are firmly grounded in place. In that respect, the Creative, Education, and Research sectors serve as connecting points for each of the potential growth sectors in the planning area.

Trends in Hawai'i's Creative, Education, and Research Sectors

Creative Sector: State tax incentives are resulting in the growth of various subsectors of Hawai'i's creative sector. Since the 15%-20% tax incentives went into effect in 2006, film and television production activity has increased dramatically. For example, Hawai'i's film and television industry contributes annual revenues of more than $100 million to the economy. These tax benefits also extend to individuals (musicians, vocalists, engineers, producers, digital media, game developers, and filmmakers) that participate in the creation of qualified performing arts products.[223]

Another subsector of the creative sector focuses on community-based arts and cultural activities, which include theatre, music, dance, museums and galleries, arts education, electronic media, and literary arts. This subsector contributes to the qualities of place that in turn may attract residents, visitors, and businesses. For example, cultural programs and festivals as well as the activity of local arts institutions collectively increase social capital, which contributes to the development of an identity of place, which can lead to other development benefits. Creative businesses and industries also have a measurable impact on employment, investment, and consumer spending.[224]

223 http://creative-hawaii.com/overview
224 Nowak, Jeremy.(2007). Creativity and neighborhood development: Strategies for community investment. The Reinvestment Fund .

Hawai'i County accounted for 4,862 of the State's creative industry jobs in 2011, representing a 2.7% annual increase from 2001. The annual job growth was 4.5% from 2001 to 2007, but it has declined since the onset of the recent recession in 2007. From 2001 to 2011, there were nine creative industries that performed well in Hawai'i County – architecture, art education, digital media, film/ TV/ video production, marketing, design, music, performing arts, publishing, cultural activities, and engineering. These groups not only grew jobs but also increased their competitive share of the activity by exceeding national growth for the industry (see "**Table 6: Creative Industry Jobs, Hawai'i County**")[225].

Table 6: Creative Industry Jobs, Hawai'i County

Industry Group	Performance Class	Jobs				Average Annual Job Growth (%)			
		2001	2007	2010	2011	2001-2007	2007-2011	2010-2011	2001-2011
Architecture	Emerging	114	156	150	146	5.4%	-1.6%	-2.7%	2.5%
Art Education	Emerging	24	49	48	52	12.6%	1.5%	8.3%	8.0%
Computer and Digital Media Prod.	Emerging	178	241	221	218	5.2%	-2.5%	-1.4%	2.0%
Film, TV, Video Production/Distrib	Emerging	51	89	255	187	9.7%	20.4%	-26.7%	13.9%
Marketing, Photography & Related	Emerging	894	1,128	1,123	1,108	4.0%	-0.4%	-1.3%	2.2%
Design Services	Base-Growth	177	282	258	253	8.1%	-2.7%	-1.9%	3.6%
Music	Base-Growth	110	166	152	140	7.1%	-4.2%	-7.9%	2.4%
Performing and Creative Arts	Base-Growth	1,087	1,233	1,337	1,260	2.1%	0.5%	-5.8%	1.5%
Publishing & Information	Base-Growth	222	302	300	307	5.3%	0.4%	2.3%	3.3%
Business Consulting	Transitioning	281	476	482	497	9.2%	1.1%	3.1%	5.9%
Cultural Activities	Transitioning	99	118	108	110	3.0%	-1.7%	1.9%	1.1%
Engineering and R & D	Transitioning	469	551	548	537	2.7%	-0.6%	-2.0%	1.4%
Radio and Television Broadcasting	Declining	70	86	53	44	3.5%	-15.4%	-17.0%	-4.5%
CREATIVE INDUSTRY, Total	Emerging	3,725	4,862	5,021	4,840	4.5%	-0.1%	-3.6%	2.7%

Source: DBEDT compilation based on EMSI data.

As shown in "**Table 7: Hawai'i County Creative Industry Performance Compared with Nation & State, 2001 – 2011**," Hawai'i County's 2.7% annual growth rate was much higher than the State's 1.3% and the national average of 1.8%. However, the County's average earnings were lower than the State's, and much lower than the national average.[226]

225 DBEDT, Hawai'i's Creative Industries, Update Report 2012, p. 27
[226] Ibid

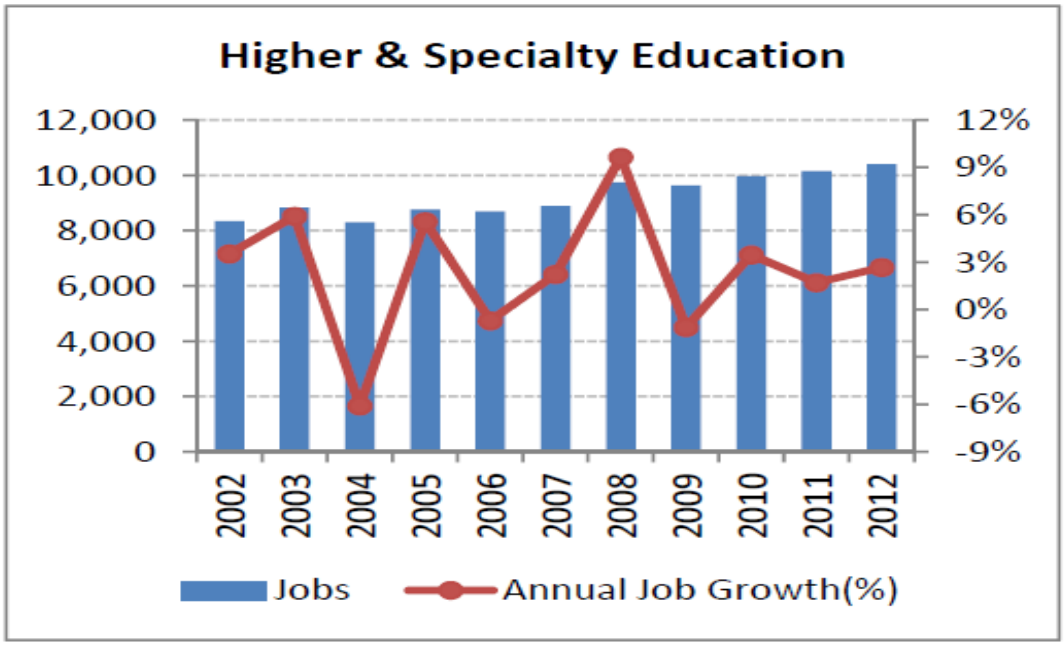
Table 7: Hawai‘i County Creative Industry Performance Compared with Nation & State, 2001 – 2011

Industry Group	Performance Class	Job Change 2001-2011	Average Annual Job Growth (%)			Ave. Annual Earnings (2011)		
			County	State	U.S.	County	State	U.S.
Architecture	Emerging	32	2.5%	-0.4%	-0.9%	50,745	71,100	63,372
Art Education	Emerging	28	8.0%	4.5%	5.2%	13,623	13,128	10,117
Computer and Digital Media Prod.	Emerging	40	2.0%	1.9%	1.8%	43,470	72,937	101,960
Film, TV, Video Production/Distrib	Emerging	136	13.9%	6.3%	0.1%	109,504	53,974	92,941
Marketing, Photography & Related	Emerging	214	2.2%	0.2%	1.9%	21,855	31,045	46,355
Design Services	Base-Growth	76	3.6%	1.9%	2.3%	19,980	23,189	36,087
Music	Base-Growth	30	2.4%	-0.9%	0.5%	14,243	26,503	38,861
Performing and Creative Arts	Base-Growth	173	1.5%	0.2%	2.0%	16,959	20,507	24,809
Publishing & Information	Base-Growth	85	3.3%	-2.8%	-1.6%	35,864	52,852	70,272
Business Consulting	Transitioning	216	5.9%	5.9%	5.0%	32,828	52,744	72,221
Cultural Activities	Transitioning	11	1.1%	5.4%	1.6%	23,647	43,127	45,574
Engineering and R & D	Transitioning	68	1.4%	2.3%	1.3%	80,112	89,317	98,022
Radio and Television Broadcasting	Declining	-26	-4.5%	-1.7%	-1.0%	16,539	55,101	71,754
CREATIVE INDUSTRY, Total	Emerging	1,115	2.7%	1.3%	1.8%	33,899	46,625	66,436

Source: DBEDT compilation based on EMSI data.

Education Sector: Education is a sector that has been proposed as a way to export Hawai‘i’s expertise to the Asia-Pacific region. Private post-secondary (higher) and specialty education in Hawai‘i accounted for 10,400 jobs in 2012. These sectors performed better than the rest of the Hawai‘i economy. Jobs grew 2.2% annually over the past ten years, adding more than 2,000 new jobs (see “**Figure 12. Higher & Specialty Education – Number of Jobs & Annual Growth (%)Error! Reference source not found.**”).[227]

Figure 12. Higher & Specialty Education – Number of Jobs & Annual Job Growth (%)



[227] Hawai‘i’s Targeted & Emerging Industries, 2012. State DBEDT. p.24

Research Sector: The significant and unique natural and cultural resources of the planning area provide potential for additional employment and economic opportunities in the areas of education and research. The natural resource management (NRM) work force supports terrestrial, freshwater, and marine ecosystem goods and services. This support includes science, research, outreach, fieldwork, training, and education. In 2011, NRM jobs in Hawai'i totaled 3,278 with 110 full-time positions gained over the past 5 years, an equivalent to a 1.5% annual growth rate.[228]

Creative, Education, and Research Assets in the Planning Area

The planning area possesses significant resource assets that are the basis for opportunities in the creative, education, and research sectors:

Art and Art Education

The **Hawai'i Island Network of Artists** is building an online directory of artists, which includes 32 from the Planning Area.[183]

Protection of Natural & Cultural Resources

The activities of organizations like those below create employment and entrepreneurial opportunities in natural and cultural resource management:

- **The North Hawai'i Education and Research Center's Heritage Center**: the center exhibits and preserves archives and resources about the Hāmākua and North Hawai'i history. Their exhibitions are open to the public. The heritage center also provides gathering places for community members.[229]
- **Hāmākua Youth Center**: [230] the center is operated by The Hāmākua Youth Foundation, Inc. (HYF) which is a grassroots community organization dedicated to creating nurturing, stimulating and enjoyable youth-centered, after-school, occasional. Programs are guided by Hawaiian tradition and values. Participants are local youth and they are engaged in leadership training, environmental stewardship, music, visual arts, recreational activities, and exploration of the many cultures represented in the Hāmākua district. The Hāmākua Youth Foundation serves youth ages 5-18 with a free drop-in after-school program.
- **Ku I Ka Māna**[231] is a beginning farmer training initiative by the Kohala Center. The center started this program in Hāmākua region by recruiting, training, and supporting at least 40 new farmers in 2013-2014. The program will also help these new farmers develop business plans, secure farm leases, gain access to farm equipment and materials, and successfully produce, market, and distribute their crops. The center has a training site in Honoka'a and the program participants can learn successful farming practices there.
- **Kanu O Ka 'Āina Learning 'Ohana**[232] sponsors a Waipi'o 'Ohana Immersion Camp in beautiful Waipi'o Valley. This cultural enrichment residential camp focuses on place-based learning immersed in EA-Education with Aloha, ensuring the perpetuation of traditional protocols, chants, hula, stories

228 Burnett, Kimberly & Christopher Wada. 2012. Foundations for Hawai'i's Green Economy: Economic Trends in Hawai'i Agriculture, Energy, and Natural Resource Management. The Economic Research organization at the University of Hawai'i, UHERO.
229 http://hilo.hawaii.edu/academics/nherc/HeritageCenter.php
230 http://hamakuayouthcenter.wordpress.com/
231 http://kohalacenter.org/farmertraining/home.html
232 http://www.kalo.org/

and the Hawaiian language. Students will learn alongside their adult member to gather, harvest, catch and prepare food and other essentials, while contributing to the responsibilities of their specific roles they have in their family and community. The hands-on interdisciplinary curriculum centered on the wahi pana of Waipiʻo, also include visits to various community loʻi to learn from local farmers. Participants also learn Science, Math, Social Studies and Art through the traditional teachings of kūpuna, while taking care of the Valley's sacred cultural and natural resources.

Educational and Research

DOE & Charter Schools

- Honokaʻa Elementary & Intermediate School
- Honokaʻa High School
- Paʻauilo Elementary & Intermediate School
- Laupāhoehoe Community Public Charter School
- Kalaniana'ole Elementary & Intermediate School

The North Hawai'i Education and Research Center: [233] the center is located in Honoka'a which is 40 miles North of Hilo and provides UH Hilo College credit courses, non-credit courses, a computer lab, and facilities for enrolled students and community members. The center's vision is providing high quality educational opportunities for people to be empowered to attain their dreams. Currently, the center has 9 full-time staff and 1 student assistant to operate.

University of Hawai'i at Hilo and Hawai'i Community College: Over the last five years, the University has experienced an increase its student population by 13%, and the Community College has grown by almost 20%. A variety of academic programs already or have the potential to use the Hāmākua CDP Planning Area as an educational and research laboratory, including agriculture, forestry, horticulture, anthropology, art, geography, environmental science, geology, Pacific Islands Studies, tropical conservation biology, culinary arts, hospitality, and Hawaiian studies.

The Kohala Center: The Kohala Center is a nonprofit organization that facilitates research and programs focused on energy self-reliance, food self-reliance, and ecosystem health. It has established and supported a network of school food gardens across the island, helped over 100 agricultural businesses with cooperative development and business planning, prepared agricultural and energy plans for the County of Hawai'i, and attracted research funding to Hawai'i Island that addresses important natural resource management concerns like pest management, biofuels, and food systems.

The Center also invests in Native Hawaiian scholars and others committed to the advancement of knowledge of the Hawaiian natural and cultural environment, Hawaiian history, politics, and society. The Center has quickly expanded from a handful of staff to approximately 20 full-time and 5 part-time employees working with approximately 20 independent contractors with expertise in marine biology, public policy, curriculum design, geohydrology, geographic information science, Hawaiian studies, forest ecology, and economics.

Planning Area employers in the research sector include:

233 http://hilo.hawaii.edu/academics/nherc/NHERCMission.php & http://hilo.hawaii.edu/academics/nherc/index.php

- Hakalau Forest Natural Wildlife Refuge (US Fish and Wildlife Service) – Including jobs in research, conservation and resource management in restoring the native forest ecosystem and protecting rare and endangered native birds and plant species.
- Hawai'i Experimental Tropical Forest (Us Forest Service) – Includes jobs in scientific research of tropical forest ecosystems, forest land management, and conservation
- Mauna Kea Observatories - Some of the observatory projects/programs and facilities currently providing employment within the Planning Area in the research/resource management sector are:

Table 8. Observatory Facilities and Employment

	# of facilities	# of employees
Astronomy Research Institution	3	29
University facility	3	71
Observatory	11	461
Visitor Center	1	No info

Summary: Prospects for the Creative, Education, & Research Sectors in Hāmākua CDP Planning Area

Due to the area's significant natural and cultural assets as well as the growth trends in the creative, educational, and research sectors, there is considerable employment and entrepreneurial potential in these sectors in the Planning Area. Specifically, potential appears high in the natural resource management as well as education and research in agriculture, environmental science, and astronomy.

Growth in these sectors also complements other sectors, including agriculture, renewable energy, payment for ecosystem services, and ecotourism. The focus could be, for example, on creating authentic visitor experiences or creating an educational and research center focused on agriculture and natural and cultural resource management.

However, growth will require partnerships with and investment from outside organizations like the Mauna Kea Watershed Alliance ,US Forest Service, the Department of Education, the University of Hawai'i, the Kohala Center, and the observatories.

Visitor industry

For at least the past half century, tourism and the visitor industry have been a dominant economic driver in Hawai'i. A 2009 study estimates that tourism accounts for 40% of the State GDP and that 44% of local jobs are directly or indirectly related to tourism.[234] Currently, Hāmākua is seeing an increase in adventure/eco, cultural, and agricultural/food tourism opportunities yet tourism appears to be happening to Hāmākua rather than as a part of Hāmākua's strategies moving forward. The visitor industry provides a substantive opportunity to generate jobs in the Planning Area, but the community must take an active role in shaping these opportunities so that they remain consistent with its values and vision.

234 http://www.4mauirealestate.com/sites/default/files/FHB_Tourism_Study_09325.pdf

Place-Based Visitor Experience

The Native Hawaiian *ho'okipa* model is a "place-based" model that honors the place, dignifies the host, and satisfies the needs of the visitor. As set forth in the 2004 Sustainable Tourism in Hawai'i Study, the Native Hawaiian practice of *ho'okipa* (the practice of greeting and welcoming strangers) is an important cultural component that is deeply embedded in the Native Hawaiian behavior system, where *'āina* or the "place" is the focal point. This preferred business model embraced by Native Hawaiians makes the preservation of the dignity and cultural landscape of the place the most important element of the visitor experience.[235]

Italy is filled with similar township models such as Florence and Venice, where preservation of the place equals sustainable market share. Sustainability and the preservation of the cultural landscape is the new model of global tourism. Such a model is more sustainable because it preserves the goodwill of the host by celebrating the place and maintains the market value of the destination by preserving its cultural uniqueness.[236]

Trends in Hawai'i Tourism

Statewide Trends: Hawai'i as a destination vacation gained prominence in the 1970s and enjoyed steady growth until the early 1990s, when Japan's economic downturn resulted in a drop in visitor arrivals over a five-year period. In the last fifteen years, Hawai'i's tourism has fluctuated in response to 9/11 and the most recent global recession. Recently, Hawai'i's tourism outlook has improved with increases in visitor arrivals, visitor days, and expenditures.[237] According to 2011 statistics, the following are selected characteristics of Hawai'i visitors:[238]

- Of all U.S. visitors, 69% were employed and 24% were retired.
- 64% of U.S. visitors had a college degree or higher.
- 58.8% of U.S. travelers were women, while 41.2% were male. Visitors from all other areas showed a similar breakdown, with the exception of Europe.
- The median age of visitors from all areas ranged from a low of 45 (Europe) to a high of 54 (U.S.).
- A high percentage of visitors reported having undertaken long distance travel in the last three years (68.7% to 89.6%).
- 73.3% of U.S. visitors had not been to Hawai'i before.
- 67.1% of all visitors reported a general vacation as their primary purpose for their trip, while 8.1% reported visiting friends or family.

While generally the visitor industry may be considered mature in Hawai'i, there are growing number of niche markets that present growth opportunities associated with an increase in traveler expectations of a unique, personalized experience. The Hawai'i Tourism Authority identifies six traveler groups (cuisine seekers, romance seekers, high experiential seekers, culture seekers, adventure seekers, and golfers). HTA also identifies 29 attributes that these interest groups value as well as the relative weight of these

235 Hawai'i Tourism Authority. 2010. Hawai'i Tourism Strategic Plan, 2005 – 2015. Hawai'i Department of Business, Economic Development & Tourism.
236 Hawai'i Tourism Authority. 2010. Hawai'i Tourism Strategic Plan, 2005 – 2015. Hawai'i Department of Business, Economic Development & Tourism.
237 HTA Annual Visitor Research Report, 2012. p. 2.
238 HTA, Visitor Satisfaction and Activity Report, 2011. pp. 195-200.

attributes based on location traveling from.[239] The state CEDS document identified the following niches as industry clusters to support: Agri-tourism; Health and Wellness; Cultural; Technological; Edutourism and Ecotourism.

Trends in Hawai'i County: The County of Hawai'i similarly relies on tourism as a significant industry cluster. Over the last decade, domestic visitor arrivals have fluctuated from a low of 923,137 in 2003 to a high of 1,305,218 in 2007 and recently standing at 986,086 in 2010.[240] During that same period, international visitor arrivals showed a similar pattern with 284,885 arrivals in 2003; 347,907 arrivals in 2005; and 304,773 in 2010.[241] In 2003, visitors in Hawai'i County spent close to $1.3 billion, in 2005 $1.7 billion, and in 2010 $1.4 billion.[242] In 2009, 1,007,680 arrivals (70%) were in Kona with the remaining 28 450,967 going to Hilo.[243]

Hawai'i County is also home to over half the bed and breakfast (B&B) units in the state,[244] a number that is essentially equivalent to a large hotel. B&Bs cater to different types of travelers – those wanting a more personalized, authentic, place-based experience.

Influence of External Factors: Hawai'i's tourism industry now competes on a global scale, where the rise of consumer electronics allows access to information and choices that as recently as five years ago might not have existed. Moreover, costs significantly influence decisions to visit Hawai'i. Across most market segments, the price of airfare, the price of package deals, and better value from other destinations rank as the main reasons why people will not visit Hawai'i in the next 24 months.[245]

Until recently, a regulatory issue affecting the visitor industry in Hawai'i is the visa application procedures for Chinese tourists. But as of August 2013, the application procedure times were reduced to less than a week. The Chinese Tourism academy estimated that in 2011 there were 1.36 million tourists to the U.S., an increase of 26% compared to a 100% increase in Chinese travelers to Mideast Asia and a 40% increase to Africa.[246]

Given Hawai'i's isolation and dependence on air travel as the primary means of entering the state there are a multitude of external factors affecting industry growth, including the price of jet fuel, national and international economic conditions, foreign political relationships, U.S. dollar values, and changing tastes in consumer travel choices. For example, tourism within and to the United States fell steadily in the year and a half following the 9/11 attacks. Over the six quarters from peak to the fourth quarter trough, real travel demand fell by 9.5%. In contrast, the nation's real GDP rose by 1% during this period.[247]

Tourism Challenges in the Hāmākua CDP Planning Area

The visitor industry faces a number of challenges in the Planning Area.

Impact on Natural and Cultural Resources: Easy access to natural and cultural resources can sometimes result in heavy use by residents and visitors associated negative impacts. As an example, public access and tourism issues have been concerns for decades in Waipi'o Valley. Waipi'o Valley is an important

239 Ibid.
240 Hawai'i County Databook, Table 7.1.
241 Hawai'i County Databook, Table 7.1.
242 Hawai'i County Databook, Table 7.22.
243 HTA. Arrivals by Island, 2009. Table 6.
244 Jensen, Chelsea. "Bed and breakfasts thrive." Hawai'i Tribune-Herald. May 20, 2013.
245 HTA. Marketing Effectiveness Study. 2012 Q1 Report.
246 http://www.eturbonews.com/28305/chinese-tourism-us-must-simplify-visa-application-procedures
247 http://journalistsresource.org/studies/economics/commerce/tourism-impacts-world-economic-crisis-north-america/

center for political and religious life in Hawai'I, and the Valley is the center of taro production.[248] There are concerns over the proper portrayal of the Valley's history, the culture, and protection of its valuable cultural resources.[249]

Resident Perceptions: Therein lies the fundamental tension within Hāmākua values and vision. On the one hand, residents want to preserve natural and cultural resources, and on the other, they want greater economic opportunity. According to the 2012 Survey of Resident Sentiments on Tourism in Hawai'i, 46% of Hawai'i Island residents surveyed responded favorably to the tourism industry, believing that it is a positive contributor to jobs (42%); enhances residents' quality of life (33%); and helps preserve native Hawaiian culture and language (36%). Some residents also believe that tourism negatively impacts traffic (22%); is responsible for higher living costs (22%); and that the island is too dependent on the industry (34%).[250]

Lack of Capacity: In spite of the rich history, traditions, language, and arts of multiple cultures represented in the Planning Area, there are few organizations with the capacity to bring all of these elements together for the education of residents and visitors.

Transient Visitors: Most of the visitor trips to the Planning Area are transient – According to a Honoka'a community website, most tourists elect to stay in the South Kohala "Gold Coast" resorts and make a day trip to Honoka'a.[251] Many people would visit the Planning Area from Kona or Hilo for only a one-day trip.

Visitor Accommodations: In 2011, there were a total of 468 properties with 11,113 available accommodation units (all types) in the County with an occupancy rate of just under 60%;[252] and there were 1,316 identified units between Hilo and Honoka'a in 2008.[253] These are mostly in the form of vacation rentals and bed and breakfast units. There are few hotel accommodations in the Planning Area.

Visitor Assets / Facilities in the Hāmākua CDP Planning Area

Despite these challenges, the Planning Area has significant tourism assets.

Local Support for Appropriate Visitor Industry: According to keypad surveys undertaken in March/April 2012 at the CDP Regional Workshops in Honoka'a and Pāpa'ikou, the community expressed strong support of agricultural tourism to supplement/diversify farmers' income. Participants at both workshops also expressed support for: Cultural/Education tourism, Natural Beauty/Ecology Tourism, Educational Tourism, Health and Wellness Tourism, and Arts/Music Tourism. Also, the majority of participants in both workshops support the concept of using the development of the Old Māmalahoa Heritage Corridor to encourage town revitalization.

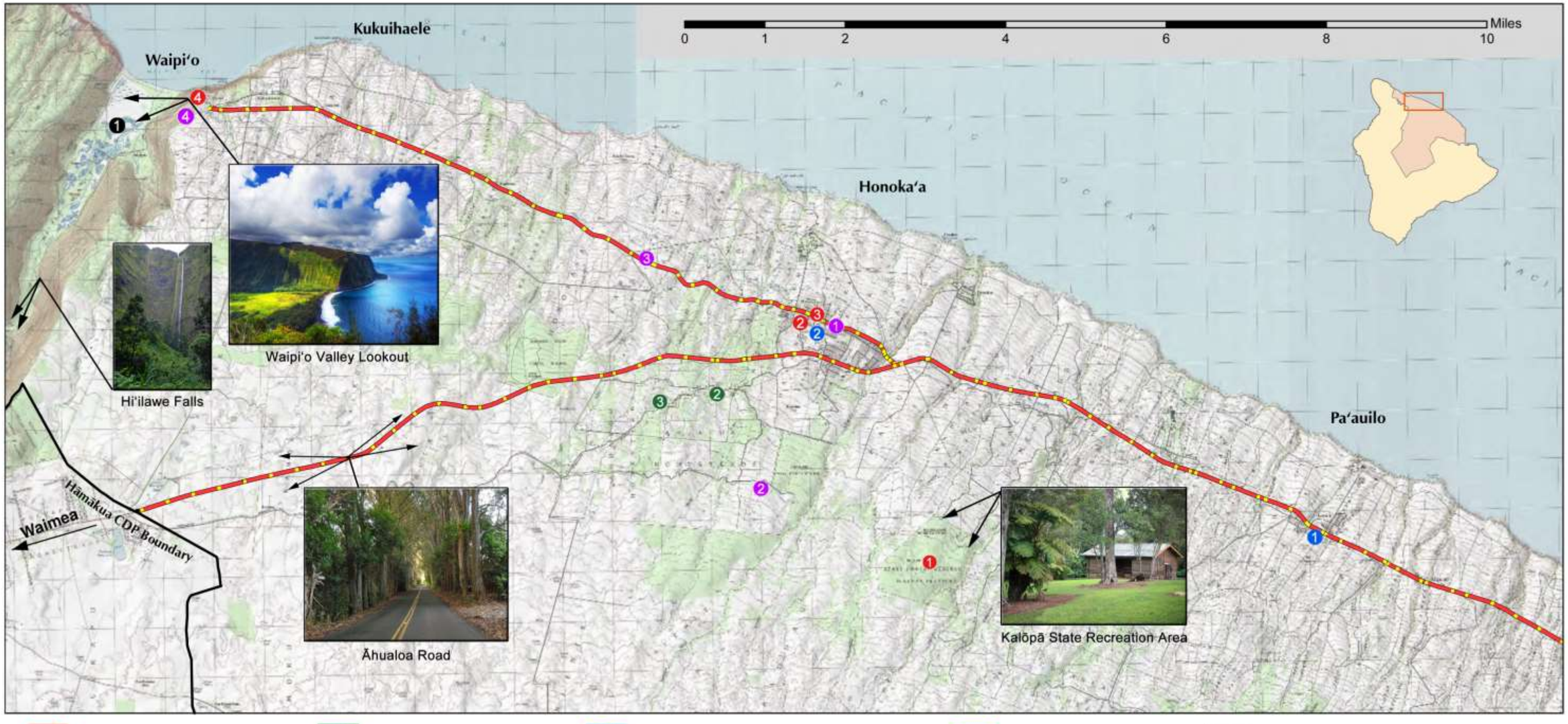
Natural/Recreational Resources

- Waipi'o Valley Lookout:[254] Visitors can visit the small park lookout, or explore within the valley by taking guided van tours, hiking, or horseback riding. The Valley is accessible only via 4x4 vehicles and it is a narrow, treacherous one-lane road with steep grades. There are also horseback, wagon, ATV, shuttle, hiking, and rim tours available for visitors, however, excursions into the Valley and

248 http://www.gohawaii.com/big-island/regions-neighborhoods/Hāmākua-coast/waipio-valley-lookout
249 http://www.hawaiiforvisitors.com/hawaii/attractions/waipio-valley-controversy.htm
250http://www.hawaiitourismauthority.org/default/assets/File/2012%20Resident%20Sentiment%20Survey%20final.pdf
251 http://honokaa-hawaii.blogspot.com/p/facts.html
252 Hawai'i County Databook 2008, Table 7.13
253 Hawai'i County Databook 2008, Table 7.15
254 http://www.gohawaii.com/big-island/regions-neighborhoods/Hāmākua-coast/waipio-valley-lookout

Figure 13. Hāmākua Visitor Attractions and Facilities

Hāmākua Visitor Attractions and Facilities



Sites of Interest

1. Kalōpā State Recreation Area
2. NHERC Heritage Center
3. Historic Downtown Honoka'a
4. Waipi'o Valley Lookout

Agritourism

1. Hawaiian Vanilla Company
2. Long Ears Coffee Company
3. Mauna Kea Tea

Restaurants/Eateries

1. Earl's Pa'auilo Store
2. Honoka'a Restaurants

Tex's Drive-In · **C. C. John's** · **Blane's Drive-In** · **The Landing** · **Cafe Il Mondo** · **Simply Natural** · **Grandma's Kitchen** · **Country Store Restaurant**

Lodging

1. Hotel Honoka'a Club
2. Waianuhea B&B
3. Waipi'o Wayside B&B
4. Waipi'o Rim B&B

Eco/Adventure Tourism

1. Waipi'o Valley
   - Horseback / Wagon Tours
   - Shuttle Tours
   - Rim Tours
   - ATV Tours
   - Hiking

Hilo - Hāmākua Heritage Corridor

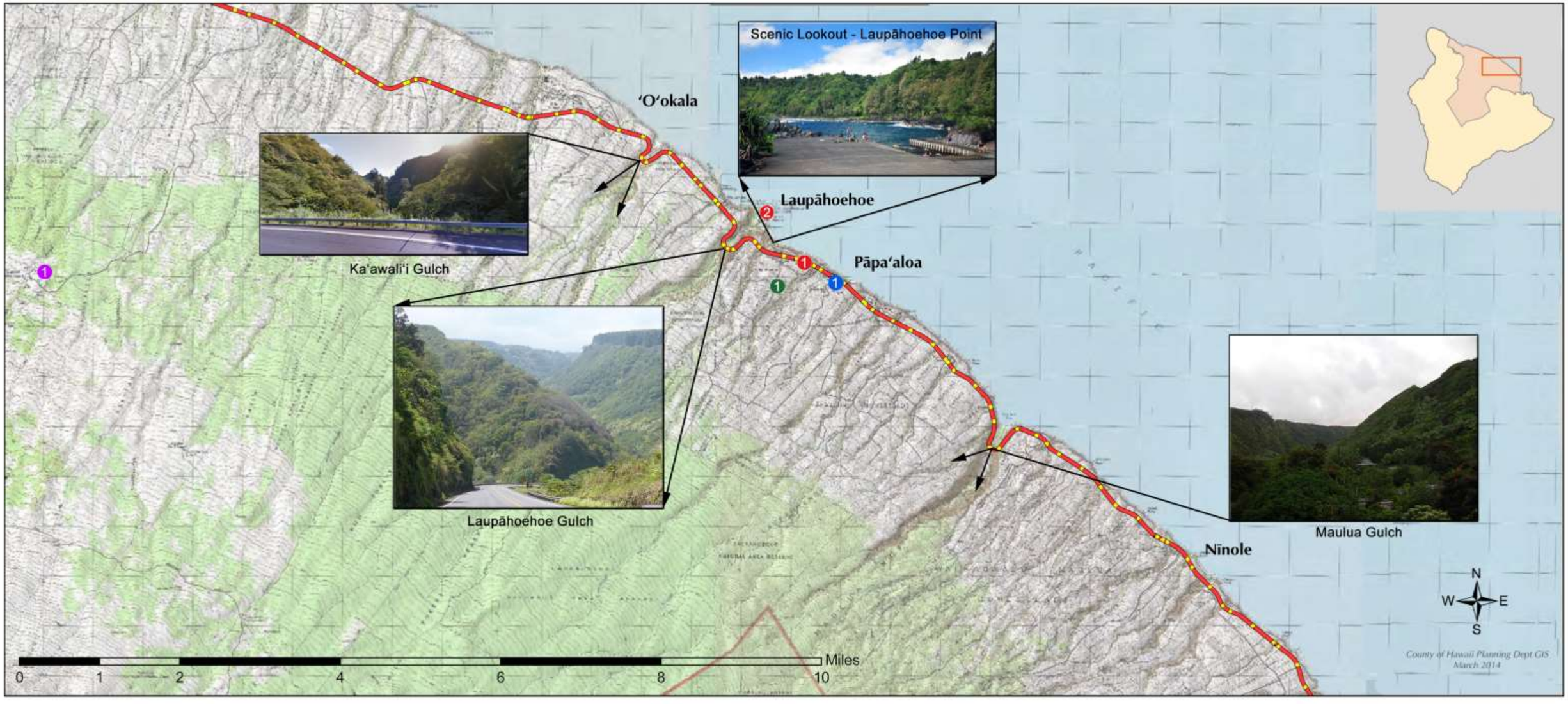
General Plan Natural Beauty Sites

N W E S

County of Hawaii Planning Dept GIS
March 2014

Figure 14. North Hilo Visitor Attractions and Facilities

North Hilo Visitor Attractions and Facilities



Sites of Interest

1. Laupāhoehoe Train Museum
2. Laupāhoehoe Point Beach Park

Agritourism

1. Hāmākua Heritage Mushrooms

Restaurants/Eateries

1. Back to the 50's Highway Fountain

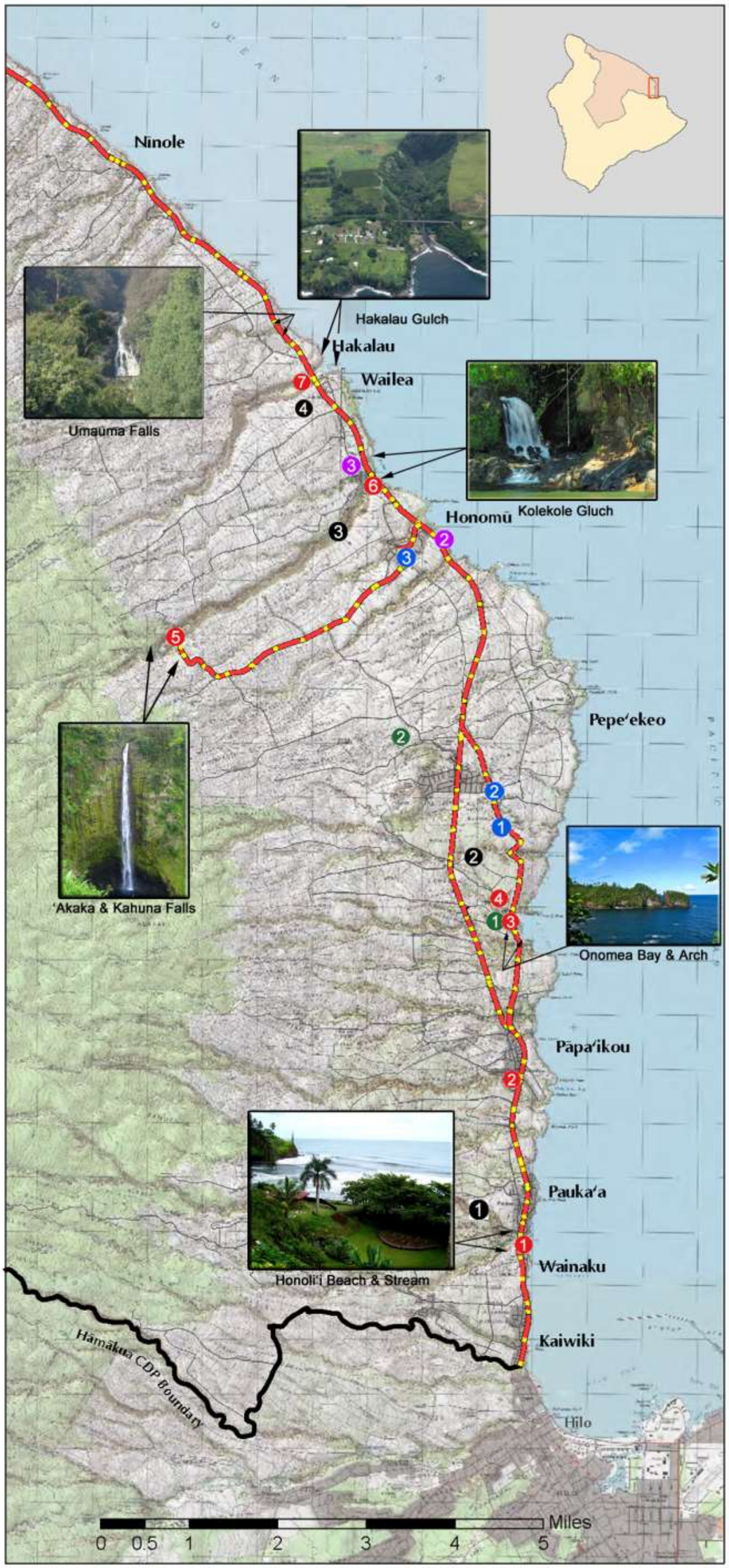
Lodging

1. Hāmākua Ranch House

Hilo - Hāmākua Heritage Corridor

General Plan Natural Beauty Sites

Rural South Hilo Visitor Attractions and Facilites



Sites of Interest

1. Honoli'i Beach Park
2. Hawai'i Plantation Museum
3. Onomea Bay
4. Hawai'i Tropical Botanical Garden
5. 'Akaka Falls State Park
6. Kolekole Beach Park
7. Hakalau Beach Park

Agritourism

1. Onomea Tea Company
2. Hāmākua Springs Country Farms

Restaurants/Eateries

1. What's Shakin
2. Low Store
3. Honomū Restaurants
   - Woodshop Gallery Café
   - Hilo Sharks Coffee Honomū
   - Mr. Ed's Bakery

Lodging

1. Island Goode's B&B
2. Palms Cliff House Inn
3. Akiko's Buddhist B&B

Eco/Adventure Tourism

1. Honoli'i Mountain Outpost
2. Hāmākua Adventures (Horseback Tours)
3. 'Akaka Falls Skyline Adventures
4. Botanical World Adventures

Hilo - Hāmākua Heritage Corridor

General Plan Natural Beauty Sites

N W E S

County of Hawaii Planning Dept GIS
March 2014

Figure 15. Rural South Hilo Visitor Attractions and Facilities

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along the rim are controversial and many farmers & residents of the Valley do not support these types of visitor attractions.

- Kalōpā State Recreation Area:[255] This is a special forested park area with cabins for rent, picnic facilities, and a two-mile hiking and horseback riding trail
- Laupāhoehoe Point Beach Park:[256] Midway along the Hāmākua Coast, this is a place to picnic, relax, and explore tide pools. There is a historic monument here for the victims that died in the 1946 April Fool's Day Tsunami.
- Botanical World Adventures (Umauma):[257] The garden has thousands of exotic plant species from around the world and visitors can hike, ride Segways, or take a zipline ride over the river.
- Kolekole Beach Park (Honomū):[258] This is a rocky river mouth beach that is popular with local residents for picnics and gatherings.
- Hakalau Beach Park (Hakalau): this is a river mouth beach park popular with local residents for picnics and swimming.
- ʻAkaka Falls State Park[259] (3.6 miles SW of Honomū): The 422-foot Akaka Falls and the 100-foot Kahuna Falls. A hiking trail (0.4-mile) and botanical garden with interpretive signage. ʻAkaka Falls state park is the second most visited tourist attraction on the Island (First is Hawaiʻi Volcanoes National Park).
- Onomea Bay (Pāpaʻikou): A scenic attraction from the 4-mile scenic route, and/or a 15 minute hike down the Old Donkey trail to the Onomea Stream and former Hawaiian Fishing Village of Kahaliʻi.
- Hawaiʻi Tropical Botanical Garden (Pāpa'ikou):[260] The botanical garden features 2,500 species of tropical plants from around the world. 87,572 people visited this attraction in 2012.[261]
- Honoliʻi Beach Park (Paukaʻa)[262] - This is a rocky beach at the mouth of the Honoliʻi Stream that is popular with the local surfers
- Ziplines – Along with the Botanical World Adventures Zipline, there are two additional zipline operations in Rural South Hilo, the ʻAkaka Falls Skyline Adventures Zipline in Honomū and Honoliʻi Mountain Outpost in Paukaʻa over the Honoliʻi Stream. While ziplines in the Planning Area are a popular visitor activity, the local community opinion has been divided with opponents identifying safety and ecological concerns.

Cultural Resources

- The Hilo-Hāmākua Heritage Hāmākua Heritage Corridor: A Scenic drive way filled with gardens, waterfalls and small towns along the Hāmākua Coast from Hilo to the Waipiʻo Lookout.
- Honokaʻa Historic Downtown:[263] Along Māmane Street- the main street in the town, people can explore Honoka'a's old false-front wooden buildings that are examples of vernacular architecture– architecture of a key historical period created by people without the help of a professional architect.

255 Ibid
256 http://www.gohawaii.com/big-island/guidebook/topics/parks
257 http://www.gohawaii.com/listing/Activity/30026300_WorldBotanicalGardens
258 http://www.fodors.com/world/north-america/usa/hawaii/big-island/review-481415.html
259 http://www.gohawaii.com/big-island/regions-neighborhoods/Hāmākua-coast/akaka-falls-state-park
260 http://www.gohawaii.com/listing/Activity/84177700_HawaiiTropicalBotanicalGarden
261 State of Hawaiʻi Data Book 2012, Table 7.43
262 http://www.fodors.com/world/north-america/usa/hawaii/big-island/sights-nam_loc:710331.html
263 http://www.honokaa.org/experience-Hāmākua/honokaa-town/

Many of these buildings were built in the 1920's and 1930's by Japanese and Chinese former plantation workers who left the plantation to start their own businesses.

- The Heritage Center (at North Hawai'i Education and Research Center) [264] is an active educational facility that fosters pride and perpetuates the diverse heritage of Hāmākua and North Hawai'i while providing the community with a foundation to thrive into the future. The Heritage Center also trains students and community members in curatorial practices, museum exhibit development and heritage management.
- The Laupāhoehoe Train Museum and Visitors Center:[265] This museum shows that historical photos, artifacts, memorabilia and stories about the many island railroads, sugar plantations and cultures that built Hawai'i Island.
- Honomū Town:[266] Its sugar-plantation past is reflected in the wooden boardwalks and metal-roofed buildings of this tiny town. There are several places where people can get baked goods or browse the local arts.
- Hawai'i Plantation Museum: [267] is a new museum with a collection of plantation era memorabilia and official historical documents spanning from the industry's earliest beginnings in the 1800s, to the closing of the very last sugar mill in 1996. The museum is located in the old Onomea Plantation Store in Pāpa'ikou.
- The many cultural and community events that the community organizes are prime examples of Hāmākua's rich, living culture:
    - Honoka'a Peace Parade and Festival, Honoka'a
    - Western Week Festival (and Paniolo Parade), Honoka'a
    - Hāmākua Music Festival, Honoka'a
    - Laupāhoehoe Music Festival, Laupāhoehoe Point
    - Mochi Pounding Festival, Wailea: A Japanese New Year's celebration where mochi is pounded the traditional way and the community gathers to help pound, celebrate, and eat.
    - Bon Dances and Lantern Lighting ceremonies at various Hongwanji in the Planning Area are held during the Bon Season (June-August). The bon odori is a celebration of life and a tribute to the dead that began 500 years ago in feudal Japan.
    - Hāmākua Alive has been an intermittent harvest festival celebrating local agriculture that features local product venders, music, and contests.
    - Community farmer's markets and informal food exchanges are occurring throughout the Planning area where folks gather, exchange locally produced products, share stories, and often play music and games.

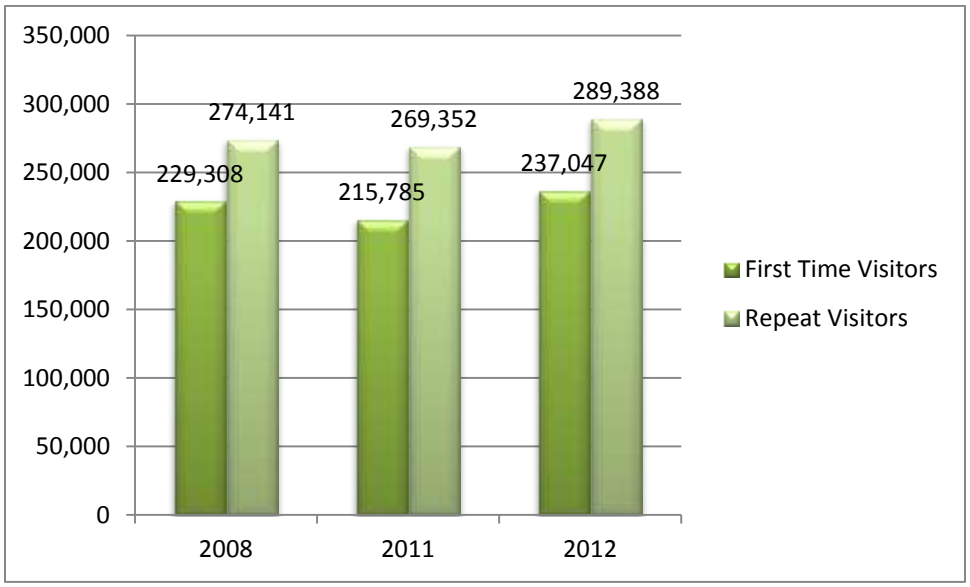
Potential for a Place-Based Approach to the Visitor Industry in the Hāmākua CDP Planning Area

Generally speaking, the majority of total visitors (US and international) coming to Hawai'i, including Hawai'i Island, are repeat visitors. "**Figure 16: 1st Time & Repeat Visitors to Hilo by Year**" shows the

264 http://hilo.hawaii.edu/academics/nherc/HeritageCenter.php
265 http://www.101thingstodo.com/stop-at-a-train-museum/
266 http://www.fodors.com/world/north-america/usa/hawaii/big-island/review-174515.html
267 http://memoriesofhawaiibigisland.com/index.html

amount of repeat visitors versus first time visitors that arrive in Hilo – the most likely group to take a day trip to the Hāmākua Coast from Hilo. The number of repeat visitors and first-time visitors to Hilo increased from 2011 to 2012.

Figure 16: 1st Time & Repeat Visitors to Hilo by Year[268]



According to research conducted by the Hawai'i Tourism Authority, repeat visitors have a higher preference and demand for more authentic experiences and engagement with residents and local culture. Focusing on this segment of the market holds the potential for restructuring the visitor industry to one that nurtures, invests in, and sustains the planning area's people and culture and its natural resources in ways that allow more natural and authentic encounters for repeat visitors to experience.[269] Due to the annual increase to the number of visitors to Hilo, we could expect to increase visitors in the Hāmākua Coast regions because of the rich natural and cultural resources and community assets.

Summary: Prospects for the Visitor Industry in the Hāmākua CDP Planning Area

Hāmākua is a natural draw to much of the visitor profile, including experience-seekers, culture-seekers, adventure-seekers, and those interested in agritourism, health and wellness, edutourism, and ecotourism. However, **the Planning Area currently captures very little of the economic gains** from the visitor market.

By pursuing initiatives that preserve Hāmākua's natural and cultural resources; perpetuate it's traditions; and are scaled to strengthen its sense of community, history, and identity, **real connections and relationships of reciprocity can be made with people from around the world who visit the Planning Area**. Consistent with the place-based, Native Hawaiian *ho'okipa* model, the focus should be on:

- **Place-Based Investments** in the protection, preservation, and sustainment of the region's people, culture, and natural resources;
- **Agri-/ Eco-/ Edu-/ and Wellness Tourism**; and

268 Hawai'i Tourism Authority. 2012. Annual Report.
269 Hawai'i Tourism Authority. 2010. Hawai'i Tourism Strategic Plan, 2005 – 2015. Hawai'i Department of Business, Economic Development & Tourism.

- **Authentic Experiences for Repeat Visitors**.

Such a strategy is a natural complement to other growth sectors, like agriculture, ecosystem services, health and wellness, and the creative, education, and research sectors.

At the same time, a strategy for developing a place-based visitor experience should account for the following factors:

- **Contingencies Against Unforeseen External Factors**: Because Hawai'i tourism is so sensitive to external factors, any specific visitor strategy should have contingencies included in the approach. Importantly, because the *ho'okipa* model focuses on place-based investments and authentic experiences, any strategy will first serve the people of the Planning Area and therefore benefit the community regardless of fluctuations in the visitor industry.
- **Potential Increase in Retiree Visitors:** As the population continues to age it would be reasonable to expect that the proportion of retirees as a percentage of visitors may increase, which would influence the type of experiences they expect and the associated opportunities for economic development ventures.
- **On-Line Presence:** To reach the discerning visitor, the Planning Area will need a user-friendly online presence for computers and mobile devices.

Retail Sector

The following retail industry analysis is a brief summary of key data relevant to the Hāmākua CDP planning area. While it is beyond the scope of this analysis to look into detail at the different components of this broad sector, retail is the centerpiece of conventional development, so the Planning Area communities should take a hard look at potential retail markets.

Retail in the Hāmākua CDP Planning Area

An inventory of retail businesses was conducted in the CDP Planning Area (see **"Figure 17. Businesses in Hāmākua CDP Planning Area by Type**"). With the exception of towns located in close proximity to Hilo (Pauka'a, Pāpa'ikou, Pepe'ekeo), retail businesses in the CDP Planning Area are located mainly in areas of concentrated population (i.e. Honoka'a, Laupāhoehoe, and Honomū). Businesses were split between providing residents needs and targeting both residents and visitors.

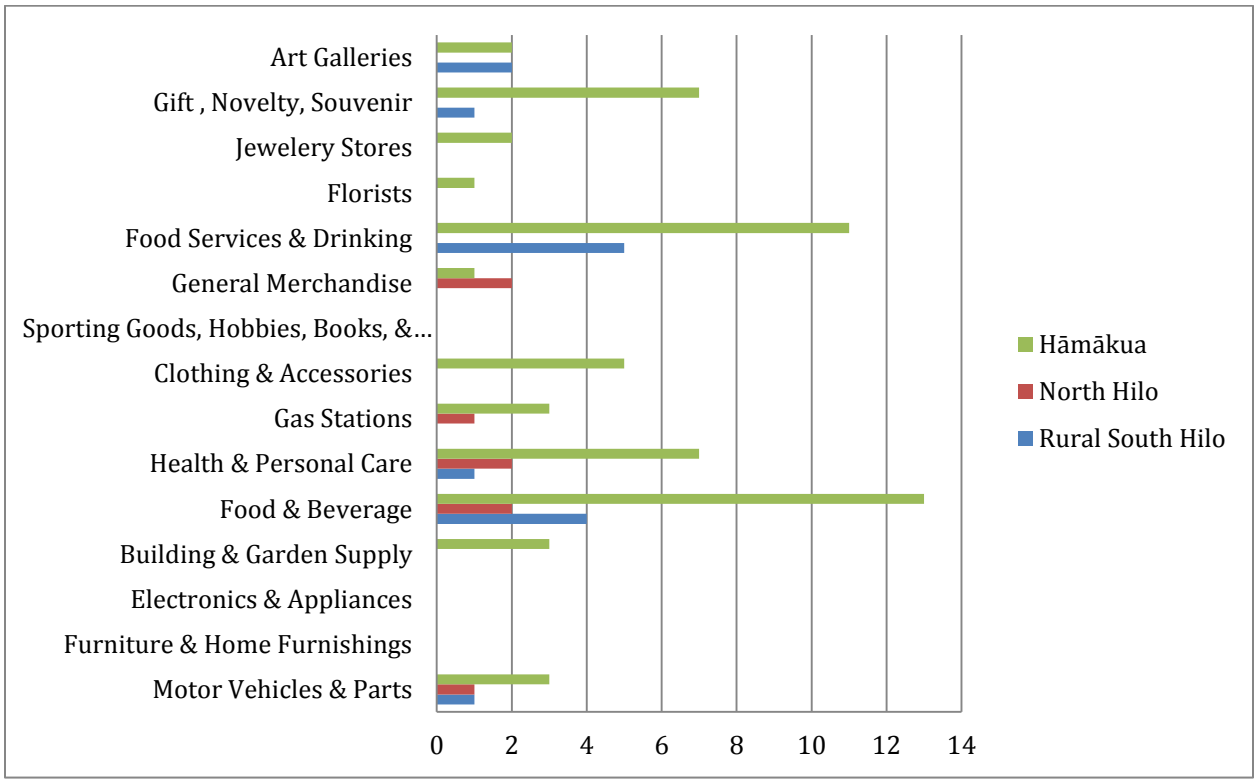
In addition to businesses, there are a range of nonprofit and community-based organizations that make up the planning area's social and economic support network. These organizations provide support to small business and economic development. They include:

- **Honoka'a Business Association**:[270] promotes progress and business development in the Hāmākua region. The association has a website of updated business directory in the region and it also provides information for residents as well as visitors.
- **Hāmākua Times**:[271] Hāmākua's community online newspaper provides various news and information for the community members who live in the Hāmākua region. The website promotes local business by advertising their businesses in their articles/ website.
- **Pa'auilo Mauka Kalōpā Community Association (PMKCA) Business Directory**:[272] PMKCA is an all-volunteer community-based organization operated for the benefit of the residents of the Pa'auilo

270 www.honokaa.org
271 http://hamakuatimes.com/

Mauka-Kalōpā areas on the Hāmākua Coast of Hawai'i Island. As a benefit of individual membership, any member in good standing who owns a small business may request inclusion in their Business Directory.

Figure 17. Businesses in the Planning Area By Type



Retail Assets and Challenges in the Hāmākua CDP Planning Area

A number of local factors present challenges for the development of the retail sector in the planning area, which also help to potentially delineate areas of focus within the Planning Area.

Access: Towns in the Planning rea are far from the major labor markets and population centers of Hawai'i. The problem of access to towns in the area is an issue for attracting everyday activities, such as shopping. People are unlikely to drive from the urban areas of Hilo and Kona for a routine shopping trip in the towns. This means that many categories of retail will depend either upon the existing population, plans for new development in the Planning Area that can increase the number of households, or visitors.

Lack of Local Capital in the Hāmākua CDP Planning Area: In the national economic climate, capital markets are tight, and investors are waiting for more general signs for recovery. Moreover, while other areas usually have local investors who have the means to support their community through investment in local projects and public improvements, this has not been the case in the Planning Area. This lack of local capital has been a problem in the past, in part because of built projects not reflective or supportive of the Hāmākua's character but also because non-local investment is often more focused on profit margins than it is supportive of the greater community vision.

272 http://pmkca.org/businessdirectory.shtml

Lack of Local Material Resources: Virtually all of the materials needed for new construction and many materials needed for local businesses come from off-island with high transportation costs that raise the cost of construction and products.

Low Relative Population: Most towns in the Planning Area lack sufficient population to support expansion of retail businesses. The discussion of demand thresholds below further explores this issue.

Town Level Commercial/Retail Assets & Challenges

The Following Tables discuss the CDP Planning Area's Commercial/Retail Assets and challenges broken down by sub-region and town.

Table 9. Hāmākua District Commercial Assets and Challenges

Towns	Commercial Assets	Commercial Challenges	Existing Retail Businesses
Kukuihaele Located directly before Waipiʻo Valley Lookout	▪ Several parcels with Resort Zoning which could support commercial uses	▪ No real commercial core ▪ Additional retail would be difficult given the narrow main road/ lack of off street parking ▪ Small population insufficient to support additional retail without a higher visitor mix	▪ Convenience store (1) ▪ Gift shop (1)
Honokaʻa The most complete, traditional town with the most commercial /retail operations in the Planning Area	▪ Highest population in the planning area ▪ Support from Mauka Homestead areas ▪ Gateway town to Waipiʻo Valley ▪ Great historical buildings ▪ Concentrated, walkable commercial core (Māmane Street) ▪ Great institutional anchors (Honokaʻa School, NHERC, etc.) ▪ Recently added free Wi-Fi in the town for local	▪ Māmane Street was closed for a year to connect businesses/ residences to the sewer system per EPA mandate, this caused many businesses to close. ▪ Need to add amenities to draw additional visitors (i.e. public restrooms)	▪ Supermarket (1) ▪ Convenience Stores (6) ▪ Real Estate Office (2) ▪ Law Office (2) ▪ Movie Theatre (1) ▪ Gas stations (3) ▪ Restaurants/Diners (8) ▪ Natural Healing Businesses(3) ▪ Banks/FCU (3) ▪ Hardware Store (1) ▪ Bakery (2) ▪ Café (2) ▪ Gift Shops (7) ▪ Clothing Stores (3) ▪ Jewelry Stores (2) ▪ tattoo shop (1) ▪ Propane shops (2) ▪ Beauty Shops (3) ▪ Hotel (1) ▪ Antiques store (1) ▪ Meat Market (1) ▪ Florist (1) ▪ Tailors (2) ▪ Pharmacy (1)

	and visitors to use		▪ Art gallery's (2) ▪ Feed store (1) ▪ Farmers Market (1)
Pa'auilo Retail in town supports mostly local residents, retail mauka is a tourist draw.	▪ Several agricultural tourism destinations (e.g. the Hawai'i Vanilla which has a gift shop and restaurant attached, as well as bed and breakfast accommodations for tourists.) ▪ Donna's Cookies Bakery (Donna's cookies are sold all around the island in retail shops)	▪ Small population insufficient to support additional retail without a higher visitor mix	▪ Bakery (1) ▪ Auto shop (1) ▪ Restaurant (Mauka) (1) ▪ General Store (1) ▪ Farm Supply/Tack and Feed store (1)

1

2 **Table 10. North Hilo Commercial Assets and Challenges**

Towns	Commercial Assets	Commercial Challenges	Existing Retail Businesses
Pāpa'aloa/ Laupāhoehoe Historically the civic center of the Hāmākua coast with several businesses, a courthouse, a school, etc.	▪ On Sundays, local farmers hold a farmers market on a vacant lot next to the gas station. However, this parcel however is in the process of being developed as a single-family residence, so the market will need to find another location. ▪ The Old Laupāhoehoe Hospital building has housed several office-based businesses	▪ With the exception of the gas station, motorists would need to leave the highway to access other local retail. ▪ No real commercial core	▪ Restaurant (1) ▪ Hair salons (2) ▪ Gas Station (1) ▪ Convenience Store (2) ▪ Farmers Market (1)

	(e.g., construction company, daycare, therapeutic massage, etc.) and has space available for lease. ▪ 50's Diner is a visitor draw		
Nīnole Historically had a general store and service station	▪ The smallest fully-functional post office in the United States	▪ Population too small to support retail expansion	▪ Auto body/detail shop (1)

1

2 **Table 11. Rural South Hilo Commercial Assets and Challenges**

Towns	Commercial Assets	Commercial Challenges	Existing Retail Businesses
Wailea/Hakalau Historically had a more substantial commercial core, but has primarily been reduced to a few old vacant storefronts and a bed and breakfast in Wailea.	▪ Old plantation infrastructure in the form of a mill and other industrial buildings that could be redeveloped for light industrial or other commercial uses ▪ An informal local farmer's market is held in Wailea on Tuesday afternoons Selling locally produced farm goods and value-added products at the farmer's market; A community gathering event with music and	▪ Split by the Belt Highway, with the Post Office leasing the front section of an old theater in Hakalau, which is separated from the rest of the commercial buildings in Wailea ▪ A part of the Old Māmalahoa Highway in the town is not well-maintained ▪ Restoring historic buildings may be cost-prohibitive ▪ Proximity to Hilo's retail offering may be prohibitive	▪ Bed and Breakfast (1) ▪ Bakery (1) ▪ Art Gallery/Workshop (1)

	entertainment is also held at the market ▪ Possibly adequate visibility from the Belt Highway to attract visitor traffic ▪ Remnants of a main street commercial core are located in Wailea and it retains its old Hawai'i charm ▪ Wailea is located along a scenic area of the Old Māmalahoa Highway		
Honomū Has an historic downtown main street core that has struggled with vacillating vacancy rates since the fall of the sugar industry. Recently, new owners to two of the main sections of the town are reconstructing the buildings and new businesses are moving in	▪ Historic buildings and downtown main street charm ▪ The town's residents are amenable to commercial revitalization while maintaining character ▪ Gateway to 'Akaka Falls State Park located mauka of the town which draws approximately 200,000 visitors through the main street of	▪ Honomū lacks visibility to the Belt Highway ▪ The entrance to Honomū is easy for tourists to overlook and the Highway at the junction does not have a turn lane ▪ The historic but dilapidated buildings in the downtown area are expensive, or at times, cost-prohibitive to repair	▪ Neighborhood grocery (1) ▪ Neighborhood bakery (1) ▪ Hair salon (1) ▪ Antique/Glass Shop (1) ▪ Coffee shops/cafés (2) ▪ Gift shop/Art gallery (1) ▪ Eco-tourism office (Zipline)(1)

	Honomū every year		
Pepe'ekeo A more recently developed subdivision that previously had a small school and health clinic and at least two neighborhood grocery stores, but never had an urban core or what would qualify as a main street	▪ The town lies at the north end of the Onomea Scenic Route, allowing for tourist business opportunities ▪ There is an industrial property with a separate access road where the power generation firm Hū Honua is planning to reopen this biomass power-generating facility ▪ Other businesses nearby are also conducting light industrial enterprises (e.g., scrap metal recycling business) ▪ Population is adequate to support some small business enterprises ▪ The Onomea Scenic Route brings additional traffic to the area that could be captured ▪ 3 acres of existing approved commercial property with highway visibility ready for	▪ No distinct commercial core or main street exists, and as such, the town lacks the appeal of older plantation towns with plantation era buildings.	▪ Neighborhood grocery (1) ▪ Credit Union (1) ▪ Smoothie Stand/lunch café (1) ▪ Convenience Store (1)

	development (along the Belt highway and the corners of Ka‘akepa and Kumula Street) ▪ Access via the Belt Highway is also safe and convenient due to a turn-lane throughout the center of Pepe‘ekeo ▪ The property is permitted for a gas station and convenience store		
Pāpa‘ikou Has the remnants of a commercial area along the Old Māmalahoa Highway primarily near the corner of Mill Road. The Onomea Scenic Route starts at the north end of Pāpa‘ikou.	▪ Fairly walkable and the Post Office, school, and Credit Union along the Old Māmalahoa Highway draw in local traffic to this area ▪ The Onomea Scenic route starts here ▪ 2 vacant commercial buildings with Highway visibility (Formerly the Solar Man and Baker Tom’s Bakery)	▪ Lack of compact commercial core area ▪ Proximity to Hilo town limits commercial demand	▪ Neighborhood Grocery (1) ▪ Museum (1) ▪ Credit Union (1) ▪ Auto Shop (2)
Wainaku/Kaiwiki/Pauka‘a Pauka‘a/Kaiwiki area is more of a bedroom community to Hilo town and the	N/A	-Proximity to Hilo town means businesses not serving a unique niche are in competition with nearby Hilo town businesses	

proximity to Hilo town primarily diminishes the need for retail here.			

Community Retail Feedback

During the Value and Vision phase of the CDP, the highest responses from the community regarding their Vision for the next twenty years overall related to the local economy, and within that category, the highest specific responses related to general business, employment, and shopping (retail).[273] Later in the CDP process, during keypad surveys undertaken in March/April 2012 at the CDP Regional Workshops in Honokaa and Pāpa'ikou, the community expressed strong preference for the availability of locally grown/made products in their shopping choices. After the stated preference to purchase locally grown/made products is a preference for the ability to combine shopping needs in a retail establishment, and the consideration of price.

During these same workshops, the community demonstrated their difficulties in obtaining their basic shopping needs within their own community. A high number of Honoka'a workshop participants responded that they do 'most of their shopping' in Hilo (38%), whereas 22% of them do most of their shopping in Honoka'a, and 16% shop mainly in Waimea. This may relate to Hilo being a major employment and service center and may demonstrate the desire to combine shopping needs into fewer trips, along with the higher number of shopping choices in Hilo. Not surprisingly, 94% of Pāpa'ikou workshop participants do most of their shopping in nearby Hilo. Overall, respondents expressed a low threshold of willingness to pay higher prices for the convenience of products that could be purchased within their neighborhood.[274]

Retail & Service Demand Threshold Analysis for the Hāmākua CDP Planning Area

Demand threshold analysis is a basic tool that gives the average population needed to support a certain type of business. The threshold is determined by dividing the total population of an area (state or sub-region) by the number of business establishments.[275] The result can be used to estimate the number of businesses that a local community could expect to support based on their current or projected population base. This type of analysis can be used to focus more in depth and specific market feasibility studies. One challenge of demand threshold analysis is that it does not incorporate local income dynamics; therefore a small community with a higher median income might support a larger number of establishments than demand threshold would suggest. Another limitation is that this type of analysis cannot predict the development of future industry clusters/sectors that do not already exist, for example green industries. Nonetheless, demand threshold analysis is a useful starting point to evaluate potential business development/revitalization strategies.

"Table 12. NAICS Retail Demand Thresholds" compares demand thresholds for Hawai'i County between 2000 and 2009 for a variety of North American Industry Classification System (NAICS) retail and service establishments.

Of note is the fact that for many retail and service establishments the threshold has increased in the last ten years, meaning that it takes more residents to support a particular type of business. One explanation could be that the input costs (labor, energy, shipping, etc.) for these businesses have

275 Business establishment totals are derived from the Census Bureau's County Business Patterns data set. http://www.census.gov/econ/cbp/index.html. Population statistics are derived from Hawaii County's Data Book. http://www.co.hawaii.hi.us/databook_current/dbooktoc.htm. Accessed 11.13.11

increased resulting in the need for more people to create an acceptable level of profitability for these type of businesses to exist.

Table 12. NAICS Retail Demand Thresholds

2000 & 2009 Retail Demand Threshold Comparison		
Business Type	**2000 Threshold**	**2009 Threshold**
Motor Vehicle & Parts Dealers	2,323	2,540
Furniture & Home Furnishings	5,718	4,939
Electronics & Appliance Stores	5,947	8,890
Building material/garden	2,563	2,694
Food & Beverage	1,517	1,976
Health & Personal Care Stores	4,018	3,355
Gas Stations	2,437	3,783
Clothing & Clothing Accessories	1,249	1,482
Sporting Goods/Hobby/Musical	4,018	4,806
General Merchandise Stores	5,718	9,358
Misc. Store Retailers	1,339	1,872
Full Service Restaurants	1,199	1,243
Limited Service Restaurants	1,239	977
Auto Repair & Maintenance	2,398	2,577
Personal Goods Repair	21,240	16,164
Personal Care Services	3,913	5,557
Dry Cleaning & Laundry	9,912	17,781
Business Associations	2,094	1,677
Performing Arts Companies	74,339	88,904
Physicians' Offices	1,011	1,337
Dentist Offices	2,124	2,436
Home Health Care	14,868	13,678

Potential Implications for Hāmākua

The following table shows the projected population estimates for the major town centers in the Hāmākua CDP:

Table 13. Projected Population for Planning Area Communities

Community	2035 Projected Population
Kukuihaele	500
Honokaʻa	3,412
Paʻauilo	899
Oʻōkala	300
Laupāhoehoe	878
Wailea-Hakalau	208
Honomū	769
Pepeʻekeo	2,704
Pāpaʻikou	1,986

What is immediately clear is that most of these communities' population projections do not meet the minimum thresholds for basic retail or service businesses. These projections point to significant challenges for town revitalization strategies that are conducted on an individual town/community basis. Even for those communities that may meet certain demand thresholds (Honokaʻa, Pepeʻekeo, Pāpaʻikou), surveys would need to be conducted to determine if there is additional unmet demand for different types of services that hasn't already been met by current businesses. A number of challenges, however, must also be taken into account when looking at data from a demand threshold analysis. One challenge of demand threshold analysis is that it does not incorporate local income dynamics; therefore, a small community with a higher median income might support a larger number of establishments than a demand threshold would suggest. Another limitation is that this type of analysis cannot predict the development of future industry clusters or sectors that do not already exist, like green industries. Nonetheless, demand threshold analysis is a useful starting point to evaluate potential business development and revitalization strategies.

Business Development & Revitalization Considerations

- Focus development in a way that maximizes population density to support a variety of mixed use retail and service establishments. A key question to ask is to what extent this would impact the rural sense of place that is important to residents.
- Complement expected local consumer expenditures to support a business with visitor related strategies, assuming that they are compatible. Most visitor related industries are primarily focused on services to temporary guests and not permanent residents.
- Devise alternative networks or cooperatives that reduce the costs for certain highly desirable businesses for Hāmākua and connect to a regional identity. For instance a networked cooperative of grocery stores could allow for greater purchases thus reducing costs and increasing profitability.

Summary: Prospects for Retail Growth in the Hāmākua CDP Planning Area

Overall, the generation of future new jobs through the retail sector in the Planning Area is modest. Keys to the future development of the retail sector include:

- **Development of Other Emerging Sectors**: Other sectors, including agriculture, renewable energy, health and wellness, creative, and visitor industries, could be developed in ways that generate and support retail opportunities.
- **Fostering Supportive Networks:** An expansion of the Planning Area's business support network could provide access to capital, marketing, distribution, and other business development services.
- **Creation of a Locally-Focused Retail Campaign:** A viable and on-going "plug the leaks" campaign could be created to raise the awareness, willingness, and capacity of residents to buy locally produced services and goods and may also help identify demand gaps in the local market.

Retail sector strategies should also take the following into account:

- **Population and Capture**: For most towns in the Planning Area, any retail growth will require a reversal of declining population trends and/or an increased capacity to capture visitor traffic and local residents who shop outside the district.

Construction Industry

While the construction industry is a major contributor to jobs across the state, the industry is struggling in the CDP Planning Area.

Construction Trends in Hawai'i

Construction was one of the major contributors to job growth in Hawai'i between 2001 and 2007, with a peak of 40,000 jobs during that period. Since the second quarter of 2008, however, the quarter-over-quarter growth rate of construction jobs was negative until the second quarter of 2011.

In a 2012 report by the Associated General Contractors of America, construction is on the rise in Hawai'i and 29 other states.[276] In 2012, the construction sector added 700 jobs, a 2.5 percent increase over the same period in the previous year. In the first quarter of 2013, the construction sector added 2,500 jobs or 8.8 percent compared with the same quarter of 2012. In 2012, private building authorizations for the state increased $785.1 million or 42.2% compared with the previous year. In the first quarter of 2013, the private building authorizations for the whole state increased $72.4 million or 13% compared with the first quarter of 2012.[277]

Hawai'i County

While the non-residential component of the construction industry in Hawai'i County is going strong, the residential component of the construction industry is struggling. For Hawai'i County, private building authorizations in 2012 increased $144.8 million or 51.2% compared with the previous year. Private building authorizations increased $16.9 million or 24.7% in the first quarter of 2013 compared with the first quarter of 2012.[278] Construction is edging up in Hawai'i County, with a "robust" growth rate of more than 10% in 2013. Led by North Kona and South Hilo, the value of Hawai'i County building permits increased 37.4% over the first quarter of 2012.[279]

276 http://www.hawaiireporter.com/report-hawaii-construction-jobs-on-the-rise/123
277 http://dbedt.hawaii.gov/economic/data_reports/qser/construction/
278 Ibid
279 http://hawaiitribune-herald.com/sections/news/local-news/big-island-economy-improves.html

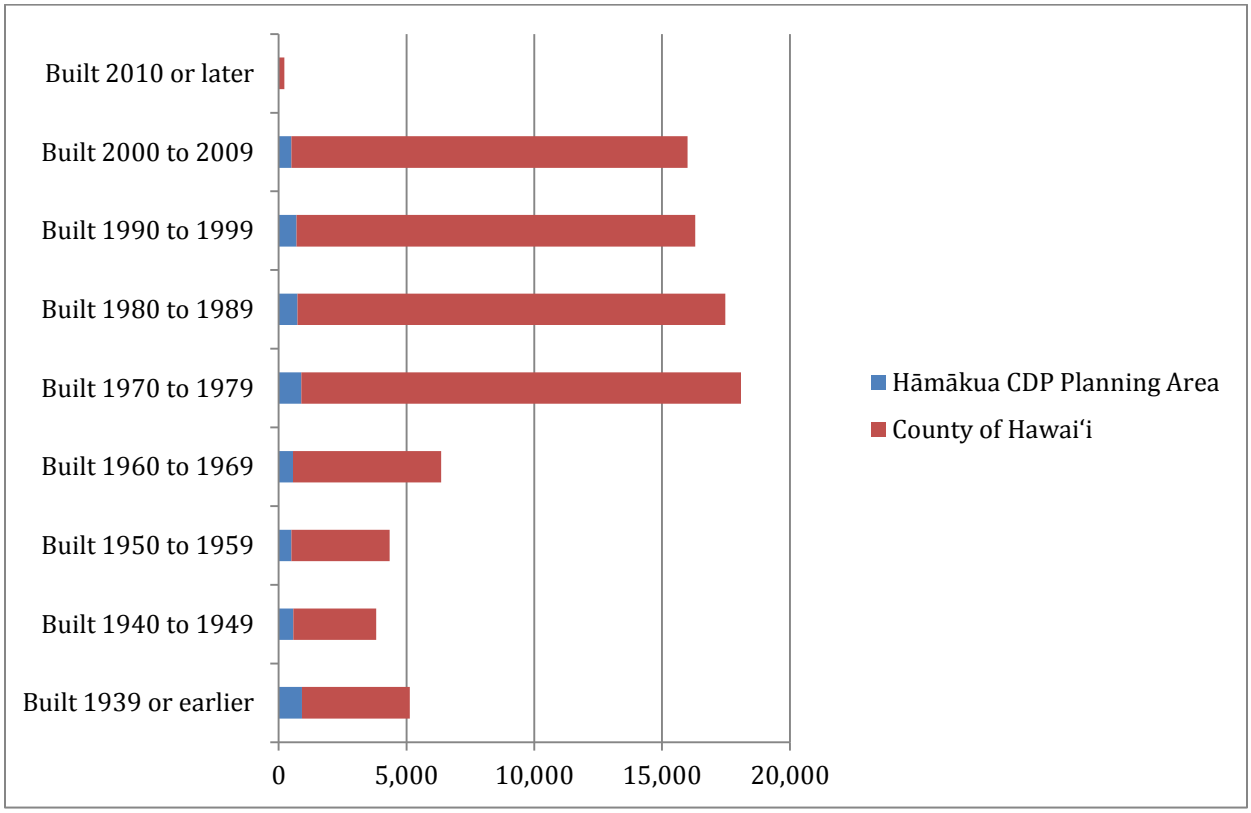
According to a report by the UH Economic Research Organization (UHERO), however, very little is happening in residential construction. The strong construction numbers primarily reflect nonresidential construction such as additions, alterations, and "buoyant" activity in photovoltaic installations.

Researchers predict that as job growth continues and incomes stabilize, residential construction will begin to play a role in the next few years. Overall, the anticipated low double-digit growth of the next several years will bring Hawai'i County construction employment to 4,300 jobs by 2015, up from about 3,000 jobs last year.[280]

Trends in the Hāmākua CDP Planning Area

As shown in "**Figure 18: Number of Homes Built in the Hāmākua Planning Area 1939 – 2009**", that with the exception of 1939 and earlier, residential construction in the Planning Area has not kept pace with the rest of the County. In fact, since 1980, the Planning Area has accounted for less than 5% of the Island's growth.

Figure 18. Number of Homes Built in the Hāmākua CDP Planning Area 1939-2009



New home construction in the Planning Area has remained low as reflected by the 56 building permits that were issued for new dwellings in 2013.

An estimated 748 people in the Hāmākua CDP Planning Area currently work for the construction industry.[281] It is unlikely that this figure will increase in any significant way given the modest population growth trends projected for the Planning Area.

Table 14. Planning Area Employment in the Construction Industry.

Location	Number Employed	% of Employed

280 Ibid
281 U.S. Census Bureau, 2008-2012 , American Community Survey.

Hawai'i County	7,690	9.20%
Hāmākua	549	16.23%
North Hilo	53	5%
Rural South Hilo	146	6.40%

Conclusion & Implications for the Construction Industry in the Hāmākua CDP Planning Area

The construction sector is still struggling, particularly with new homes, and it is unlikely any immediate substantive increase in jobs related to construction will be seen in the Planning Area. The low demand for homes has contributed to a small construction sector that consists mostly of homeowner-builders.

- **Home Remodeling** – An increase in business for home remodeling is possible, both from local residents and secondary homeowners. The majority of housing units are built before the 1970's, therefore, many may need to be remodeled/renovated.
- **Construction Due to Growth in Other Sectors** – Growth in the renewable energy sector may create some opportunities in installation. Expansion of the health and wellness, education and research, visitor, and retail sectors could also drive construction growth.

ADVANCING COMMUNITY-BASED ECONOMIC DEVELOPMENT

After comparing different approaches to economic development, this section introduces "core strategies" for advancing the local, community-based economic development.

Approaches to Economic Development

Conventional Approaches to Economic Development

The approach of promoting industries with export potential (e.g., macadamia nuts or other cash crops) or external demand for services such as tourism is consistent with traditional economic development theory such as economic base theory.[282] Economic base theory argues that growth happens by supporting businesses that have market potential beyond the local geographic and economic area. Based on this theory, local governments have employed the following "waves" of economic development policy strategies to diversify the local economy, create job opportunities, and increase the local tax base:[283]

First Wave: Business Attraction: To attract targeted businesses from outside the community, communities offer incentives such as subsidized loans, tax exemptions, direct payments to firms, and industrial parks.

Second Wave: Business Retention: Business retention includes a range of policies and programs that offer more indirect industry-level assistance, such as marketing, revolving loan funds, and industry-specific infrastructure improvements and workforce development.

Challenges: These strategies, however, have fallen in and out of favor over time, and there is an ongoing debate about their efficacy.[284] The challenges posed by these approaches for communities like Hāmākua include:

- These types of economic development strategies can often be disconnected from local community character.
- In some cases, this has created a "race to the bottom" in which communities, seeking to out-compete other regions, provide unsustainable incentives to attract industry, only to find that another community has outdone them a short time thereafter, leaving them with the costs of the incentives but without the industry.
- Because they often require large investments, ownership and control of the ventures lie outside the community.
- Similarly, the net profits from such ventures are exported to the absentee owners or investors.
- If the local community becomes overly reliant on a single, export-oriented industry, the health of the local economy is dependent on the state of the national and international economy as a whole.

Globalization: These trends are exacerbated by economic globalization, which presents several inter-related challenges:

- As investors search for lower costs of production and optimum locations, localities ebb and flow with massive capital investment and withdrawals.

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282 http://www.rri.wvu.edu/WebBook/Schaffer/Chapter%203%20S11%20for%20WVA.pdf
283 Zheng, Lingwhen. 2009. "Trapped in the Race to the Bottom: Who is Using Business Incentives Now?" Cornell University.
284 Bartik, T. J. 1991. Who benefits from state and local economic development policies? Kalamazoo, Michigan: W.E. Upjohn Institute for Employment Research.

- Because key sectors like energy, food, and manufacturing are tied to global markets, communities suffer through disruptions outside their control.
- Increasingly, communities shift from being producers/manufacturers (i.e., creators of wealth) to consumers (i.e., users of wealth accumulated). Over time, this depletes wealth at the local level and shifts wealth and power to those who control the global economy.
- Local social networks and governance structures struggle to keep pace and adapt while disparities between rich and poor expand and uncertainty and lack of confidence grow.[285]

Hawai'i is particularly vulnerable to global market forces, as evidence by the boom-and-bust cycles in key, globalized markets like real estate, tourism, and agriculture.

Community-Based Economic Development

Local Economic Development

In response to the challenges of economic base theory and globalization, rural and local economic development theory and practice have been undergoing significant changes. According to Blakely and Leigh:

> Quite simply, the predominant definition that has undergirded traditional economic development practice is increasingly recognized as insufficient. Even in the most prosperous economies, time and again it has been shown that the major economic development problems cannot be solved [by focusing uniquely on economic growth]…Increasing the tax base and creating jobs are the fundamental objectives of this definition that equates economic development with economic growth. There is nothing wrong with creating wealth and jobs and increasing the tax base. But it is a great mistake to equate economic growth with economic development.[286]

A 1997 economic review of studies looking at indicators of rural growth conducted by the United States Department of Agriculture's Economic Research Service concluded that these indicators could only explain about 40 percent of the variation in earnings growth in rural counties.[287] The study further stated that "while general explanations for earnings growth are important, they leave enough growth unexplained that local initiative may also play an important role among the less quantifiable factors." Blakely and Leigh agree:

> . . . locally based economic development and employment generation is more likely to be successful if initiated at the community and local level than elsewhere. Each of these factors influencing the economy has unique manifestations and slightly different causes in each local area. Solutions to community problems will not succeed if they are not targeted to specific groups and linked to total regional economic systems.

"**Table 15: Conventional Versus Local Economic Development Strategies"** contrasts conventional and local approaches to economic development.

285 Imbroscio, David L. and Thad Williamson. 2003. "Local Policy Responses to Globalization: Place-Based Ownership Models of Economic Enterprise." Policies Study Journal, 2003, Vol.31, Issue 1.
286 Blakely, Edward and Nancy Green Leigh. 2010. Planning Local Economic Development: Theory and Practice. Sage.
287 USDA-ERS, Ag Info Bulletin No. 737.

Table 15. Conventional Versus Local Economic Development Strategies

Conventional Economic Development[288]	Local Economic Development
***Sectoral Approach*: Tends to adopt a sectoral approach to development.**	*Territorial Approach*: Focuses on the development of a region or locality rather than an industrial sector.
***Top Down*: Development strategies are generally top down, with government deciding where intervention is needed with little or no input from local actors.**	*Bottom Up*: Focuses on development from below and advocates the need for promoting economic development in all areas. Local institutions can be more flexible and can more easily interact with and foster cooperation among stakeholders and local and social actors.
***Large Investments*: Focuses on large industrial projects or infrastructural investments, using financial incentives to attract large firms in the hope of fostering additional economic activity.**	*Strengthen Local Capacity*: Capitalizes on development potential of each area and stimulates the adjustment of the local economic systems to the changing economic environment. It aims to develop local strength and overcome weaknesses to successfully confront opportunities and threats from the external environment.

Third Wave: Incubation

A "third wave" of economic development policies has emerged that focuses on local, community-based strategies to foster a more resilient and sustainable economy. Third wave strategies focus on strengthening the foundations of economic opportunity, thereby creating fertile ground for home-grown economic development. Specific strategies include regional collaboration focused on distinct regional assets (e.g., human capital, education, amenities), community development investments to improve quality of life, building entrepreneurial capacity, and building the capacity of low-income and low-skilled workers to build financial assets.[289]

Micro-Enterprise Development

One aspect of the third wave focus on entrepreneurial capacity has been the development of micro-enterprises. In contrast to *small businesses*, which are considered by the federal Small Business Administration to be businesses with fewer than 500 employees, micro-enterprises are the typical locally-owned businesses that may be run by the owner or have as many as 20 employees. Nearly 9 out of 10 businesses in the United States are micro-enterprises, and in Hawai'i County, 89% are micro-enterprises.[290] In rural Hawai'i, more than 1 in 4 workers are employed by micro-enterprises.[291]

Based on a study of 25 years of micro-enterprise development, the Aspen Institute recommends four strategies for state and local governments to support micro-enterprise development:

- Use Community Development Block Grant funds to support programs
- Join with private sector partners to develop capacity-building initiatives

288 Adapted from Andres Rodriguez-Pose & Sylvia Tijmstra. "Local Economic Development as an Alternative Approach to Economic Development in Sub-Saharan Africa." World Bank, 2005.
289 Blakely, E. J. 2002. Planning local economic development: theory and practice (3rd ed. ed.). Thousand Oaks, California: Sage.
290 http://www.aeoworks.org/pdf/states/Microbusiness_State_Factsheet-HI.pdf
291 http://www.aeoworks.org/images/uploads/fact_sheets/US-UrbanRural-MEES-2009.pdf

- Use Capital Access Programs to help micro-lenders mitigate risk and increase lending
- Use the federal Self-Employment Assistance Program (via local Small Business Development Centers) to help dislocated workers start new businesses.[292]

Community-Based Economic Development

Community-Based Economic Development (CBED) also grew out of the "third wave." CBED is a local economic development strategy that is initiated at the community level and engages residents in the process of shaping their economic future. It creates agency and voice for community, while allowing them to have more control over development assistance.

A community's economic prospects depend on a flexible and well-trained workforce, access to technology and capital, cultural and natural amenities, and a strong civic infrastructure, including relationships that foster problem-solving and collective action within the community and greater region. CBED contributes to this by providing a process by which communities can initiate and generate their own solutions to their common economic problems and, thereby, build long-term community capacity and foster the integration of economic, social, and environmental objectives. It is development designed with the aim of reaching and benefiting all in the community, including low-income residents who often do not benefit or are not significantly assisted by other strategies. It brings together the community's vision with the requirements of feasibility.[293] It is guided by the following principles:

- Vision & Values Based – the belief that people can and will collaboratively problem-solve to realize their vision for a desired future that is anchored in a set of shared core values.
- Capacity Building – invest in strengthening local capacity to build resilient families and communities that have the ability to become full partners with the public and private sectors in affecting sustainable community economic development.
- Building Assets While Building Community – generate opportunities for families and communities to 20 build assets to increase their economic self-sufficiency, including individual and collective 21 entrepreneurial/ownership options and strategies.

When implemented successfully, CBED results in

- Targeted programs that better address the needs of residents, including low-income, low-wealth families;
- More responsive government and better delivery of public goods and services;

  An allocation of resources that is more responsive to community needs;
- Better maintained community assets; and
- A more informed and involved citizenry that is capable of undertaking self-initiated development activity.[294]

Hoʻowaiwai Hawaiʻi Island

Hawaiʻi County has articulated many of these concepts in its asset policy roadmap report *Hoʻowaiwai Hawaiʻi Island: Building Genuine Wealth* (2011). The report points out that, for families to achieve economic self-sufficiency, they must have opportunities and options to increase their income, increase

292 http://fieldus.org/Publications/jobcreation.pdf
293 Kirkpatrick, David H. 1995. "What Is Community Economic Development?" National Economic Development & Law Center.
294 Mansuri, Gazala and Vijayendra Rao. 2004. "Community-Based and Driven Development: A Critical Review." The World Bank Research Observer, Vol. 19, No.1.

their assets, and manage/decrease their household expenses. By creating a local economy that helps families to better manage their households and build their assets, families and communities have greater opportunity to:

- Have financial security against difficult times . . . the dignity of choice and control;
- Create economic opportunities for themselves. . . realize human potential through education and entrepreneurship; and
- Leave a legacy for future generations to have a better life. . . realistically reduce cyclical poverty and increase self-sufficiency for future generations.

Hawai'i Island's approach is through asset building strategies that help families to:

- Earn It: IF we increase earning opportunities through economic localization and development . . . THEN families will have a stable employment base for building assets.
- Keep It: IF we support families as they manage risk and reduce expenses . . . THEN families can better manage their household expenses and increase their options for building assets.
- Grow It: IF we help families increase their assets . . . THEN families will increase their self-sufficiency and have more choice and control in their lives to have financial security against difficult times; to create economic opportunities for themselves; and to leave a legacy by protecting our island community and environment for future generations' quality of life.[295]

Overview of CBED Strategies

Conventional approaches to economic development are going to continue to be employed, many of which may advance Hāmākua's community objectives. However, most of those approaches and related forces of globalization are beyond the control of communities in the Planning Area.

On the other hand, there are many demonstrated ways in which communities like Hāmākua can play pro-active roles in their own economic development. In fact, based on the nature of Hāmākua's economy, with its roots in regional *oikonomia*, the 'ohana economy, and ho'owaiwai, a community-based approach to economic development seems the most appropriate for Hāmākua. Such an approach would feature a regional focus, local initiative and control, incubation of local micro-enterprises, and an equitable distribution of benefits.

Based on decades of trial and error and related research, strategies for advancing community-based economic development fall into ten general categories:

- **Enhance Regional Identity** by preserving and improving the natural, cultural, architectural, artistic, historic, and recreational resources that contribute to the local community character and sense of place;
- **Build Local Industry Clusters** to develop competitive advantages of place- and sector-specific businesses that can mutually benefit from coordination, like agriculture, education, health and wellness, heritage arts and entertainment, and tourism;
- **Connect to Anchor Institutions** like schools, hospitals, and large landowners to leverage their redevelopment, hiring, and purchasing power;
- **Advance Innovation** by developing products and services unique to the character and needs of the region;

295 Hawai'i Alliance for Community-Based Economic Development (HACBED). 2011. "Ho'owaiwai Hawai'i Island: Building Genuine Wealth." Prepared for the Hawai'i County Department of Research & Development.

- **Build Entrepreneurial and Business Capacity** to innovate and create jobs through incubation, training, and other supports;
- **Build Workforce Capacity** through local education and workforce development programs help local residents capitalize on opportunities within local clusters;
- **Democratize Ownership** of enterprises in local industry clusters with organizational models that reflect local values, strengthen local control, and retain local wealth;
- **Diversify Investment** and improve access to capital by attracting investment from firms and investors that embrace local values and by creating opportunities for local residents to secure a stake in local businesses;
- **Promote Regional Assets** like distinctive features and unique, place-based products in order to build long term relationships with markets within and outside the region; and
- **Foster Network Leadership** that supports CBED initiatives by uniting the community behind its unique identity, connecting local industry clusters, building local collaborative capacity, and interfacing with markets and government officials.

To be most effective, each of these should be employed simultaneously and in coordination with one another. In other words, taken as a "whole," these strategies are "greater than the sum of their parts." Nevertheless, for ease of explanation, they are introduced separately below. At the conclusion of this section, a few examples are lifted up to demonstrate a coordinated, multi-pronged approach.

Enhance Regional Identity

Blakely and Bradshaw assert that communities need to "identify their quality of life attributes, build on them, and effectively promote them to the business community." Economic development efforts can better succeed and accrue benefits to affected community residents and businesses if they are rooted in a community's:

- Sense of Place – the built and natural environment of a community that expresses the particularity of that place;
- Sense of Identity – the unique features of a community that establishes its sense of identity and allows it to differentiate and distinguish itself in the marketplace;
- Sense of Evolution – the physical and social fabric of the community that reflects its functional, cultural, aesthetic, and historical evolution; and
- Sense of Ownership & Community – the shared sense among residents, businesses, and community sectors that they benefit from, have a stake in, are interconnected with, and acknowledge their obligation and responsibility for that place.[296]

"Regional Flavor" is an economic development strategy that builds on this concept. It focuses on the distinctive qualities, assets, and identity of an area to generate viable economic ventures and opportunities in ways that take care of the land and its people.[297] This strategy encourages local economic developers and residents to uncover their area's unique assets – places to visit, restaurants, artisan businesses, history and heritage, recreational activities, music, foods, and other aspects – and

296 Blakely, Edward and Ted Bradshaw. 2002. Planning Local Economic Development: Theory and Practice. Sage.
297 Holley, June and Leslie Schaller. 2009. Entrepreneurship With A Regional Flavor. Appalachian Center for Economic Networks.

package these assets into experiences that attract people to live in or visit their community to help stimulate appropriate local economic growth.

To enhance regional identity or flavor, communities must preserve and add value to place-based assets that give a rural region its distinguishing characteristics, uniqueness, and quality, including natural areas, wildlife habitats, open spaces, greenways, agricultural land, heritage sites, parks, and villages and towns.[298] A Carsey Institute report found that preserving and connecting these assets in ways that support and enhance the community's quality of life can have positive impacts to local economic development.[299]

Natural Assets

For example, Appalachia's natural assets have often been undervalued and over-utilized, resulting in heavy pressure on the resource but with limited local economic benefit. The research and experience of the Central Appalachian Network (CAN) have demonstrated that a place-based, asset building strategy simultaneously protects and restores resources while increasing their economic value.[300] Not surprisingly, some of the fastest growing rural communities are recreation and retirement towns that preserve and celebrate their natural amenities.

Cultural Assets

Studies also show that historic preservation has had an enormous, positive impact on local economies in states across the country.[301] Historic preservation generates sales of goods and services, increases loan demand and deposits in local financial institutions, enhances property values, increases the tax base, and, most importantly, creates jobs.[302] In fact, building rehabilitation has a greater economic impact on the local economy in terms of jobs created, increase in household income, and demand created on other industries than new construction.[303] Rehabilitation also has the added benefits of recycling materials, reducing the need for new, imported raw materials, reducing construction waste going to landfills, and conserving energy. See Appendices V4A and B for more information about historic preservation.

Built Assets

Preserving and enhancing built assets can also serve to enhance regional identity. An International City/County Management Association (ICMA) report recommends investing in existing places, building on past investments in facilities and infrastructure, encouraging economic development in existing downtowns/town centers, and accommodating new growth through compact and contiguous development.[304] As noted in Appendix 4VB, development in existing, traditional neighborhoods saves on infrastructure costs, lowers long-term infrastructure costs, maintains housing affordability, generates spin-off economic activity and job creation, and facilitates further re-investment.

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298 Holley, June. 2006. "Regional Flavor: The Creative Power of Communities." Rural Research Report, Summer 2006, Volume 17, Issue 6.

299 Brown-Graham, Anita and William Lambe. 2008. "Measure & Methods: Four Tenets of Rural Economic Development." Carsey Institute Policy Brief No. 9.

300 Central Appalachian Network. 2006. "Strategies for Sustainable Entrepreneurship." http://www.cannetwork.org/roundtable/strategies.pdf

301 http://www.historichawaii.org/WhyPreserve/State_Tax_Credit_Rept_Jan20_2008.pdf

302 Rypkema, Donovan. "The Impact of Historic Preservation on the North Carolina Economy." Preservation North Carolina, 1997.

303 Rypkema, Donovan. "The Economics of Historic Preservation: A Community Leader's Guide." National Trust for Historic Preservation, 1998, 2002, 2005.

304 Mishkovsky, Nadejdaan, Matthew Dalbey, Stephanie Bertaina, Anna Read, and Tad McGalliard. Putting Smart Growth to Work in Rural Communities. 2010. ICMA.

Part of the "Economic Gardening" approach used in Littleton, Colorado focused on local infrastructure – not just physical infrastructure but also quality of life infrastructure.[305] Littleton made strategic investments in street/sidewalk rehabilitation, parks, open space, hiking trails, and restoration of the historic county courthouse.

Resources to Enhance Place-Based Assets

Appendices V4A and V4B, which introduce a range of strategies for managing natural and cultural resources and building community, are full of ideas for enhancing regional identity. Examples include:

- Land use policy maps that preserve forests, open space, and agricultural land while directing growth to existing villages and towns
- Acquisition of critical natural and cultural assets for preservation
- Historic preservation
- Retention of the design character of historic towns and villages
- Cultural centers and other "gateway" facilities
- Capital improvements to roads and parks
- Redevelopment of brownfields or neglected areas.

There are also programs specifically targeting assets that further economic development:

US EDA Comprehensive Economic Development Strategies:[306] At the federal level, the Department of Commerce's Economic Development Administration (EDA) makes investments in public works projects through local Comprehensive Economic Development Strategies (CEDS).

Business Improvement Districts: Appendix V4B introduces a range of strategies for financing capital improvements, including State and County capital improvement programs (CIP), Community Improvement Districts (CID), Community Facilities Districts (CFD), Tax Increment Financing (TIF), and USDA Rural Development Facilities Programs.

Business Improvement Districts (BIDs), which are governed by HCC Chapter 35, are designed to complement capital investments by funding annual operating costs (e.g., security, landscaping, marketing) associated preserving and promoting local assets. Revenue is generated with special assessments levied on property within the boundaries of the BID. BIDs may also issue bonds to finance capital improvements.

The sole BID in Hawai'i County is the Kailua Village Business Improvement District (KVBID).[307] The KVBID is organized as a nonprofit district association governed by a District Board and managed by an executive director. Staffing includes Information & Safety Officers and Landscaping & Maintenance Crews.

Placemaking

"Placemaking" incorporates many of the strategies above. It is introduced in Appendix V4B but is worth highlighting once more in the context of regional identity. Placemaking is a multi-faceted approach to

305 Woods, Jim and Christian Gibbons. 2010. "Economic Gardening – Is It Right For Your Community?" PM Magazine, ICMA Publications, October, 2010, Volume 92, Number 9.
306 http://www.eda.gov/
307 http://historickailuavillage.com/

planning, design, and management of public spaces that capitalizes on a local community's assets, inspiration, and potential to promote the health, happiness, and well-being of residents.[308]

"Place capital" is the shared wealth (built and natural) of the public realm, which is increasingly becoming a significant means of generating sustainable economic growth for communities. People, information, and capital are all increasingly more mobile, but ultimately, places that are inherently immobile are the destinations for this creative potential. Places are emerging as a chief source of competition and creativity in global and local markets and will increasingly be a driving force behind markets and business models. In light of this trend, communities should consider defining themselves as places to attract place-building business, and business models need be directly responsive to the places and communities they are meant to serve.[309]

The mobility of capital and people often drives legitimate fears of gentrification (see Appendix V4A). Some would argue, however, that focusing on *talent attraction and retention*, as opposed to placemaking, is what leads to gentrification. The focus on talent assumes that there is a finite amount of talent and creativity available in the world and that communities must compete to draw creative people away from rival communities in order to thrive. But that strategy is equivalent to economic cannibalization.

Truly great places are not built from scratch to attract people from elsewhere – the best places have evolved into dynamic, multi-use destinations over time and are reflective of the communities that surround them, not the other way around. Places aren't about "the 21st century economy," they are about the people who inhabit and develop them. They are the physical manifestations of the social networks upon which our global economy is built.

Placemaking, therefore, is more about the identification and development of local talent – not the attraction of talent from afar by making existing places palatable to a certain class of people. Placemaking is a process by which each community can develop place capital by bringing people together to figure out what competitive edge their community might have, and then working to capitalize on that edge and improve local economic prospects in-place, rather than trying to import opportunity from elsewhere. To really grow an economy, opportunity has to be developed organically within each community, and that requires that people dig in and improve their neighborhoods, together, for the sake of doing so.[310]

A classic example of placemaking is Granville Island, a tiny (38 acre) patch of waterfront in Vancouver, Canada. Granville Island features a public market, the Emily Carr College of Art and Design, a children's museum, a community theater, a community recreation center, local artists' studios and galleries, a cooking school, a hotel, boat repair and construction businesses, a cement plant (with a revolving cement truck painted like a strawberry), and many other unique and interesting places that appeal to both locals and visitors. The economic anchor is the Granville Island Market, which has 50 full time local vendors and 45 spaces for part time vendors. Granville Island is the most visited destination in British Columbia, about 3,000 people are employed on the Island, and it generates over $215 million in economic activity each year. The key is the collection of distinctive regional assets, not the marketing budget, which is only $25,000 per year.

Build Local Industry Clusters

Work by Michael Porter suggests that developing regional clusters of industries allows for communities to develop and concentrate on competitive advantages of like-minded businesses that can mutually

308 http://www.pps.org/reference/what_is_placemaking/
309 http://www.pps.org/reference/place-capital-the-shared-wealth-that-drives-thriving-communities/
310 http://www.pps.org/blog/opportunity-is-local-or-you-cant-buy-a-new-economy/

benefit from co-location.[311] In a similar vein, DBEDT's Rural Economic Development Report highlights the need to identify and exploit comparative advantage and recommends providing adequate infrastructure and support for industry clusters to accommodate limited opportunities to achieve economies of scale.[312] More specifically, the report suggests that grouping of interesting sites, activities, and events can only be accomplished on a regional basis through cooperation that creates a "power of clusters."[313]

The 2010 State of Hawai'i's Comprehensive Economic Development Strategy (CEDS) submitted to the EDA is cluster driven and identifies the following clusters for Hawai'i County – agriculture, visitor industry, science and technology, health and wellness, education, energy development, and housing and resort development. DBEDT's Rural Economic Development Report recommends another cluster area – the "creative enterprise" cluster, which connects local heritage, culture, arts, and entertainment.[314] Local nodes of nearly all of those industry clusters could be established and/or strengthened in Ka'ū.

As an example, the Central Appalachian Network (CAN) actively supported emerging regional clusters including processed food, building fixtures, business services, entertainment, and hospitality and tourism.[315] CAN focused on establishing specialized infrastructure (e.g., distribution systems and new market spaces such as showcases, farmers' markets, and storefronts), expertise, services, suppliers, and marketing.

General Cluster-Building Tools and Strategies

Enterprise Zone: The Enterprise Zone (EZ) Partnership[316] is a joint State-County-business effort intended to stimulate business activity, job preservation, and job creation in areas designated by the counties. Enterprise Zones are governed by HRS section 209E, HAR Chapter 6, title 15, and HCC Chapter 31. There are currently six EZs in Hawai'i County, including one established in 1994 that includes the populated areas of the CDP Planning Area.

An eligible business in an Enterprise Zone may qualify for GET, income tax, and unemployment tax reductions and County benefits for seven to ten years. Moreover, contractors that work at the EZ site of an EZ-enrolled firm are exempt from General Excise Tax on revenues from that contract. The State Department of Business, Economic Development, and Tourism have highlighted Hāmākua Heritage Mushrooms in Laupāhoehoe as a success story using Enterprise Zone programs/incentives to help expand their business.[317]

To enroll in the Enterprise Zone partnership, at least half of a firm's annual gross income in an EZ must be from one or more of the qualifying industry clusters, including agricultural production or processing; manufacturing; wholesaling/distribution; information technology design and production; for-profit training programs in environmental remediation; repair or maintenance of assisted technology equipment; certain types of call centers; or wind energy.

USDA Rural Jobs and Innovation Accelerator:[318] The Rural Jobs and Innovation Accelerator Challenge leverages $15 million in funding from four agencies and technical assistance resources from nine

311 Porter, Michael E. 2003. "The Economic Performance of Regions." Regional Studies, Volume 37.
312 SMS Research & Marketing Services, Inc. Rural Economic Development Report. October 2010.
313 ibid
314 ibid
315 Central Appalachian Network. 2006. "Strategies for Sustainable Entrepreneurship." http://www.cannetwork.org/roundtable/strategies.pdf
316 http://invest.hawaii.gov/business/ez
317 http://invest.hawaii.gov/category/success-stories
318 http://www.rurdev.usda.gov/RuralJobsAcceleratorAbout.html

additional agencies to strengthen high-potential industry clusters in selected rural regions across the nation. Funds can be used to support and accelerate projects related to housing, community facilities, or economic and community development as well as activities that strengthen regional linkages that connect communities with innovation clusters.

Agricultural Tools and Strategies

The Supply Side Challenge

The State's Increased Food Security and Food Self-Sufficiency Strategy identified three primary challenges to greater food self-sufficiency: supply, access and awareness, and policy.

Supply: As also noted in the discussion of Hāmākua's Agriculture Sector, a range of factors limit the supply of local food, including

- Affordable land and leases
- Affordable water
- Pest control
- High input costs, particularly for energy, fuel, and imported fertilizer, pesticides, and feed
- Labor availability and housing
- Lack of access to capital[319]
- Food safety regulations limiting access to markets
- Technical knowledge, business acumen, and entrepreneurial capacity, resulting in inconsistent volume and quality of products[320]
- Limited packaging, aggregation, and distribution systems connecting local food to local markets.[321]

Access and Awareness: In recent years, the demand for local food has grown dramatically. According to a recent study by USDA's Economic Research Service, local food sales through all marketing channels in the United States were estimated to be $4.8 billion in 2008 and were projected to climb to $7 billion in 2011.[322] Indicators of that increased demand are varied:[323]

- In a 2011 consumer survey, 86 percent of respondents called the presence of local foods "very important" or "somewhat important" to their choice of food store.
- In a 2011 survey of nearly 1,800 chefs, locally grown foods was picked as the top restaurant trend for 2012, which is the fourth year in a row as the top trend.

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319 Day-Farnsworth et al (2009), in Lerman, Tracy, Gail Feenstra, & David Visher. A Practitioner's Guide to Resources and Publications on Food Hubs and Values-Based Supply Chains: A Literature Review. Sustainable Agriculture Research and Education Program. Agricultural Sustainability Institute, University of California, Davis. April 15, 2012. http://www.sarep.ucdavis.edu/sfs/VBSC

320 ibid

321 Hardy & Holz-Clause (2008); Day-Farnsworth, McCown, Miller, & Pfeiffer (2009); Masi et al (2010); Slama, Nyquist, and Bucknum (2010); and Cheng & Seely (2011), in Lerman, Tracy, Gail Feenstra, & David Visher. A Practitioner's Guide to Resources and Publications on Food Hubs and Values-Based Supply Chains: A Literature Review. Sustainable Agriculture Research and Education Program. Agricultural Sustainability Institute, University of California, Davis. April 15, 2012. http://www.sarep.ucdavis.edu/sfs/VBSC

322 Barham, James, and Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April 2012. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5097957

323 ibid

- In January 2011, Bon Appetit Management Company, which runs more than 400 corporate and university cafes in 30 different States, reached its goal of contracting with 1,000 small farmers, fishers, and food artisans through its Farm to Fork program.
- The LOHAS (Lifestyles of Health and Sustainability) consumer market segment (estimated by the Natural Marketing Institute to be $300 billion annually and growing at 16% annually) is driving demand for local and healthy foods toward a critical tipping point where every retail outlet will feel it must have at least some products aimed at these buyers.[324]

Following the national trend, Hawai'i's demand for local food has also grown significantly. In December 2011, a detailed consumer survey of nearly 1,200 shoppers across O'ahu showed that an overwhelming majority believe buying local is very important.[325] Nearly 74% of consumers believe that it is very important that Hawai'i grow its own local foods, and 81% said too little food is grown in Hawai'i, according to the report.

A large percentage of local consumers are also willing to pay more for some local products. Some shoppers would be willing to pay up to $1.25 more per dozen of local eggs; $1.75 more per pound of local apple bananas; up to $1.69 more per pound of local tomatoes; and up to $2.13 more per pound of local rib-eye steak. The study suggests that a communication and branding strategy could increase demand even more.

While the number and variety of venues where consumers can obtain local food products have increased (e.g., farmers' markets and community supported agriculture), access to local food is still limited where most food is purchased. A majority of consumers on O'ahu buy their groceries predominantly from supermarkets, and it is a challenge for many smaller, local producers to provide the consistent quality and quantity required by retail grocers.

According to keypad surveys undertaken in March/April 2012 at the CDP Regional Workshops in Honoka'a and Pāpa'ikou, the community demonstrated their difficulties in satisfying their basic shopping needs within their own community. Thirty-eight percent (38%) of Honoka'a workshop participants responded that they do 'most of their shopping' in Hilo, whereas 22% of them do most of their shopping in Honoka'a, and 16% shop mainly in Waimea. This may relate to Hilo being a major employment and service center and may demonstrate the desire to combine shopping needs into fewer trips, along with the higher number of shopping choices in Hilo. Not surprisingly, 94% of Pāpa'ikou workshop participants do most of their shopping in nearby Hilo. Overall, respondents expressed a low threshold of willingness to pay higher prices for products that could be purchased within their neighborhood.[326]

Policy: Like many programs at the Federal level, initiatives designed to grow local food self-sufficiency are under close scrutiny. Likewise, during recent budget reductions in Hawai'i, essential support services were lost, like market analysis and invasive species inspectors. The State strategy document includes several recommendations for adapting State institutions, funding mechanisms, and research priorities to support local food production, processing, and distribution.

In sum, though steps should be taken to strengthen efforts to increase demand for local food, **the fundamental imbalance in the supply and demand equation is on the supply side**.

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324 French, S., & Rogers, G. Understanding the LOHAS consumer: The rise of ethical consumerism. LOHAS Journal, 11(1). Spring 2010. http://www.lohas.com/Lohas-Consumer.

325 OmniTrak Group Inc. Local Food Market Demand Study of O'ahu Shoppers. December 2011. Commissioned by the Ulupono Initiative.

Local Food Nodes, Hubs, and Districts

This supply-side imbalance in local food systems is a national phenomenon. To address the challenge, communities are examining and re-engineering their food supply chains. Progressively expanding in scale and scope, three basic levels of local food supply chains are worth considering:

- Nodes[327] -- single food-related businesses
- Food hubs[328] -- a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand
- Food innovation districts (FID)[329] -- many nodes connected to one another and/or linked to a food hub, forming a regional network that helps to bring all of the parts of the local food system together.

A hub and spoke model helps to illustrate the connections that can be made between food hubs and nodes and the connections of nodes within a food innovation district (see "**Figure 19: Food Nodes and Hubs**").

Food Hubs: Food hubs typically offer one or more of the following services:[330]

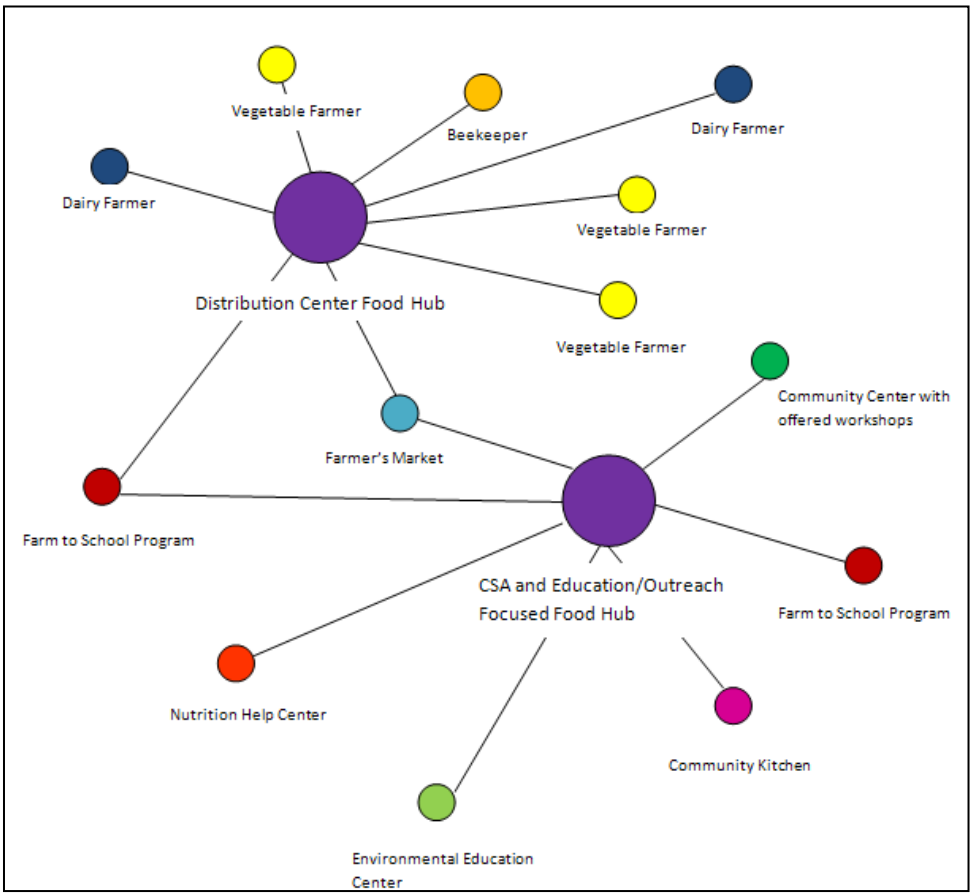
- Operational Services – distribution, aggregation, brokering, branding and market promotion, packaging and repacking, light processing (trimming, cutting, and freezing), product storage
- Producer Services – production planning, transportation and on-farm pick-up, production and post-harvest handling training, business management services and guidance, value-added product development, food safety and good agricultural practices training, liability insurance
- Community/Environmental Services – increasing community awareness of "buy local" benefits, distributing to nearby "food deserts," food bank donations, youth and community employment opportunities, SNAP redemption, health screenings and cooking demonstrations, transportation for consumers, recycling and composting programs.

Food hubs have also been established using a range of business models:

- Non-Profit Driven – Alba Organics (CA), Intervale Center (VT), Growers Collaborative (CA), Red Tomato (MA), Appalachian Sustainable Development (VA)
- Producer/Entrepreneur Driven – Grasshopper (KY), Good Natured Family Farms (KS), Tuscarora Organic Growers (PA), Eastern Carolina Organics (NC)

327 Dansby, Nicholas, Zane Grennell, Michelle Leppek, Sean McNaughton, Marion Phillips, Kirstie Sieloff, Claire Wilke. "Food Innovation Districts: A Land Use Tool for Communities Seeking to Create & Expand a Regional Food Industry." Michigan State University, April 2012.
328 Barham, James, and Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April 2012. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5097957
329 Blakely, E. J. & Bradshaw, T. K. (2002). Planning and Local Economic Development: Theory and Practice (3rd Edition). Thousand Oaks, CA: Sage Publications, Inc.
330 Barham, James, and Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April 2012. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5097957

Figure 19: Food Nodes and Hubs



- Retail Driven – La Montanita Food Coop (NM), Wedge's Coop Partners (MN)
- Consumer Driven – Oklahoma Food Coop, Nebraska Food Coop, and Iowa Food Coop
- Virtual – Ecotrust (OR), FarmsReach (CA), MarketMaker (multiple states).

Depending on local community character and the food hub goals, food hubs can seek to fill a variety of market niches:[331]

- Boutique/Ethnic/Artisanal – Often operates in one facility under single ownership, with a focus on artisanal, craft, and specialty food and beverage sales. Demonstrates strong and visible connections to local farmers and producers. May include a focus on particular ethnic and cultural foods.
- Consumer-Cooperative – Initiated by an association of consumers who purchase in wholesale quantities from local producers for packing and redistribution to individuals
- Destination – A large-scale facility or set of facilities where food-related retail businesses serve as a primary attraction for both local residents and tourists, and tourists make up a significant percentage of customers

331 Horst, M., Ringstrom, E., Tyman, S., Ward, K. M., Werner, V., & Born, B. (2011). "Toward a more expansive understanding of food hubs." Journal of Agriculture, Food Systems, and Community Development, 2(1), 209-225.

- Neighborhood-Based – Multiple contiguous city blocks with a high concentration of independent wholesale and retail food outlets. This district-style food hub provides access to diverse and healthy food options for local residents of varying income levels
- Rural Town – An entire rural town where relationships and strong connections between local food producers, processors, consumers foster a thriving local food economy. A high proportion of local residents are involved in promoting local alternatives to the global food system.
- Regional Aggregation – A centrally located facility with a business management system that coordinates the aggregation, storage, processing, distribution and/or marketing of locally or regionally produced food products
- Hybrid – A facility or set of facilities that integrates various kinds of activities described above, making it difficult to identify a specific type. Many existing food hubs function as hybrid food hubs.

A recent survey conducted by Michigan State University of over 100 food hubs across the country found that food hubs are:[332]

- Financially viable. Sixty-six percent of food hubs operate independently from outside funding sources.
- Contributing significantly to the growth of their local economies. The average food hub's sales in 2012 exceeded $3.7 million.
- Creating jobs. The average food hub houses 19 paid positions.
- Supporting regional producers. The average food hub worked with 80 producers (i.e., farms and ranches), the majority of which are small or midsized.
- Contributing to food access. Nearly half of all food hubs have operational commitments to equity, increasing food access and/or community development.

In addition to the sources already referenced, a large number of studies, reports, and plans are available to guide the development of new food hubs.[333]

Food Innovation Districts:[334] A food innovation district (FID) contains a diverse mix of food-oriented businesses and services, networked or connected to promote a positive environment for collaboration, spur regional economic growth, and increase access to healthy local food. The functions performed by the businesses within an FID may include but are not limited to aggregation, warehousing, shared processing, coordinated distribution, wholesale and retail sales, waste management or community engagement. An FID is more likely to benefit and continue to attract agri-food businesses if it either contains or has strong linkages to a "food hub," defined here as a single entity aggregating food products from the region.

Food hubs and FIDs have many overlapping attributes. The primary differences are that, while a food hub is a central location governed by a single entity that provides an agglomeration of nodes, a FID features explicit inter-business connections but lacks central governance (see "**Error! Reference source not found. Food Hubs and Food Innovation Districts** ").

332 http://foodsystems.msu.edu/activities/food-hub-survey

333 Barham, James, and Debra Tropp, Kathleen Enterline, Jeff Farbman, John Fisk, and Stacia Kiraly. Regional Food Hub Resource Guide. U.S. Dept. of Agriculture, Agricultural Marketing Service. Washington, DC. April 2012. http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5097957

334 Dansby, Nicholas, Zane Grennell, Michelle Leppek, Sean McNaughton, Marion Phillips, Kirstie Sieloff, Claire Wilke. "Food Innovation Districts: A Land Use Tool for Communities Seeking to Create & Expand a Regional Food Industry." Michigan State University, April 2012.

Blakely elaborates on clusters like food hubs and FIDs being used as part of distinct clustering strategies:[335]

- Specialized Infrastructure Strategies: By establishing "soft" resources of policy, such as finance and environmental regulations, "hard" infrastructure may be constructed for the completion of transport routes and destination attraction.
- Missing Link Strategies: Identifying gaps in supply and marketing linkages is a way for business leaders and policy makers to expand the strengths of a cluster or to salvage one that is threatened.
- Marketing Strategies: Clusters are most successful when they are well-known. If a cluster does not retain a market identity, it is less likely that it will expand.

Clustering Strategies and Examples

Pa'auilo Slaughterhouse Expansion: At the end of 2012, a $4 million project to increase capacity by 40 percent at the Pa'auilo slaughterhouse was launched. The slaughterhouse is leased to Hawai'i Beef Producers, which recently joined a trial by Parker Ranch and the Ulupono Initiative to study the development of a large-scale operation involving grass-fed beef.[336]

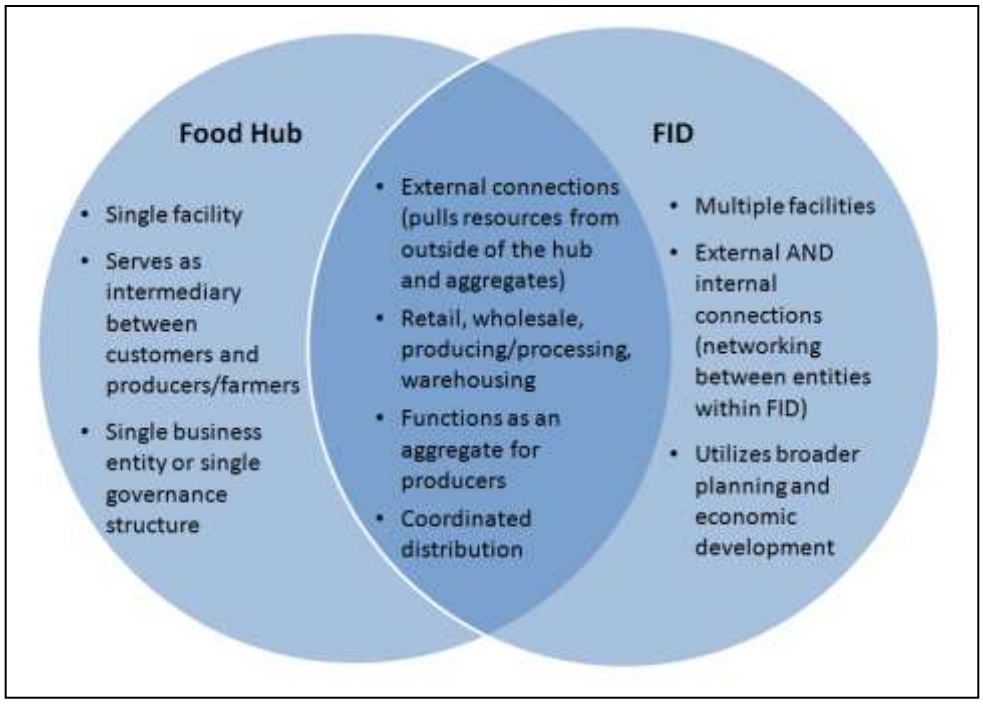
Food Hub Kohala:[337] FoodHubKohala.org was designed as an online "food hub" for North Kohala to organize resources and publicize events. It is the home of and maintained by the North Kohala Food Forum, the umbrella organization for the North Kohala Eat Locally Grown Campaign and Community Harvest Hawai'i initiatives.

These initiatives are part of a range of community-based strategies to achieve the North Kohala's CDP goal of being more self-reliant by having 50% of the food consumed in the community coming from local sources. Since its inception in 2009, the Food Forum, the Campaign, and Community Harvest Hawai'i have accomplished the following:

- Completed a community food system assessment
- Mapped North Kohala's food system[338]
- Developed a community-based strategic plan "Growing a Local Food System in North Kohala"[339]
- Launched FoodHubKohala.org
- Developed "My Eat Local Hawai'i Plate"[340]
- Compiled a North Kohala Know Your Farmer Directory[341]
- Created "Community Harvest Online," a place to share food, equipment and labor online[342]
- Provided public education through newspaper articles, Facebook, the website, and events like the "North Kohala Food Forum,"[343] "Think Local, Buy Local, Eat Local," and the "Kohala 'Āina Festival"

335 Blakely, E. J., (2002). In Bradshaw T. K. (Ed.). Planning local economic development : theory and practice (3rd ed. ed.). Thousand Oaks, California: Sage.
336 http://www.bizjournals.com/pacific/blog/morning_call/2012/10/work-to-expand-hawaii-slaughterhouse.html?ana=handmark
337 http://foodhubkohala.org/
338 http://foodhubkohala.org/wp-content/uploads/2012/11/KohalaFoodSystem_8.5x11_v5.pdf
339 http://foodhubkohala.org/wp-content/uploads/2012/11/NK_Plan_ONLINE_FINAL.pdf
340 http://foodhubkohala.org/2012/11/25/eat-local-hawaii-plate/
341 http://foodhubkohala.org/2012/11/25/kohala-eat-local-directory/
342 http://foodhubkohala.org/community%20harvest%20online/
343 http://foodhubkohala.org/wp-content/uploads/2012/11/North-Kohala-Food-Forum-Data-Book-and-Proceedings.pdf

Figure 20. Food Hubs and Food Innovation Districts



- Hosted senior luncheons and school snacks featuring local foods
- Sponsored farm-to-fork tours
- Sponsored workshops on value-added products, food preservation, soil health, and gardening
- Hosted seed and plant exchanges
- Sponsored monthly harvesting, processing and distribution of excess food through Community Harvest Hawai'i events
- Hosted film viewings and discussions.

The Center for an Agricultural Economy:[344] Hardwick, a town of 3,000 in rural Vermont, was facing high unemployment and low median incomes. By returning to its historic roots farming and food production, the town has reversed that trend – creating a vibrant local food system that has created 100 jobs, higher wages, and a sense of community. This revitalization has been driven by a network of "agri-preneurs" that shares advice, capital, and facilities.[345] That network is actively supported by the Center for an Agricultural Economy, which sponsors a community garden, learning tours, food system research, the Vermont Farm Fund, and the Vermont Food Venture Center.

Community and School Gardens: In addition to serving as sources of fresh food, school and community gardens have great potential to strengthen the sense that Hāmākua is an agriculture community by developing local food production awareness, knowledge, and skills across generations.

ChangeLab Solutions provides community-based solutions for America's most common and preventable diseases. Its website includes model policies, how-to guides, fact sheets, and other policy tools. One of

344 http://www.hardwickagriculture.org/
345 http://www.slowfoodusa.org/index.php/slow_food/blog_post/hardwick_vt_the_town_that_food_saved/; http://www.npr.org/2011/07/15/137499585/vermont-towns-food-focus-still-a-growing-concept

its program areas is "Healthy Planning," which includes several tools for creating healthier food environments, like "Ground Rules: A Legal Toolkit for Community Gardens."[346]

The Hawai'i Island School Garden Network (HISGN)[347] helps island schools build gardening and agricultural programs that contribute to the increased consumption of locally produced food by involving students, their school communities, and their family networks in food production. Currently, HISGN works with over 60 public, charter, and private schools in assisting Garden Leaders, as well as school faculty and administration, in the creation and implementation of gardening and agricultural programs. The Network also works on identification of funding opportunities and local agricultural resources, volunteer development, curriculum development, and professional development for Garden Leaders.

Renewable Energy Tools and Strategies

Utility Cooperatives: There are more than 900 utility cooperatives nationwide – roughly three quarters of the United States' landmass is powered by electric cooperatives, serving an estimated 42 million people in 47 states and 18.5 million businesses, homes, schools, churches, farms, and other establishments. They currently employ over 70,000 people.[348]

In Hawai'i, the Kaua'i Island Utility Cooperative (KIUC) is a not-for-profit generation, transmission, and distribution cooperative that is owned and controlled by its more than 23,000 member-owners. Since its establishment KIUC has returned almost $17 million to its members as patronage capital refunds. KIUC employs 160 people.[349]

Community Power Network: The Community Power Network (CPN)[350] is a network of grass roots, local, state, and national organizations working to build and promote locally based renewable energy projects and policies. CPN:

- Helps people start their own community-based renewable energy projects by providing resources, technical assistance, case studies, and connections to other practitioners;
- Helps local groups influence policy and build power by providing support for strategic planning, fundraising, list building, petitions, and other tools; and
- Creates a network for existing community groups to connect, collaborate, and grow.

Among its resources, CPN has identified a range of approaches to community-based renewable energy projects, including:

- Group Buying Programs, where a group of homeowners, schools, municipal buildings or other groups purchase or lease clean energy systems together. For example, solar buying cooperatives have sprung up across the country, as neighbors interested in going solar join together to share in the pre-purchase research and negotiate group discounts. Examples include Solarize Portland,[351] DC Solar United Neighborhoods,[352] and Iowa Solar Energy Cooperative.[353]

346 http://changelabsolutions.org/publications/ground-rules
347 http://www.kohalacenter.org/HISGN/home.html
348 http://www.nreca.coop/programs/CRN/Pages/default.aspx; http://www.ncba.coop/ncba/about-co-ops/co-op-sectors/151-utility
349 http://website.kiuc.coop/content/about-us-0
350 http://communitypowernetwork.com/
351 http://www.portlandoregon.gov/bps/article/405686
352 https://sites.google.com/site/dcsolarunitedneighborhoods/
353 http://www.iowasolarcoop.com/index.html

- Community Ownership, where members of a community get together to finance, own, or operate a clean energy system.
- Community Funding, where projects are privately owned clean energy systems that are partially financed by selling shares or bonds to community members. The projects are owned and operated by a third party but are designed to either create a dividend for investors or to be a product of community philanthropy. These projects can take advantage of corporate tax incentives and make these incentives available to non-profits or individuals.
- Community Energy Garden, where individuals own a piece of a larger, privately developed clean energy system, and their share of the production is credited on their electricity bill. The Community Energy Garden model has potential for scaling and allowing broad participation in the market because individuals can purchase a share in an energy system without having to build and maintain a clean energy system on their property.

For each approach, CPN provides examples and/or resources designed to help similar initiatives get started.

CPN also provides resources that guide people through the process of engaging neighbors, fundraising, developing a project, and communicating with the broader community.

Community Solar Guide: The National Renewable Energy Lab also published a Community Solar Guide for those who want to develop community solar projects.[354] It compares various community solar models, introduces tax policies and incentives, explains securities compliance, and provides tips for getting started.

North Kohala's Power Cube: Several North Kohala farmers are benefiting from a distributed, off-grid water pumping system powered by wind and solar. Known as the Power Cube project, this $1.72 million demonstration system became fully operational in 2013 and is capable of pumping more than 33 million gallons of water annually, irrigating land for 14 farmers.

Housed in a 20-foot container, the Power Cube is a mobile, scalable, and efficient low cost alternative to the complex irrigation systems commonly found in Hawai'i. Typically, agricultural operations in Hawai'i require a complex series of irrigation systems, expensive transmission and distribution lines, and pumps that consume lots of fossil fuel-based electrical energy. These pump system are also powered at great cost by diesel generators or require the construction of expensive transmission and distribution lines.

The Power Cube is a microgrid, which is basically a miniature version of a larger utility grid, that connects renewable energy sources, such as wind and solar, to an electrical load like a pump or refrigeration units. The microgrid has a lithium titanate battery bank, inverters, variable speed drive, and reserve storage tanks. If wanted, the microgrid could connect to HELCO's grid or utilize bio-diesel power.

Power Cube is a Hawai'i limited liability company with two members — Gen-X and Kohala Makani Wai LLC. Gen-X is a privately-owned, Maui-based renewable technology firm that was responsible for the project and its construction management. Kohala Makani Wai is the landowner. The system was funded by these members with help from a grant from the U.S. Department of Energy, which paid for half of the project costs.[355]

Paniolo Power:[356] During 2013, Parker Ranch embarked on a comprehensive integrated resource planning effort to explore the possibility of reducing the cost of electricity for the Waimea

354 http://www.nrel.gov/docs/fy11osti/49930.pdf
355 Lucas-Zenk, Carolyn. West Hawai'i Today. April 29, 2013.
356 http://www.paniolopower.com

community.Parker Ranch lands are endowed with significant potential energy resources. These resources include wind, solar, biomass and, possibly, geothermal. Parker Ranch commenced a utility-grade resource planning effort to explore whether a compelling alternative strategy could be both economically and technically feasible. The management team prioritized the study of whether a "community micro grid" could benefit the residents and businesses of Waimea – the hometown of Parker Ranch. At present, the efforts continue in the research phase.

National Sustainable Agriculture Information Service:[357] This Service, which is part of the National Center for Appropriate Technology, provides a comprehensive list of resources for farm energy alternatives, including biodiesel, wind energy, solar energy, hydro power, and anaerobic digesters. It also includes resources for energy coops, local ownership, and funding opportunities.

USDA High Energy Cost Grant Program:[358] This grant may be used for the acquisition, construction, installation, repair, replacement, or improvement of energy generation, transmission, or distribution facilities in communities with extremely high energy costs. On-grid and off-grid renewable energy projects, energy efficiency, and energy conservation projects are eligible.

Payment for Ecosystem Services (PES) Tools and Strategies

Various structures have been developed to support the emerging PES market:

Forest Trends:[359] Forest Trends is an international non-profit organization that creates and captures market values for ecosystem services; supports innovative projects and companies that are developing these markets; and enhances the livelihoods of local communities living in and around those ecosystems. Through its Ecosystem Marketplace,[360] Forest Trends provides information on policy, finance, regulation, science, business, and other market-relevant factors related to ecosystem services as well as support, trainings, webinars and examples of ecosystem services working throughout the world. The Marketplace identifies buyers of carbon, water, and biodiversity credits, and its Community Portal helps communities engage in environmental markets and transactions.[361]

USDA Office of Environmental Markets (OEM):[362] OEM was created to catalyze the development of markets for ecosystem services. The office, formerly called the Office of Ecosystem Services and Markets, was established in December 2008 to provide administrative and technical assistance to the Secretary of Agriculture in implementing Section 2709 of the Farm Bill. That Section calls for the USDA to establish technical guidelines that measure the environmental services benefits from conservation and land management activities, to be used in the development of measurement and reporting protocols and registries.

Ecoagriculture Partners:[363] The organization's Research Program develops and communicates ecoagriculture practices and approaches, focusing on how rural communities can manage their resources to enhance their livelihoods, conserve or enhance biodiversity and ecosystem services, and develop more sustainable and productive agricultural systems. The organization looks at specific ecoagriculture practices and outcomes as well as research, and market-based strategies to support

357 https://attra.ncat.org/attra-pub/farm_energy/
358 http://www.rurdev.usda.gov/UEP_Our_grant_programs.html
359 http://www.forest-trends.org/
360 http://www.ecosystemmarketplace.com/
361 http://community.ecosystemmarketplace.com/
362 http://www.fs.fed.us/ecosystemservices/OEM/index.shtml
363 http://www.ecoagriculture.org/

ecoagriculture and broader related learning. In December 2011, Ecoagriculture Partners devoted a newsletter to Payments for Ecosystem Services in Agricultural Landscapes.[364]

The Willamette Partnership:[365] This Partnership includes a diverse coalition of conservation, city, business, farm, and science leaders in the Willamette Valley who are exploring integrated and strategic investment in ecosystems, a fair and transparent system for a an ecosystem credit market, and business models that shift from compliance-based projects to true ecosystem stewardship. The Partnership's findings indicate that a market-based approach to conservation involves more participants from different sectors and thus deliver broader benefits, both financially and ecologically.

World Resources Institute:[366] WRI developed the Corporate Ecosystem Services Review (ESR), which is a structured methodology for corporate managers to proactively develop strategies for managing business risks and opportunities arising from their company's dependence and impact on ecosystems.

Visitor Industry Tools and Strategies

In *The Abundant Community: Awakening the Power of Families & Neighborhoods,* John McKnight and Peter Block describe the foundations for weaving the strong social fabric that makes up abundant and competent communities:

- Gift-Mindedness – a focus on the gifts that each member of a community possesses which serve as the raw material for community
- Associational Life – relationships, the process through which these gifts are exchanged to build community
- Hospitality – the process that widens the inventory of a community's gifts for community development.

One aspect of hospitality – welcoming strangers – is a common theme in many of the *moʻolelo* of Hawaiian chiefs that would visit faraway lands and return with wives, gods, and *manaʻo* (wisdom). The literature points to travel within the Hawaiian archipelago as being a common occurrence, with the two main motivators being warfare and connection building. Warfare in the *wā kahiko* (the ancient past) was not as common an occurrence as many western historians make it out to be. It was a far more common occurrence for *aliʻi* to travel for the sake of pleasure.

As with all things in the *wā kahiko,* however, there was a protocol to this type of traveling. First of all, a visitor needed to have a connection with the wahi (place) that you were visiting. If a visitor is a *malihini* (stranger) to a particular *ʻāina*, failure to announce one's self and the intent of the visit often led to open hostility. Visits to distant friends and family, on the other hand, were cause for large celebrations – feasts were held, *mele* were composed, games were played, and other culturally sanctioned ceremonial forms of affection were displayed. Beyond the celebration, deeper connections and diplomatic links were being established and re-established. Often the chiefs that celebrated together went to war together and/or provided resources to each other in times of need.[367]

This welcoming relationship of reciprocity between place, host, and visitor provides a potential framework for creating visitor experiences that preserve and build upon the natural, historical, and cultural assets that define the communities in the Planning Area. For example, rather than passively allow the tourism industry and outside developers to define and control the visitor experience in Hāmākua, the community could embrace Hawaiian traditions and proactively establish local

364 http://www.ecoagriculture.org/documents/newsletters/agriculture_pes.php?newsletterID=87
365 http://willamettepartnership.org/
366 http://www.wri.org/project/ecosystem-services-review
367 Enos, Kamuela J. N. May 2010. Towards an ʻĀina Based Sustainability Model: Notes From the Frontline. University of Hawaiʻi at Mānoa, AOC submitted to Department of Urban & Regional Planning.

opportunities and protocols for sharing Hāmākua's rich resources with visitors. Other communities have had success with this approach, to the point where three distinct "sharing clusters" can be defined.

Sharing of Place

Sharing of place focuses on a place's unique geography. Many communities have successfully enlisted visitors in celebrating and enhancing local features that can't be found anywhere else – and successfully built clusters of economic opportunity around those visitors.

Geotourism: Geotourism is tourism that sustains or enhances the geographical character of a place. Geotourism incorporates the concept of sustainable tourism – that destinations should remain unspoiled for future generations, while allowing for ways to protect a place's character. Geotourism also takes a principle from its ecotourism cousin – that tourism revenue should promote conservation – and extends it to all distinctive assets of a place.[368]

The National Geographic Society and the National Park Service have been some of the largest proponents of geotourism. The National Geographic Society's Center for Sustainable Destinations has partnered with seventeen communities to create geotourism MapGuides – community-managed web sites that serve as the portal for visitors interested in more authentic, place-based experiences.[369] The Central Cascades, the Yellowstone/Glacier/Banff area, Yosemite, the Four Corners region, and Vermont's Northeast Kingdom are examples of communities that have shared their assets by creating a geotourism cluster of visitor experiences.

Ecotourism: Hawai'i has a statewide ecotourism network supported by the Hawai'i Ecotourism Association (HEA).[370] The HEA offers Ecotour Certifications, which requires a sustainability plan and contributions to conservation outcomes and local communities. The HEA also honors the best ecotourism operators each year.

In 2013, the Ecotour Operator of the Year award went to Hawai'i Island's Philip Ong of Volcano Discovery Tours, and the Ecotour Guide of the Year award went to Arthur Weizchos of Volcano Discovery Tours.[371] Volcano Discovery Tours features volcano, Puna coastline, geology, and waterfall tours.

Hawai'i Island is home to several other ecotour operators, including:

- **Hawai'i Forest & Trail**:[372] Hawai'i Forest and Trail offers volcano, waterfall, Mauna Kea, bird watching, zipline, and custom tours. Among its many awards, Hawai'i Forest & Trail has received the Hawai'i Ecotourism Association's 2006 Ecotour Operator of the Year award and the Hawai'i Tourism Authority's "Keep It Hawai'i" award. Hawai'i Forest & Trail is launching a community program called ***E Hoomalauo***, which translated means "Conserve our Natural Resources." Through the program, Hawai'i Forest & Trail will partner with island nonprofits aligned with the company's mission of conservation and education and values via fundraising, tours, volunteer workdays or other means that would best benefit the nonprofit. Hawai'i Forest and Trail employs 77 people.[373]
- **Native Guide Hawai'i**:[374] Native Guide Hawai'i is a Native Hawaiian owned and operated tour company run by a former natural and cultural resource manager and teacher. He offers volcano,

368 http://travel.nationalgeographic.com/travel/sustainable/about_geotourism.html
369 http://www.csdimpact.org/impact_map.html
370 Hawaiiecotourism.org
371 http://hawaii.volcanodiscovery.com/
372 http://www.hawaii-forest.com/
373 Jensen, Chelsea. "Hawai'i Forest and Trail." Hawai'i Tribune Herald. May 13, 2013.
374 http://www.nativeguidehawaii.com/

Hāmākua, bird watching, and Puna coastal adventures. According to the company's website, "At Native Guide Hawaii you are not a tourist – you are a *participant*."

'Iole:[375] Located in Kohala, 'Iole is dedicated to the sustainable stewardship of 2,400 acres owned by New Moon foundation surrounding *'Iole ahupua'a* that includes the 54 acre National and State registered Historic Bond District, made up of the Bond Homestead, Kalahikiola Congregational Church, and the Kohala Girls School. Through its Exhibit Center, guided tours, and partnerships and programs, 'Iole offers opportunities to be immersed in the rich natural and cultural history of Kohala, including hiking, workshops, agricultural programs, and research projects.

Sharing of Culture

Sharing of culture focuses on a place's unique stories. Clusters of economy opportunity can be built around heritage tourism, living history tourism, and community-based tourism.

Heritage Tourism: The National Trust for Historic Preservation[376] defines cultural heritage tourism as traveling to experience the places, artifacts, and activities that authentically represent the stories and people of the past and present. It includes cultural and historic resources as well as their connections to natural resources.

Heritage tourism can be an attractive economic revitalization strategy as studies show that heritage travelers stay longer and spend more money than other kinds of travelers. As an added bonus, a good heritage tourism program improves the quality of life for residents as well as serving visitors.

The National Trust has developed five guiding principles for successful and sustainable heritage tourism development:

- Collaborate: Successful cultural heritage tourism programs bring together partners who may not have worked together in the past.
- Preserve and Protect: A community's cultural, historic, and natural resources are valuable and often irreplaceable.
- Find the Fit: Balancing the needs of residents and visitors is important to ensure that cultural heritage tourism benefits everyone.
- Focus on Quality and Authenticity: Quality is an essential ingredient for all cultural heritage tourism, and authenticity is critical whenever heritage or history is involved.
- Make Sites and Programs Come Alive: To attract visitors, you must be sure that the destination is worth the drive. The human drama of history is what visitors want to discover, not just names and dates.

The National Trust supports communities that want to develop heritage tourism with a toolkit, community assessments, and workshops. A variety of other resources are available through the Cultural Heritage Tourism web site[377] as well as the Advisory Council on Historic Preservation's heritage tourism site.[378]

Living History: Living history is an activity that incorporates historical tools, activities, and dress into an interactive presentation that seeks to give observers and participants a sense of stepping back in time. Although it does not necessarily seek to reenact a specific event in history, living history is similar to, and sometimes incorporates, historical reenactment. Living history is an educational medium used by living

375 http://www.iolehawaii.com/
376 http://www.preservationnation.org/information-center/economics-of-revitalization/heritage-tourism/
377 http://www.culturalheritagetourism.org/
378 http://www.achp.gov/heritagetourism.html

history museums, historic sites, heritage interpreters, schools, and historical reenactment groups to educate the public in particular areas of history, such as clothing styles, pastimes, and handicrafts, or to simply convey a sense of the everyday life of a certain period in history.[379]

The Kona Coffee Living History Farm is a 5.5 acre historic coffee farm that was first homesteaded in 1900 and is the only living history coffee farm in the nation.[380] It brings the coffee pioneer's story to life by depicting the daily lives of early Japanese immigrants during the period of 1920-1945. Visitors may walk through the coffee and macadamia nut orchards, tour the historic farmhouse, talk story with the interpreters and visit with the donkey and chickens. A "living history" program tells their story through the use of historic buildings, artifacts, and authentic landscapes.

The National Park Service hosts many living history programs at parks across the United States. Hawai'i Volcanoes National Park has begun offering a regular "A Walk into the Past" living history program that brings Hawaiian Volcano Observatory founder Thomas Jagger to life.

The Association of Living History, Farm, and Agricultural Museums serves those involved in living historical farms, agricultural museums and outdoor museums of history and folklife.[381] Services provided to members include publications, conferences, specialized instructional programs, electronic media, including a website and listserv, and support for regional affiliates. ALHFAM services assist members in fulfilling their professional responsibilities and improving the quality of their public offerings.

Community-Based Tourism: Community-based tourism puts the community at the center of local tourism. It can take many forms. Examples in Hawai'i include:

- **Pacific Worlds**[382] is a website for cultural preservation and the perpetuation of indigenous traditions in the Pacific. The site holds a comprehensive collection of indigenous community profiles in the Pacific, following a template of eight content themes. In addition, it is also an indigenous-geography education project serving Hawai'i-Pacific Schools, providing a curriculum with exercises for teaching geography from indigenous Pacific island perspectives. One of the sites featured is Kawaihae, where local guides offer tours.
- **Ka Welina Network**:[383] The Hawai'i-based Ka Welina Network was established to share Native Hawaiian culture and traditions with visitors through a community-based host-visitor model. The Ka Welina Network departs from the dominant Hawai'i tourism model by focusing not on growth, corporate profits, and staged tourism experiences – but instead on Native Hawaiian communities and their own values, goals, and objectives. Participating communities choose to share their culture with visitors as part of a model for sustainability, and the protocols of each visit are guided by cultural values that are relevant to the hosts' respective communities. Members of the Network include Ka 'Ohana O Hōnaunau.[384]
- **Ha'ena Waipa**[385] is working towards restoring an ahupua'a and offers opportunities for visitors to learn, help with restoration efforts, and work in the taro fields. Ha'ena Waipa began in 1982 when a group of Hawaiian kūpuna from the Halele'a communities along with their 'ohana organized to preserve Waipa, which was slated for development of high-end agricultural estates by Kamehameha

379 http://en.wikipedia.org/wiki/Living_history
380 http://www.konahistorical.org/index.php/tours/kona-coffee-living-history-farm/
381 http://www.alhfam.org/
382 http://www.pacificworlds.com/
383 http://www.kawelina.net/
384 http://honaunau.org/
385 http://waipafoundation.org/visit/

Schools. Their mission was to "restore the ahupua'a of Waipa as a Native Hawaiian community center and learning center, a sustainable, culturally and community-based model for land use and management." The landowner, Kamehameha schools, is a partner and supporter of the Waipa Foundation through their 'Āina Ulu program.[386]

- **Kipahulu 'Ohana**[387] operates its exclusive programs through a cooperative agreement with Haleakala National Park. Kipahulu 'Ohana is a 501(c)(3) nonprofit organization, and all proceeds from their interpretive tours directly support cultural and environmental restoration projects.

Other examples of community-based tourism from around the world include:

- **National Park of American Samoa** sponsors a home-stay program that allows visitors to experience life in the local villages. It supports local families and provides a different experience for visitors and allows them to learn about Samoan Village life as well as the relationship between the village, stewardship, and the park.[388]
- **Australian Indigenous Tours**: In Australia, a tourism initiative is organized so that it is economically beneficial for local people while being culturally sensitive and engendering respect between tourists and hosts. Teaming up with tourist boards throughout Australia, indigenous experiences are offered through local guides and hosts to provide an understanding of their culture, traditions, and spiritual customs.[389]
- **Tamaki Maori Village**:[390] Tamaki Maori Village in Rotorua, New Zealand was developed as a tourism destination in collaboration with indigenous local tribes (Iwi and Marae) to preserve traditional cultures and to deliver an "authentic, spiritualized Maori cultural experience."

Sharing of Work

Sharing of work concentrates on "lived space," involving visitors in the day-to-day work and activities of community residents and includes clusters like agritourism and service tourism.

Agritourism: Agriculture visitor experiences include a range of activities, including but not limited to farm visits; retail sales of locally-grown produce; entertainment; recreation (e.g., hunting, fishing); longer-term farm stays; bicycle, walking and automobile tours throughout a farming region; farm-related bed and breakfast accommodations; restaurants serving regional cuisine; agricultural fairs and festivals; farmers' markets; and living history farms. Agritourism provides opportunity to increase farm income and diversify product lines, while simultaneously educating the nonfarm public about farming.

Both the State and the County have passed legislation to enable and encourage agritourism. Pursuant HRS sections 205-2, 4.5, and 5, agricultural tourism that is accessory to agricultural uses is permitted in the State agricultural district, though counties have the discretion to require an environmental assessment for any proposed agricultural tourism project. Hawai'i County Code section 25-4-15 regulates agricultural tourism.

Examples of agritourism on Hawai'i Island include the Hawaiian Vanilla Company[391] in Hāmākua, Macadamia Meadows Farm Bed and Breakfast[392] in Wai'ōhinu, Mountain Thunder Coffee Plantation[393]

386 http://www.ksbe.edu/cei/index_dev.php/site/programs/grades_k-4/aina_ulu
387 http://www.kipahulu.org/hike.php
388 http://www.nps.gov/npsa/historyculture/homestay-hosts.htm
389 http://www.embraceaustralia.com/australian-indigenous-tours-6026.htm
390 http://www.maoriculture.co.nz/rotoruawelcome
391 http://www.hawaiianvanilla.com/
392 http://www.macadamiameadows.com/
393 http://mountainthunder.com/

in Kona, and Akatsuka Orchid Gardens[394] in Puna. Ali'i Kula Lavender Farm[395] on Maui is a multigenerational, family-owned, native Hawaiian agritourism business that attracts more than 150,000 visitors a year. Other regions have highly-developed agritourism networks. For example, the Farm to Farm[396] program in New Zealand allows visitors to plan their trip and visit several different farms.

Over ten years ago, a web site was created to highlight agricultural tourism opportunities on Hawai'i Island.[397] Though still online, it is unclear whether its listings are kept up-to-date.

The Hawai'i Agritourism Association (HATA)[398] provides education and training, develops agricultural tours, provides marketing outlets, and advocates on behalf of Hawai'i's agritourism industry.

Service Tourism or VolunTourism: Service Tourism or VolunTourism provides visitors with volunteer opportunities to engage with the place, culture, and people of an area.

VolunTourism.org offers a listing of trips offered around the world and resources for travel planners, host communities, nonprofits, tour operators, and educators.

Habitat for Humanity has a well-developed volunteer program called Global Village.[399] Teams of volunteers build decent, affordable shelter, working alongside members of the host community.

Kalani Honua, Inc., in lower Puna has an active *VolunTourism* program.[400] Volunteers contribute four work shifts per week in one of four departments – kitchen, housekeeping, maintenance, and horticulture. They also pay a modest tuition to cover part of the accommodations, meals, classes, excursions, pool/spa, and the use of the 120-acre site.

World Wide Opportunities on Organic Farms (WWOOF)[401] is an educational organic farming and cultural exchange program that allows participants to gain practical sustainable agriculture experience while meeting and forming relationships with people around the world. WWOOFers are linked with more than 240 host farms in Hawai`i where they help with farm work for four to six hours a day, generally for five days a week, in return for room and board and organic farming education.

Visitor Industry Resources for Communities in Hawai'i

Hawai'i Tourism Authority (HTA):[402] The HTA is the state's lead agency and advocate for Hawai'i's tourism industry. Its mission is to strategically manage tourism in a sustainable manner consistent with economic goals, cultural values, preservation of natural resources, community desires and visitor industry needs. HTA is guided by the statewide tourism strategic plan and focuses on market research, global marketing, tourism data analysis, and programs that help communities provide an experience that is unique and enriching while valuing and perpetuating Hawai'i's natural and cultural resources and honoring its people and heritage.

Program areas include: Hawaiian Culture, Signature Events, Arts & Culture, Natural Resources, Workforce, and Sports. HTA also offers grants and a tool kit to support business planning, marketing,

394 http://www.akatsukaorchid.com/store/pg/35-Garden-Showroom.aspx
395 http://www.aklmaui.com/ & http://tedxmaui.com/2012/04/09/lani-medina-weigert-pomai-weigert-lessons-of-sustainable-aloha/
396 http://www.farmtofarm.co.nz/home
397 http://www.hawaiiagtourism.com/
398 http://www.hiagtourism.org/
399 http://www.habitat.org/gv/
400 http://www.kalani.com/volunteer
401 http://www.wwoofhawaii.org/node/19
402 www.hawaiitourismauthority.org

and event planning. HTA's marketing is targeted to specific regions, including North America, Japan, Asia, Oceania, Europe, Latin America, and business marketing.

Hawai'i Visitor and Convention Bureau (HVCB):[403] The HVCB is the North American marketing arm of the HTA. HTA differentiates brands for each island. The Hawai'i Island brand focuses on adventure, ecotourism, relaxation, romance, culture, family fun, golf, weddings, honeymoons, and the "unexpected." HTA highlights the following activities related to opportunities in Ka'ū: natural wonders, parks, petroglyphs, heritage sites, historic places, hula, hiking, horseback riding, marine life, fishing, agricultural tourism, coffee plantations, paniolo, farmers' markets, regional cuisine, live music, festivals, and art galleries.

Big Island Visitors Bureau (BIVB): The BIVB is a chapter of the HVCB. Many small businesses are BIVB members and are promoted through BIVB's consumer websites. BIVB produces publications and works closely with its advertising and public relations agencies to secure the most comprehensive coverage, including community festivals, museums, local attractions, etc.[404]

Hawai'i County Department of Research and Development: The Department of Research and Development's Tourism Program is directed by the by Hawai'i Island Tourism Strategic Plan 2006-2015, which was created by a wide variety of industry stakeholders, government agencies, and members of the community.[405] The Tourism Program supports cooperative marketing programs, community festivals and sporting events, visitor arrival and departure experiences as well as new tourism products through two annual requests for proposals (RFPs). The R&D Supplemental RFP includes funding support for visitor promotions and marketing along with arrival and departure experiences. The Hawai'i Tourism Authority's County Product Enrichment Program (HTA CPEP) provides support for community festivals and sporting events as well as new visitor products.

Retail Tools and Strategies

Plug the Leaks: A "plug the leaks" (PLT) strategy can be used to identify sectors where money currently flows out of the community and entrepreneurial opportunities exist to redirect that flow as re-investment in the local economy. The principle behind this approach is that people who live and work in a place, and others who care about its future, are best positioned to find enterprising solutions, implement them, and reap the rewards.[406]

A number of studies have demonstrated that locally-owned stores generate much greater economic benefits than national chains. Specifically, when compared to large chain stores, local businesses create more jobs, pay higher wages, support a greater variety of other local businesses, generate more tax revenue, cost less in public facilities and services, cause less traffic, and make more charitable and other investments in community.[407]

A significant local economic premium or "multiplier" has also been repeatedly demonstrated. The multiplier effect is the boost to a local economy that results from locally-owned independent businesses, owners, and employees spending business revenue within the region. Total economic impact is determined by measuring three components – the direct, indirect, and induced impacts. Direct impact is spending done by a business in the local economy to operate the business, including inventory, utilities, equipment, and pay to employees. Indirect impact refers to the conventional multiplier that happens as dollars the local business spends at other area businesses re-circulate.

403 www.hvcb.org is the internal communications site; www.gohawaii.com is the primary visitor marketing site
404 http://media.gohawaii.com/big-island
405 http://www.hawaiicounty.gov/rd-tourism
406 http://pluggingtheleaks.org/about/index.htm
407 http://www.ilsr.org/key-studies-walmart-and-bigbox-retail/

Induced impact refers to the additional consumer spending that happens as employees, business owners, and others spend their income in the local economy.[408]

Averaged across the 10 communities in the retail studies, spending at independent retailers generates 3.7 times more direct local economic benefit than spending at chains, and spending at local restaurants generates 2.15 the benefit. In other words, 48% and 65% of local retail and restaurant revenue is recirculated locally, versus only 14% and 36% for national chains, respectively.[409]

Consumers also appear to be more satisfied with independent stores. Consumer Reports reported independent appliance retailers beat chain stores in overall satisfaction. Likewise, independent pharmacies beat chain drug stores.[410]

There also seems to be a correlation between the prevalence of locally-owned enterprises and community health. Researchers from Louisiana State and Baylor Universities found that counties and parishes with a greater concentration of small, locally-owned businesses have healthier populations with lower rates of mortality, obesity, and diabetes than do those that rely on large companies with "absentee" owners.[411]

"Buy Local" Campaigns: Plug the leaks strategies are often coupled with "buy local" campaigns. Buy local campaigns are typically supported by independent business alliances (IBAs), which are coalitions of local businesses, non-profits, and concerned citizens uniting to support local entrepreneurs and prevent the loss of community-rooted businesses. 412 IBAs work to build vital local economies based on independent, locally-owned businesses and help local entrepreneurs with initiatives like group purchasing, joint marketing, public education, and political advocacy.

The Independent Business Survey[413] conducted by the Institute for Local Self-Reliance (ILSR) consistently demonstrates that businesses located in communities with active "buy local" and/or "local first" campaigns experience markedly stronger revenue growth compared to those in areas without such initiatives.[414] And the payoffs seem significant in some sectors – the 2011 "localism index" published by the ILSR documented growth in small farms, farmers' markets, specialty food stores, and independent pharmacies, bookstores, and coffee shops.[415]

The American Independent Business Alliance (AMIBA) [416] provides training and support to build a successful local campaign; it is also authorized by the IRS to grant 501c6 status (tax-exempt business league) to AMIBA affiliates within the U.S.,[417] saving time and money for local groups.

The Business Alliance of Local Living Economies (BALLE) [418] also supports efforts to grow local economies. BALLE focuses on

- Increasing demand for locally owned, made and grown businesses, goods and services
- Sharing lessons learned among entrepreneurs who look for opportunities to make, grow and serve their own community

408 http://www.amiba.net/resources/multiplier-effect
409 http://www.amiba.net/resources/studies-recommended-reading/local-premium
410 http://www.amiba.net/news/2011/june-news; http://www.amiba.net/index.php?id=218
411 http://www.sciencedaily.com/releases/2012/02/120202201511.htm
412 http://www.amiba.net/about_ibas
413 http://www.ilsr.org/surveys/
414 http://www.amiba.net/assets/files/pdfs/indies-comparative-sales-2010-2012.pdf
415 http://www.ilsr.org/localism-index/
416 http://www.amiba.net/buy-local-campaigns
417 http://www.amiba.net/news/new-benefit-501c6-exemption
418 http://bealocalist.org/

- Diversifying financing for diversified local economies through models like crowdfunding, community supported enterprise, triple bottom line banking, and local investment clubs
- Linking local businesses to leverage purchasing power, policy change, sustainable impact, and marketing dollars.

The County of Hawai'i is working with the Hawai'i Alliance for a Local Economy (HALE) to develop a public outreach educational campaign that communicates to Hawai'i Island consumers how their purchasing choices affect their families, the local community, and the broader community.[419] HALE's "Think Local Buy Local" program is designed to promote increased purchasing of locally produced food, products, and services and putting local capital to work through local investments. HALE strategies include a consumer education campaign and a "made on Hawai'i Island" product directory.

To compete with online retailers, there is now even a web portal for local, online shopping: www.sharedmall.com.

Economic and Financial Impact Reviews:[420] Municipalities have long evaluated the impact of development projects may have on such things as traffic and the environment. Some are now adopting policies that require that the economic and fiscal impact of these developments be considered as well. Economic impacts include the effect on local businesses, jobs, and wages. Fiscal impact refers to the impact on tax revenue and government costs. These policies usually have two key components:

- They require that an independent study of the economic and fiscal impact of the development be conducted by a qualified analyst selected by the municipality (or other reviewing authority) and paid by a fee assessed to the developer.
- They establish a standard (or multiple standards) that the project must meet in order to be approved. The policy may say, for example, that the planning board (or city council or regional planning commission) may approve the development only if it concludes, based on the data provided by the study and other evidence submitted, that the project will not have an undue adverse impact or that the benefits of the development will outweigh the costs.

Typically, these reviews are triggered when the proposed development exceeds a certain size. For example, the law may apply to all projects involving retail stores larger than 50,000 square feet or those that will generate more than 500 vehicle trips per day.

Most of these laws spell out the types of impacts that the study must analyze and that officials must consider in determining whether to grant approval. The list may include such things as the impact that the development will have on existing businesses, the vitality of downtown areas, employment (jobs gained versus jobs lost), wages, tax revenue, and municipal costs. Some laws also include community impacts, such historic and scenic resources, and environmental impacts.

The advantage of an independent study is that it ensures that the city (or regional planning board) has objective information about the economic impacts of the project. In the absence of such a study, the only information that local officials are likely to have are the rosy, and often misleading, job and tax revenue projections provided by the developer.

The Institute for Local Self Reliance has published *A Guide to Retail Impact Studies*[421]to help communities assess the impact of large "box" stores on local communities.

419 http://www.localeconomyhawaii.org/; http://thinklocalbuylocal.org/
420 http://www.ilsr.org/rule/economic-impact-review/
421 http://www.ilsr.org/wp-content/uploads/2009/12/guide.pdf

Connect to Anchor Institutions

Anchor institutions have great potential for enhancing the success of a regional cluster approach to entrepreneurial development. Examples of anchor institutions include hospitals, schools, large businesses, and other institutions that have significant real estate and other investments in the community. They can create shared value by embracing their interdependencies with their communities and strategically including community impact in their business strategy. This can produce measurable advantages such as increased demand for products and services, more success in hiring and retention, and the ability to leverage private development.

Capacities in which anchors typically interact with their communities include:[422]

- Provider of products or services: For the anchor, a higher level of innovation and proficiency is attained in its core competency. For the community, there is improved access to the anchor's expertise, products, and services.
- Real estate developer: The anchor enjoys access to desirable real estate, the ability to leverage private development money, reduced time to construction, and related savings. The community can benefit from appropriate real estate development in distressed areas and the ability to leverage private development money.
- Purchaser: The anchor benefits from a more competitive pool of vendors and suppliers that are better able to meet the anchor's needs. The community, in turn, gains local jobs and a healthier business environment. For example, the Central Appalachian Network (CAN) has had success expanding markets for clusters through adjustments in government procurement policies.[423]
- Employer: The anchor may have more success in hiring, better employee retention, and more engaged employees. The community has access to local jobs with opportunities for advancement.
- Workforce developer: The anchor can build a stronger applicant pool and improve employee retention. The community gets access to appropriate local jobs, job training, and advancement opportunities.
- Incubator: Anchors can deliberately incubate the development of new businesses, including nonprofit social enterprises, and serve as an advisor or network builder.
- Cluster anchor: The anchor helps build a healthier business community, improve productivity, and expand the choice of vendors and business partners. The community gains jobs and a more resilient economy.
- Community infrastructure builder: Both the anchor and communities reap the long term benefits of investments in transportation and other facilities and services that strengthen the business environment and community life.
- Community Investor: Anchors can use pension and endowment funds to invest in local job creation strategies, to provide capital or low-interest loan financing to community development financial institutions (CDFIs), and to provide community venture capital for nonprofits, entrepreneurs, and employee-owned firms.

422 Initiative for a Competitive Inner City. 2011. "Anchor Institutions & Urban Economic Development: From Community Benefit to Shared Value." Inner City Insights, Volume 1, Issue 2; http://democracycollaborative.org/
423 Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf

Understanding the various ways that anchors align with regional partners can help to identify potential strategies to harness their full impact. The different ways that they can align include:[424]

- Isolated Institution – anchor focuses on their core functions without intentionally viewing themselves as actors with a broader role.
- Idiosyncratic Experimenter – individuals or units within an anchor may seek to advance narrowly defined community-oriented goals.
- Neighborhood Actor – institution sees itself as integrated with the surrounding community and uses institutional resources to promote revitalization of the community. While efforts can be transformational for a particular community or neighborhood, it has limited opportunity for regional transformation.
- Economic Catalyst – aware of role in the local economy and purposefully leverages its assets, business functions and operations (i.e., procurement, hiring, commercialization of research) to promote local economic activity. However, it may lack a systematic alignment or coordination with broader regional systems.
- Regionally Aligned Actor – anchors and multiple stakeholders and sectors in a region are aligned in order to orient relevant systems (i.e., regional economic strategy, finance, workforce development, small business development, land use) to magnify the amount of economic opportunity created by anchors and increase the ability of the people in the region to take full advantage of opportunities.

Resources for Connecting to Anchor Institutions

Hawai'i State Procurement Law:[425] Most purchases of goods and services by state government entities are controlled by the terms and conditions of HRS Chapter 103D. Under HRS section 103D-1001, government agencies are to apply a preference to purchases of Hawai'i products, which are defined as "products mined excavated, produced, manufactured, raised, or grown in the state and where the cost of the Hawai'i input towards the product exceeds fifty percent of the total cost of the product."

Hawai'i Procurement Technical Assistance Center (HI-PTAC):[426] HI-PTAC provides assistance to small businesses in Hawai'i with successfully marketing products and services to federal, state, and county government to support job creation, income generation, and business retention in the local economy. HI-PTAC offers counseling and training on proposal preparation, contract administration, and marketing.

US Small Business Administration (SBA):[427] The SBA was created in 1953 as an independent agency of the federal government to aid, counsel, assist and protect the interests of small business concerns, to preserve free competitive enterprise and to maintain and strengthen the overall economy of our nation. One of the SBA's four programmatic functions is Government Contracting (Federal Procurement). In keeping with the mandate of Section 15(g) of the Small Business Act, SBA's Office of Government Contracting sets goals with other federal departments and agencies to reach the statutory goal of 23 percent in prime contract dollars to small businesses. SBA provides small businesses with subcontracting procurement opportunities, outreach programs, and training. All of Hawai'i County is eligible for the SBA HUBZone program, through which companies can secure sole-source contracts and a 10% price evaluation preference in competitive bidding.[428]

Community-Wealth.org: This project of the Democracy Collaborative provides models, best practices, research, and a toolbox related to anchor institutions. By areas of impact – economic development,

424 Living Cities Design Lab. 2012. "Harnessing the Full Economic Impact of Anchor Institutions." Living Cities, Baltimore, MD.
425 Elizabeth Haws Connally, Esq. Alston Hunt Floyd & Ing. "Marketing Through State Procurements." March 9, 2009.
426 http://www.hiptac.org/
427 http://www.sba.gov/
428 http://www.sba.gov/content/understanding-hubzone-program

community building, education, and health, safety, and the environment – the Collaborative has also developed indicators and a "dashboard" to monitor impact.[429]

Agricultural Industry Tools and Strategies

An example of the potential power of anchors can be seen in the development of local food systems. Farmers' markets have helped the local food movement but the goods exchanged at some 7,000 locations nationwide represent less than one percent of total US agricultural production. According to James Barham, USDA agricultural economist, "more fundamental change will come from connecting small and mid-sized local farmers with institutional purchasers that are expressing ever more demand for sustainable food." An average hospital food budget can run upwards of $4 million while the healthcare sector as a whole commands $12 billion worth of food and beverage purchases annually.[430]

Farm to School: Schools can serve as anchor institutions to provide a steady market for farmers and ranchers. Farm-to-School initiatives connect independent farms with programs to address the declining nutritional status of school meals. For students, such initiatives can provide increased access to fresh produce; a hands-on experiential learning opportunity; a link between the cafeteria, the farm, and nutrition education; and a foundation for building life-long dietary health.

The National Farm to School Network supports the implementation of Farm to School programs through focused work in the following priority areas: 1) policy development; 2) training and technical assistance; 3) information development and dissemination; 4) networking; 5) media and marketing; and 6) research and evaluation.[431] The EcoTrust serves as the Network's West Regional Lead Agency.[432]

The Hawai'i Farm to School and School Garden Hui coordinates efforts to increase school procurement of local foods.[433]

Barriers: Potential anchor institutions face a number of challenges to local food procurement:[434]

- Food Service Infrastructure: This relates to addressing issues around how the anchor institutions' meal programs are operated, their kitchen size and space, storage facilities, and equipment they may need to properly process and prepare local produce. To address the lack of labor and/or labor/skills that often face schools, many Farm-to-School initiatives organize, train, and maintain a solid volunteer base to support their efforts.
- Procurement: Procurement questions are also a challenge for public sector anchor institutions that want to encourage "eat local" efforts. A geographic preference option was authorized by Section 4302 of Public Law 110-246, the Food, Conservation, & Energy Act of 2008 that allows institutions receiving funds through the Child Nutrition Programs to apply an optional geographic preference in the procurement of unprocessed locally grown or locally raised agricultural products. However, clearly understanding how the geographic preference option can be implemented in specific areas continues to be a challenge for school districts across the country.
- Supplying the Demand: Small farmers may not be able to meet the demand of big purchasers like schools. However, food hubs could play an important role in aggregating, processing, and distributing food from a variety of growers to institutions.[435]

429 http://community-wealth.org/indicators
430 Klein, Kendra. "A New Prescription for the Local Food Movement." The Nation. October, 2010.
431 http://www.farmtoschool.org/
432 http://www.ecotrust.org/farmtoschool/
433 http://www.kohalacenter.org/schoolgardenhui/home.html
434 Need citation
435 http://www.alternet.org/food/can-local-food-movement-scale-meet-demand-hospitals-and-other-big-purchasers

- Food Safety: Food safety addresses handling, preparation, and storage of food in ways that prevent foodborne illness. Standard operating procedures must be followed to avoid potential contamination of food, including proper handling both on the farm and in the kitchen, safe handling during transportation, adequate storage temperatures and conditions, and proper handling during preparation and service in the anchor institution, such as schools.

Visitor Industry Tools and Strategies

Gateway Communities: Institutions associated with visitor attractions can also serve as important economic anchors. When those attractions are natural and cultural resources, and the anchor is a public park, the nearby communities are often called "gateway communities." These areas are unique in that they are generally comprised of three separate yet interwoven components: a community, at least one public protected area, and an influx of visitors drawn to the spectacular resources of the areas.

Successful gateway communities are those that have a common vision and develop a relationship and partnership with their public protected area. Examples include:

- Cherokee, North Carolina:[436] Cherokee, a sovereign Native American nation of 13,000 near Great Smoky Mountains National Park, is a good example of a gateway community that has become an employment center in a remote region. Cherokee's "gateway" website features outdoor activities, cultural attractions, locally-owned lodging, and a local business directory.
- Pittman Center, Tennessee:[437] Pittman, a nearby town of 500, works with local businesses and the national park to preserve its heritage support the local economy. In contrast, Pittman's neighbor, Pigeon Forge,[438] supports the Dollywood theme park.
- Estes Park, Colorado: [439] Estes Park has positioned itself as the "base camp" for adventure in Rocky Mountain National Park, promoting local food, rustic lodging, cultural events, the arts, and outdoors activities.
- Yellowstone Communities:[440] The communities around Yellowstone developed a website that provides a snapshot of opportunities in these gateway communities, including scenic vistas and waterfalls, outdoor activities, museums, shops, year-round recreation, hot springs, historical reenactments, rodeos, nightlife, summer hiking and fishing, winter skiing and snowboarding, wooded hills and valleys for horseback riding and fun, etc.
- In Minnesota, the gateway communities of Orr/Pelican Lake, Ash River Trail/Kettle Falls, Crane Lake, International Falls, Rainier, Rainy Lake, and Kabetogama Lake collaborated to create "Destination Voyageurs National Park" to connect people to Voyageurs National Park via implementation of an ongoing, comprehensive marketing and public relations campaign that will effectively encourage awareness and result in increased visitation and economic growth." The site provides information on the communities surrounding the national park as well as opportunities in and around their towns.[441]

436 http://www.cherokeesmokies.com/
437 http://www.pittmancentertn.com/index.html
438 http://www.mypigeonforge.com/
439 http://www.estesparkcvb.com/
440 http://www.yellowstoneparknet.com/nearby_towns/
441 http://destinationvoyageursnationalpark.com/about/

The National Geographic Society, The Conservation Fund, and the National Park Service collaborated to look at gateway communities near national parks to assess their ability to preserve their unique heritage while growing their economy.[442] Findings from their study include:

- The vast majority of residents, new and old, feel a strong attachment to the landscape and the character of their town. They want a healthy economy, but not at the expense of their natural surroundings or community character.
- Elected officials and residents want to find ways to preserve what they love about their communities without saying 'no' to jobs and economic development.
- Communities have found that economic prosperity need not degrade surroundings, diminish community character, or create tourist traps.
- Successful communities are finding that beauty pays and that sustainable tourism provides more benefits than mass-market tourism. They are discovering that retaining community character is a key to economic success and that thoughtful management of public resources and well-planned development can help prosperity occur.

Many resources are available to support the careful development of gateway communities:

- Gateway Community Toolkit created by the National Geographic Society's Center for Sustainable Destinations:[443] Resources include planning guidance, technical assistance available, techniques for growth management, policy recommendations, and indicators of sustainable tourism.
- The National Association of Gateway Communities is a new, national, non-profit membership organization that will offer a broad variety of services and resources to member communities.[444]

Two examples of towns that can serve as gateway communities in the Planning Area are Honomū and Honoka'a/Kukuihaele; these towns are gateways to Akaka Falls and Waipi'o Valley respectively.

Advance Innovation in Products and Services

To develop sustainable niches that are aligned with the local identity and connected to a local industry cluster and/or anchor institution, businesses have to continually innovate by developing products and services unique to the character and needs of the region.[445] A Carsey Institute study identified innovation as one of the critical tenets for successful rural economic development in the New Economy.[446] Specifically, it recommends:

- Reinforcing traditional economic bases while fostering an environment that will produce new-economy jobs in order to stay competitive;
- Expanding local innovation with business incubators, organized industry networks, workforce training, and specialized technical assistance; and

442 http://www.nps.gov/aboutus/upload/FY_2014_greenbook.pdf;
http://travel.nationalgeographic.com/travel/sustainable/gateway_community_toolkit.html
443 http://travel.nationalgeographic.com/travel/sustainable/gateway_community_toolkit.html
444 http://www.gatewaysusa.org/
445 Holley, June. 2006. "Regional Flavor: The Creative Power of Communities." Rural Research Report, Summer 2006, Volume 17, Issue 6; Holley, June and Leslie Schaller. 2009. "Entrepreneurship With A Regional Flavor." Appalachian Center for Economic Networks.
446 Brown-Graham, Anita and William Lambe. 2008. "Measure & Methods: Four Tenets of Rural Economic Development." Carsey Institute Policy Brief No. 9.

- Differentiating local products with creative product design, a finer end-user experience, or superior marketing.

Likewise, the Central Appalachian Network (CAN) suggests making investments in innovation by providing assistance in identification of niche markets and in product or service development,[447] and DBEDT's Rural Economic Development Report recommends support for the development of regional agricultural products.[448]

Agricultural Tools and Strategies

Other communities have innovated in the agriculture sector with subsistence policy, community food enterprises, food innovation centers, community supported agriculture programs, and creative twists to farmers' markets.

Subsistence

Like Native Hawaiians, Alaska's indigenous peoples have relied upon the traditional harvest of wild foods for thousands of years and have passed this way of life, its culture, and values down through generations. Subsistence has also become important to many non-Native Alaskans, particularly in rural Alaska. Subsistence fishing and hunting provide a large share of the food consumed in rural Alaska. The State's rural residents harvest about 22,000 tons of wild foods each year – an average of 375 pounds per person.

An Alaska state "subsistence law" gives subsistence uses of fish and game priority over commercial and sport uses. In addition, on federal lands, subsistence is a recognized use. The Alaska National Interest Lands Conservation Act of 1980 requires that subsistence opportunities to be provided in the management of most national parks, national fish and wildlife refuges, and national forests; it also assesses new development on federal lands for their impacts on subsistence uses. Moreover, the Federal Subsistence Management Program is a multi-agency effort (the U.S. Fish & Wildlife Service, National Park Service, Bureau of Land Management, Bureau of Indian Affairs, and U.S. Forest Service) to provide the opportunity for a subsistence way of life by rural Alaskans on federal public lands and waters while maintaining healthy populations of fish and wildlife.

Community Food Enterprises

Locally owned businesses involved in agriculture and food are considered "community food enterprises" (CFEs).[449] CFEs must innovate to compete either within or outside of conventional food supply chains. Fifteen strategies are typically employed by CFEs to build their competitive and comparative advantage:

- Hard Work: What they may lack in experience, capital, and technology, CFEs make up for in hard work.
- Innovation: Being small facilitates experimentation and innovation, pioneering lower-tech or labor intensive solutions.
- Local Delivery: Shrinking distribution costs, even if production costs are greater, can mean cheaper food resulting from less packaging, reduced refrigeration, shorter delivery runs, fewer middlemen, and greater reliance on word-of-mouth advertising.

447 Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf

448 SMS Research & Marketing, Inc. 2010. "Rural Economic Development Planning Report." Hawai'i Department of Business, Economic Development, & Tourism, Office of Planning.

449 Shuman, Michael, Alissa Barron, and Wendy Wasserman. Community Food Enterprises: Local Success in a Global Marketplace. 2009.

- Aggregation: CFEs focus on the core business, become lean and mean, outsource, and spin off divisions into independent companies, becoming coordinated networks of independent firms.
- Vertical Integration: CFEs achieve higher economies of scale by vertically integrating within their niche or by diversifying their range of businesses.
- Shareholder Loyalty: Broad ownership can translate into a powerful and free marketing force.
- Speed: Smaller businesses have the ability to grasp local markets with nuance and to respond with just the right products, delivered just in the right way, at just the right time.
- Better Access: In communities with "food deserts," providing fresh local foods offers a competitive advantage over what's currently available.
- Better Taste: CFEs compete by offering products that taste better to consumers increasingly associating local food with freshness, natural flavor, and, thus, their willingness to pay more for it.
- Better Story: CFEs tell the story of their local products making eating an experience that involves all the senses and emotions of a consumer.
- Better Stewardship: Another competitive advantage is the commitment to the triple bottom line, advertising their good practices for the environment and for their workers.
- Better Service: They compete through the excellent services they provide as they present, sell, cook, and serve their products.
- Revitalizing Local Economies: they are locally owned, capitalizing on the growing awareness of by consumers of the myriad economic benefits locally owned businesses confer on communities.
- More Community Spirit: For many consumers, food is not just about nutrition and taste – it's about memorable experiences and fun, which is a competitive advantage for CFEs who put their passions, their personalities, and their vision into their establishments.
- More Social Change: CFEs position themselves as social change agents.

A web site supported by Winrock International's Wallace Center is devoted to advancing innovation by community food enterprises.[450]

The Agricultural Development Division of the Hawai'i Department of Agriculture offers grants to enhance the competitiveness of specialty crops.

Food Innovation Centers

Food innovation centers are university-sponsored resources to help producers, processors, marketers, and entrepreneurs with product and process development, packaging, and market testing. Examples include the Portland Food Innovation Center,[451] the Rutgers Food Innovation Center,[452] and the Food Systems Innovation Center at the University of Kentucky.[453]

In December 2011, $1.255 million was released by the State to the University of Hawai'i for the design, planning, and initial construction to transform Maui College's former cafeteria into the new UH Food Innovation Center.[454] The Center will serve as a research and development production facility to help

450 http://www.communityfoodenterprise.org/
451 http://fic.oregonstate.edu/
452 http://www.foodinnovation.rutgers.edu/
453 http://www.uky.edu/fsic/
454 http://maui.hawaii.edu/uhf/?page_id=569

local farmers turn their fresh produce into value-added food products, such as frozen foods and dried, preserved or canned goods. The Center will offer shared-use food processing space, consulting services, and educational programs.

During the 2013 legislative session, Senator Ruderman advanced an appropriation for a learning center in Puna managed by the University of Hawai'i's College of Agriculture, Forestry and Natural Resource Management. The Center would "identify educational and training needs in the district and design a business incubator approach to support job growth in the district."

Local Food Processing and Value Added

A free guide to value-added innovation in Hawai'i, "*Value-Added Innovation for Hawai'i Growers: Making the Family Farm Profitable*," is available thru agroforestry.net.[455]

The USDA also offers Value-Added Producer Grants (VAPG) to help agricultural producers enter into value-added activities related to the processing and/or marketing of bio-based value-added products. The goals of the project are to generate new products, create and expand marketing opportunities, and increase producer income. Beginning farmers or ranchers, socially-disadvantaged farmers or ranchers, small or medium-sized farms or ranches structured as a family farm, farmer or rancher cooperatives, or mid-tier value chains may receive priority.

Examples of initiatives to facilitate value-added processing include:

- **Certified Food Processing Center in Hāmākua**: A Value-Added Grant from the Agribusiness Incubator Program at the University of Hawai'i at Mānoa's College of Tropical Agriculture and Human Resources and a Rural Business Enterprise Grant from the U.S. Department of Agriculture Rural Development Program will enable the Co-op to develop a certified food processing, packing, and storage facility that meets food safety requirements of Hawai'i's retail grocers.[456]

  The Co-op recently leased a vacant macadamia nut processing facility in Haina that is being converted into the food processing facility. The facility will feature potable water and a host of equipment purchased and subleased by the Laulima Center, including a walk-in refrigerator, a 50-gallon salad spinner, root vegetable washer, carrot washer, and stainless steel sinks.

  Designed to provide affordable farmland to workers displaced by the closure of the Hāmākua Sugar Plantation nearly 20 years ago, the Co-op subleases nearly 1,000 combined acres of land parcels between Pa'auilo and Waipi'o. The Co-op currently has nearly 100 members, with over 60 active farmers producing crops such as lettuce, mixed greens, tomatoes, sweet onions, sweet potatoes, mangoes, papayas, dragonfruit, lychee, and macadamia nuts.

- **Arc of Hilo Value-Added Processing Facility**: Founded in 1954, the Arc of Hilo offers a wide range of services to people with disabilities, including employment training and job placement, and seeks to create additional jobs in the community for people with disabilities. The Arc of Hilo is expanding its agriculture production and employment opportunities with a solar-powered processing facility. The Arc of Hilo has leased an 18,000-square-foot warehouse to provide a location where local farmers can develop higher-value food products, such as fruit leather, jams, and natural sweeteners. Two energy technologies developed by Lawrence Livermore National Laboratory (LLNL) scientists – a new advance for harnessing solar energy and another for storing and retrieving electrical power — will be used to provide electricity for the food processing facility.[457]

455 http://agroforestry.net/events/vaw.html
456 http://www.kohalacenter.org/Leaflet/JulAug12/TKCleaflet0812back.html#laulima
457 http://www.hiloarc.org/newsllnl.html

- **Local Meat Processing**: The national Niche Meat Processor Assistance Network (NMPAN)[458] has researched options for small-scale, local meat processing models, innovations, and lessons learned from successful processors around the country.[459] The NMPAN web site includes an overview of the steps to creating a facility and a range of resources for business planning, plant design, regulations, food safety, marketing, management, and financial assistance.

Community Supported Agriculture (CSA)

"Community Supported Agriculture," or CSA, refers to an arrangement where a farmer sells "shares" (often referenced as "membership" or "subscription") good for a box, bag, or basket of seasonal produce and other farm products each week. CSAs were developed to simplify marketing, facilitate cash flow, and lower risk for the farmer. And for consumers, CSAs can increase access to fresh local food and strengthen relationships with the farmer and land that provides their food. In some communities, farms partner to provide a more diverse offering.

Local Harvest lists more than 4,000 CSA farms in its national database. Together, Local Harvest[460] and Hawai'i Homegrown[461] identify at least 12 Hawai'i Island CSAs (in Pāpa'ikou, O'ōkala, Honoka'a, Honaunau, Kealakekua, Ocean View, Mountain View, Kea'au, Kapoho, Kalapana, Hilo, and Waimea).

Farmers' Markets

Local Harvest and Hawai'i Homegrown also identify at least 20 farmers' markets on Hawai'i Island (in Laupāhoehoe, Honoka'a, Ocean View, Nā'ālehu, Volcano, Mountain View, Pahoa, Kalapana, Hilo, Waimea, Hawi, Kapa'a, Waikoloa, Kailua Village, Keauhou, Captain Cook).[462] Innovations in the growing farmers' market movement include regular customer surveys, product diversification, on-site cooking and processing demonstrations, acceptance of WIC and SNAP benefits, credit card payment with mobile devices, and announcing product availability with social media.[463]

Visitor Industry Tools and Strategies

The latest innovations in the visitor industry are an outgrowth of the sharing economy. Through various companies (such as Home Away, Home Exchange, Airbnb, etc.), local residents can swap homes or make money by opening their home to visitors interested in a more authentic experience. More than 50 percent of Airbnb hosts depend on it to pay their rent or mortgage, and it has spawned many other economic opportunities in house cleaning, coordinating key exchanges, cooking dinner for guests, photographing rooms for rent, ride-sharing, and homegrown tours (e.g., Vayable.com).[464] [465]

Build Entrepreneurial and Business Capacity

Businesses that are innovating and growing must ensure that their organizational capacity keeps pace.[466] In that regard, DBEDT's Rural Economic Development Report specifically recommends educational and mentoring programs to develop entrepreneurial and agricultural start-up skills (e.g., finance, marketing,

458 http://www.nichemeatprocessing.org/
459 http://www.ngfn.org/resources/ngfn-cluster-calls/local-meats-processing-successes-and-innovations
460 www.localharvest.org
461 Hawaiihomegrown.net
462 www.localharvest.org
463 http://www.rodale.com/farmers-market-ideas
464 http://www.nytimes.com/2013/07/21/opinion/sunday/friedman-welcome-to-the-sharing-economy.html?pagewanted=1&_r=3
465 http://www.usatoday.com/story/travel/advice/2013/01/30/10-things-you-need-to-know-about-home-swapping/1877345/
466 Holley, June and Leslie Schaller. 2009. "Entrepreneurship With A Regional Flavor." Appalachian Center for Economic Networks.

business management skills).[467] With CAN's support in Appalachia, local nonprofits formed into regional catalysts that work with opportunity-seeking entrepreneurs and partner with a broad spectrum of public and private organizations to enhance the performance of area entrepreneurs.[468]

General Tools and Strategies

County Department of Research and Development:[469] The Business Development Program provides information about licensing, permits, business start-up, Enterprise Zones, the Foreign Trade Zone, and State and Federal tax credits.

Hawai'i Small Business Development Center (SBDC):[470] The SBDC is a University of Hawai'i at Hilo program that is funded in part by a grant from the U.S. Small Business Administration. SDBC offices in both Hilo and Kailua-Kona provide support services like business consultations, seminars, workshops, and research and analysis.

SCORE:[471] SCORE Hawai'i is part of SCORE *Counselors to America's Small Business*, a national nonprofit association dedicated to entrepreneur education and the formation, growth, and success of the nation's small businesses. SCORE Hawai'i provides free and confidential business advice and counseling tailored to meet the needs of individual business and personal objectives. SCORE Hawai'i also offers live and online workshops for both start-up and in-business entrepreneurs as well as templates for business plans and a wide range of tools online. SCORE counselors are real-world professionals who donate time to help small businesses succeed. Counselors are experts in such areas as accounting, finance, marketing, retail, manufacturing, management, and business plan advisory & strategy review.

Hawai'i Investment Ready (HIR):[472] HIR is a facilitated, peer-to-peer learning program designed for island enterprises. HIR's goal is to empower Hawai'i's social entrepreneurs with relevant skills to enable them to scale their enterprises and increase their impact. The program analyzes and builds on the knowledge of the group with select speakers and coaches who are successful entrepreneurs and investors and/or have skills pertinent to the specific needs of the cohort.

Hawai'i Investment Ready is a program of Village Capital, which sponsors similar entrepreneurial networks worldwide.[473] Village Capital partners with the KL Felicitas Foundation and Kamehameha Schools to support HIR.

Kapi'olani Community College Entrepreneurship Program:[474] KCC offers a Certificate of Competence in Entrepreneurship.

Pacific Business Center Program (PBCP):[475] PBCP uses program staff, and University of Hawai'i faculty and staff, graduate students, and consultants to provide technical and management assistance to new and existing businesses, community development organizations, and government agencies throughout the State of Hawai'i. PBCP helps new ventures with market research, feasibility studies, and business plans; established businesses with business systems, financial planning, audits, management, and

467 SMS Research & Marketing, Inc. 2010. "Rural Economic Development Planning Report." Hawai'i Department of Business, Economic Development, & Tourism, Office of Planning.
468 Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf
469 http://www.hawaiicounty.gov/rd-business-development
470 http://www.hisbdc.com/
471 www.hawaii.score.org
472 http://www.vilcap.com/portfolio/hawaii-investment-ready
473 http://www.vilcap.com/
474 http://www.kcc.hawaii.edu/object/entrepreneurship.html
475 http://pbcphawaii.com/

planning; and government and community agencies with policy analysis, economic development plans, and project development.

US Minority Business Development Agency (MBDA):[476] The MBDA is a program of the US Department of Commerce that fosters the establishment and growth of minority-owned businesses with business analysis, market access, and capital access. It is run locally through the Pacific Business Center Program.

US Small Business Administration (SBA):[477] The SBA was created in 1953 as an independent agency of the federal government to aid, counsel, assist and protect the interests of small business concerns, to preserve free competitive enterprise and to maintain and strengthen the overall economy of our nation. One of the SBA's four programmatic functions is Entrepreneurial Development (Education, Information, Technical Assistance & Training). SBA provides free individual face-to-face and internet counseling for small businesses and low-cost training to nascent entrepreneurs and established small businesses. The SBA has a district office in Honolulu that maintains a Hawai'i District Resource Guide,[478] but most of its direct services are provided by the SBDC.

USDA Rural Business Opportunity Grants (RBOG):[479] The primary objective of the RBOG program is to promote sustainable economic development in rural communities with exceptional needs. Grant funds may be used for community economic development, technology-based economic development, feasibility studies and business plans, leadership and entrepreneur training, rural business incubators, and long-term business strategic planning.

USDA Rural Business Enterprise Grants (RBEG):[480] The RBEG program can be used for training, technical assistance, and job training and advancement for small and emerging private businesses in rural areas.

Agricultural Enterprise Tools and Strategies

University of Hawai'i Agribusiness Incubator Program (AIP):[481] AIP provides business consulting services to agriculture-related businesses. Through an intensive, hands-on approach to consulting, AIP works with agribusinesses to establish core business plans and practices.

Simplified Planning: The Field Guide to the New American Foodshed[482] provides easy-to-use, one-page business plan, financial plan, and risk management plan templates. It also offers simple decision tree to walk potential agricultural entrepreneurs through fundamental business choices.

National Sustainable Agriculture Information Service:[483] This Service, which is part of the National Center for Appropriate Technology, provides a list of agricultural business planning templates and resources, including business plans, internet and print resources, personal assistance, software resources, and training courses.

Build Workforce Capacity

Local residents and graduates of local schools need to be prepared for jobs and entrepreneurial opportunities within regional industry clusters. This requires local education and workforce development programs that are grounded in the regional identity and connected to industry clusters,

476 http://honolulumbdacenter.com/
477 http://www.sba.gov/
478 http://www.sba.gov/sites/default/files/files/resourceguide_3112.pdf
479 http://www.rurdev.usda.gov/bcp_rbog.html
480 http://www.rurdev.usda.gov/BCP_rbeg.html
481 http://aip.hawaii.edu/default.aspx
482 http://foodshedguide.org/
483 https://attra.ncat.org/attra-pub/viewhtml.php?id=276

anchor institutions, and local businesses. DBEDT's Rural Economic Development Report specifically calls for making greater use of community colleges.[484]

Center for Rural Entrepreneurship (CRE):[485] The CRE has found that a majority of young people would choose to live in their hometowns in the future if quality career opportunities are available. However, many young people do not perceive that such opportunities are available, and many adults assume most young people want to leave and not return to the community. The CRE helps communities develop customized Youth Engagement Systems that help young people discover local career and business opportunities and that involve youth in meaningful ways in their community. The Systems incorporate entrepreneurship education and career development, leadership and community service, and adult mentoring and support of youth ventures.

Agricultural Programs

Hawai'i offers many opportunities for people to prepare for careers in agriculture, including certificates, specializations, degrees, internships, and specialized training programs:

K-12 Programs

Awaiting summary of LCPCS Farm to School Program

College Programs

Hawai'i Community College: The HCC Agriculture program prepares students for employment in government service, agribusiness, horticulture, livestock, flowers and foliage, landscape, macadamia nuts, papaya, and coffee industries. The program offers an Associate's Degree in Agriculture; Specializations in Agribusiness, Agroecology, Aquaculture, Animal Science, Crop Protection, and Tropical Horticulture; and Certificates for Food Science, Landscape Workers, and Farm Workers.

University of Hawai'i at Hilo: UH Hilo offers Bachelor of Science degrees in Animal Science, Aquaculture, Tropical Horticulture, Tropical Plant Science, and Agroecology. NHERC offers college credit courses in Honoka'a, including agriculture courses.

University of Hawai'i Maui College: MCC offers an Associate of Applied Science Degree in Sustainable Tropical Crop Management and Certificates in Agriculture Science, Nursery Production, Pest Management, Landscape Maintenance, Floriculture Management, Nursery Management, Nursery and Landscape Maintenance, and Sustainable Tropical Crop Production and Management.

University of Hawai'i at Mānoa: UH Mānoa offers Bachelor of Science degrees in Animal Sciences, Food Science and Human Nutrition, Plant and Environmental Protection Sciences, and Tropical Plant and Soil Sciences. It also offers coursework in Sustainable and Organic Production as well as Student Organic Farm Training. Master of Science programs are also offered in Animal Science, Entomology, Food Science, Nutritional Science, Tropical Plant Pathology, and Tropical Plant and Soil Sciences.

Internships

Many opportunities in Hawai'i and elsewhere are available to learn the agricultural trades as an intern:

- **Kohala Center Agricultural Internship Program:**[486] This program is designed to give interns hands-on experience in sustainable agriculture and information about island food systems based at the Kohala Center's Ka Hua 'Āina farm in Honoka'a. Students take field trips to processors and wholesalers and meet agricultural leaders as well as visit and work on farms and earn a stipend for the farm work.

484 SMS Research & Marketing, Inc. 2010. "Rural Economic Development Planning Report." Hawai'i Department of Business, Economic Development, & Tourism, Office of Planning.
485 http://energizingentrepreneurs.org/site/index.php?option=com_content&view=article&id=6&Itemid=10
486 http://kohalacenter.org/farmertraining/interns.html

- **National Sustainable Agriculture Information Service**:[487] The Service maintains a database of farm internships and jobs nationwide.
- **GrowFood**:[488] GrowFood is an online clearinghouse that connects farmers interested in teaching with people interested in farming.
- **World Wide Opportunities on Organic Farms (WWOOF)**:[489] WWOOF provides a similar service matching organic farms with interns.

New Farmer Training and Resources

Kohala Center Beginning Farmer Training Program:[490] The program helps new farmers develop business plans, secure farm leases, gain access to farm equipment and materials, and successfully produce, market, and distribute their crops. As part of this program, The Kohala Center is developing a training site in Honoka'a that will be used to teach successful farming practices.

GoFarm Hawai'i:[491] GoFarm Hawai'i offers five programs for potential farmers:

- AgCurious – a 3 hour overview of what is involved in farming and the options for getting started
- AgXposure – 5-6 Saturdays that provide experiences that convey the lifestyle and knowledge areas important to farming
- AgSchool – a 9 month training the mixes classroom instruction with practice of on-farm and business management techniques, which concludes with a business plan developed by each participant
- AgIncubator – participants can practice on land provided by the program for up to two years
- AgBusiness – assistance securing land and financing along with business start-up consulting.

Hawai'i Community College Office of Continuing Education and Training (OCET):[492] OCET offers a Business Plan Development Training for Farmers course.

Hawai'i Guide for New Farmers:[493] GoFarm Hawai'i collaborated with the O'ahu Resource Conservation and Development Council to develop this guide to agricultural service providers, business planning steps, and helpful online resources.

University of Hawai'i New Farmer Resources:[494] The Sustainable and Organic Agriculture Program in the College of Agriculture and Human Resources maintains a web site for resources geared towards new farmers.

Start2Farm:[495] Start2Farm assists people new to farming or ranching. It serves as a USDA portal to training, financing, technical assistance, and networking.

National Sustainable Agriculture Information Service:[496] The Service has catalogued a wide range of resources for beginning farmers.

487 https://attra.ncat.org/attra-pub/internships/
488 http://www.growfood.org/
489 http://www.wwoof.net/
490 http://kohalacenter.org/farmertraining/home.html
491 http://www.gofarmhawaii.org/
492 http://hawaii.hawaii.edu/ocet/
493 http://www.oahurcd.org/uploads/New%20Farmer/Hawaii%20New%20Farmer%20Guidebook_2013.pdf
494 http://www.ctahr.hawaii.edu/sustainag/NewFarmer/
495 http://start2farm.gov/
496 https://attra.ncat.org/attra-pub/local_food/startup.html

Renewable Energy Programs

Education and Professional Development

The **US Department of Energy** has catalogued the education and professional development opportunities within the renewable energy fields.[497]

The State Department of Labor and Industrial Relations' **Hawai'i Green Jobs Initiative** has profiled a range of "green careers," including education and training opportunities for each.[498] As of July 2013, training was limited to the solar energy field. The Solar Training Institute offers courses on Hawai'i Island in PV Design and Installation, Solar Thermal Design and Installation, Advanced Solar PV System Design, and Solar Sales and Estimation.[499] The Environmental Science program at Hawai'i Pacific University currently offers two courses in photovoltaic systems design: Photovoltaic Systems Design and Advanced Photovoltaic Systems Design.

Internships

Kupu[500] was developed in response to the growing needs of Hawai'i's communities to train the next generation in natural resource management, renewable energy, energy conservation, and other green job skill sets. Kupu is the home organization for:

- The Rewarding Internships for Sustainable Employment (RISE), which is centered on sustainability and the development of Hawai`i's green-collar workforce in the clean energy, pollution, sustainable development, and greenhouse gas reduction fields; and
- E2U (formerly known as YEAH), which focuses on energy conservation and related vocational training.

Kupu is predicated on the Hawaiian concept of *maka hana ka'ike*, "in working one learns." Through its paid internship programs, Kupu teaches youth vital vocational and leadership skills.

Natural Resource Management Programs

Hawai'i offers several opportunities for people to prepare for careers in natural resource management:

K-12 Programs

Honoka'a High School offers Career and Technical Education (CTE) classes in Natural Resources and Environmental Resource Management.

College Programs

Hawai'i Community College: HCC offers a Certificate in Tropical Forest Ecosystem and Agroforestry Management.

University of Hawai'i Maui College: MCC offers an Associate in Technical Studies Degree in Cultural and Natural Resource Management.

University of Hawai'i at Hilo: UH Hilo offers Bachelor of Science degrees in Marine Science and Coastal Resources and Watershed Management and a Master of Science degree in Tropical Conservation Biology and Environmental Sciences. It also offers a Certificate in Forest Resource Management and Conservation. NHERC offers college credit courses in Honoka'a, including marine science courses.

497 http://www1.eere.energy.gov/education/educational_professional.html
498 https://greenjobshawaii.hirenethawaii.com/vosnet/default.aspx?pg=CAREERS
499 http://www.trainingforsolar.com/
500 http://kupuhawaii.org/

University of Hawai‘i at Mānoa: UH Mānoa offers Bachelor and Master of Science degrees in Marine Biology and Natural Resources and Environmental Management.

Hawai‘i Pacific University: HPU offers Bachelor of Science degrees in Marine Biology and Oceanography and a Master of Science degree in Marine Science.

Internships

Youth Ranger Internship Program: The Hawai‘i Volcanoes National Park with its non-profit partner, Friends of Hawai‘i Volcanoes National Park, has conducted an eight-week internship program for about 50 Hawai‘i Island high school youth during the summer for four years. The Youth Ranger Internship Program provides education and career preparation to youth in rural East Hawai‘i. Youth train with park rangers in six different divisions within the park, including Interpretation, Natural Resources, Cultural Resources, Maintenance, Protection, and Administration. After training, successful candidates are hired to these divisions.[501]

UH Pacific Internship Programs for Exploring Science (PIPES):[502] PIPES is an umbrella program for several internship opportunities: the Micronesia & American Samoa Student Internship Program (MASSIP), the University of Hawai‘i Hawaiian Internship Program (UH-HIP), and the Research Experience for Undergraduates (REU) program. PIPES connects underrepresented undergraduate students, especially those who are Native Hawaiian or *kama‘aina*, to internship opportunities with agencies and organizations responsible for research, management, and education relating to environmental issues in Hawai‘i and throughout the Pacific region. In addition to MASSIP, UH-HIP, and REU, PIPES offers an 11-week summer internship program focusing on tropical ecology, evolution, natural resources management, and environmental education and outreach. Interns work on mentored research projects with mentors from university, Federal, State, and Counties agencies, as well as non-profit organizations.

UH Hilo Keaholoa STEM Program:[503] The Keaholoa Scholars Program offers research internships to University of Hawai'i at Hilo students who would like to gain experience conducting scientific research.

Kupu:[504] Kupu also serves as home organization for

- The Hawai‘i Youth Conservation Corps (HYCC), which is centered on environmental conservation, restoration, education, and cultural awareness; and
- Community U (formerly known as Urban Corps), which focuses on conservation, sustainability, and positive mentorship and is designed for young adults who are looking to complete a GED/CBASE while gaining real world job experience completing natural resources projects and building job readiness and life skills.

Health and Wellness Programs

K-12 Programs

Honoka‘a High School offers Career and Technical Education (CTE) classes in Health Services and Clinical Health.

College Programs

501 http://www.hawaii247.com/2013/06/05/youth-earn-internships-at-hawaii-volcanoes-national-park/
502 http://hilo.hawaii.edu/uhintern/
503 http://www2.hawaii.edu/~keaholoa/internships.html
504 http://kupuhawaii.org/

The University of Hawai‘i system offers training and degree programs for Nurse Aids (CNA) [505], including courses taught at NHERC in Honoka‘a, Long Term Care CNAs,[506] Registered Nurses (RN), Bachelor of Nursing degrees, and Advance Practice degrees.

Other Training and Resources

Hawai‘i Job Corps:[507] Job Corps offers training for Certified Nurse Assistants (CNAs) and Medical Office Support.

American Red Cross:[508] The Hawai‘i State Chapter in Honolulu offers a Nurse Assistant training program.

Other training programs for Certified Nurse Assistants, Medical Administration, and Home Healthcare are available from private training organizations like Hawai‘i Institute of Healthcare and Training Services (HIHTS)[509] in Hilo, Healthcare School of Hawai‘i[510] in Aiea, and Healthcare Training and Career Consultants[511] in Honolulu.

Creative, Education, and Research Programs

K-12 Programs

Honoka‘a High school offers Career and Technical Education (CTE) classes in arts, digital media technology, graphic design, natural resources, and environmental resource management.

Laupāhoehoe Community Public Charter School offers Career and Technical Education (CTE) classes in arts and digital media technology.

College Programs

Several campuses of the University of Hawai‘i system offer Certificates and Associate Degree programs in Culinary Arts, including Baking, Patisserie, Pantry Cook, Prep Cook, Short Order Cook, Pastry Cook Dining Room, Restaurant Supervision, Culinary Management, and Institutional Food Service Management.

Hawai‘i Job Corps also offers a Certificate in Culinary Arts.[512]

Media and Visual Arts

There are five accredited art schools in Hawai‘i: Chaminade University, University of Hawai‘i at Hilo, University of Hawai‘i at Mānoa, Honolulu Community College, and Brigham Young University.

Visitor Industry Programs

K-12 Programs

Honoka‘a High school offers Career and Technical Education (CTE) classes in the culinary arts.

LEI (Lead, Expose, Inspire)[513] is an annual workforce development exposure event provided by ClimbHI, the Hawai‘i Tourism Authority and Hawaii’s local tourist and hospitality industry. The program began in 2012 with 300 Hawaii high school students spending a day learning about the hospitality industry and the value of graduating from high school and going on to pursue a post-secondary education. During

505 http://windward.hawaii.edu/cna/
506 http://www.kcc.hawaii.edu/object/nurseaide.html
507 http://hawaii.jobcorps.gov/vocations.aspx
508 http://www.redcross.org/hi/honolulu/take-a-class/nurse-assistant-training-program
509 http://www.hihts.net/
510 http://www.healthcareschoolofhawaii.com/
511 http://www.htcc4u.com/
512 http://hawaii.jobcorps.gov/vocations.aspx#Culinary
513 http://climbhi.org/lei/

the course of the day's program the students meet, learn, and experience job opportunities that the hospitality industry can provide. Students also receive exposure on filling out job/college applications, resumes, personal finance, and support resources.

College Programs

Several universities offer bachelor degree programs in travel industry management including Brigham Young University Hawai'i, Hawai'i Pacific University, and the University of Hawai'i at Mānoa. Hawai'i, Kapi'olani, and Kaua'i Community Colleges as well as the University of Hawai'i Maui College also offer hospitality and tourism programs.

Retail Programs

College Programs

The University of Hawai'i system as well as the private universities in Hawai'i offer a wide range of business-related programs.

Construction Programs

K-12 Programs

Honoka'a High School offers Career and Technical Education (CTE) classes in Automotive Technology, Building/Construction Technology, Electrician Technology, and Industrial Engineering Technology.

Laupāhoehoe Community Public Charter School offers Career and Technical Education (CTE) classes in Building/Construction Technology, Industrial Engineering Technology, and Metals Technology.

College Programs

Hawai'i, Kaua'i, and Honolulu Community Colleges as well as the University of Hawai'i Maui College offer programs in the construction trades and construction management.

Private Training

Training in the construction trades is also offered privately. For example, the Construction Training Center of the Pacific (CTC) is the Workforce Development Arm of the Building Industry Association-Hawai'i.[514] CTC trains people on the pre-apprenticeship level to qualify for entry-level positions and offers continuing education courses to post-apprenticeship workers to expand job and management skills.

Democratize Ownership

Small, rural communities that are dominated by large landowners and businesses often feel like their local economy and industry clusters are outside their control. In response, Alperovitz and Dubb suggest decentralizing local economies to the extent possible by democratizing ownership of locally-owned businesses and keeping decision-making at the lowest feasible level.[515] Building off of this idea, the Ford Foundation's Wealth Creation in Rural Communities initiative helps rural communities use appropriate ownership and wealth-control designs to define, capture, and benefit from place-based assets.516 Community wealth strategies are designed to draw more dollars into the community by increasing the level of "common" assets within a community that are locally-owned and leveraging the use of funds from institutions that are based in the community for community-benefitting purposes.

514 http://www.biahawaii.org/displaycommon.cfm?an=1&subarticlenbr=68
515 Alperovitz, Gar and Steve Dubb. 2012. "The Possibility of a Pluralist Commonwealth and a Community-Sustaining Economy." The Democracy Collaborative.
516 http://www.creatingruralwealth.org/

To strengthen the connections between local economies and the places that support them, Kelly and Ratner suggest designing local businesses with a mission-driven social and economic architecture rather than for maximum profit.[517] They distinguish between organizational structures that provide extractive and generative ownership types. Extractive ownership is ownership that is designed to generate maximum financial wealth in the short term, often for export to absentee shareholders. Generative ownership, on the other hand, serves the needs of life – creating food, shelter, clothing, etc. – the needs at the center of local economies for thousands of years.

A range of alternative organizational structures and systems have been established that increase community control and ownership, thereby building community wealth. The remainder of this section briefly introduces some of these alternatives, "**Error! Reference source not found.**" summarizes the characteristics of each, and summarizes general resources available to communities interested in exploring options for democratizing ownership of their local economy.

General Resources

Community-wealth.org is a project of the Democracy Collaborative, which was established to advance a new understanding of democracy and to promote new strategies and innovations in community development that enhance democratic life.[518] Community-wealth.org offers resources for democratic, community-based economic development, including community development corporations, community land trusts, cooperatives, Employee Stock Ownership Plans, social enterprise, and anchor institutions.

Policy Link is a national research and action institute advancing economic and social equity by lifting up what works.[519] Its Equitable Development Toolkit includes resources about community development corporations, community land trusts, and cooperatives.

The **Sustainable Economies Law Center** (SELC) charts the changing legal territory of the new economy, educating communities and individuals about the possibilities and limits of creative economic structures, and advocating for laws that clear the way for more sustainable economic development.[520] SELC provides essential legal tools to support this transition to localized, resilient economies. Its work focuses on food and agriculture enterprises, cooperatives, community enterprises, and other innovative economic strategies.

Benefit Corporation (B Corp)

Benefit Corporations, also known as B Corps (to contrast them with the common C and S Corps), are designed to create a new sector of the economy that uses the power of business to solve social and environmental problems. B Corps are for-profit companies that have legal structures mandating that the company is designed to work not for maximum shareholder gain, but for the good of society and the environment. There are more than 500 companies that have become approved B Corps. Some are larger corporations, such as Method Products and Patagonia, but many are also smaller companies and business-to-business operations.

A number of states, including Maryland, New Jersey, Vermont, Virginia, California, New York, and Hawai'i, have created statutory provisions for a B Corp entity in order to provide for more substantive legal rights and protections. The B Corp goes by different names, including socially responsible corporation ("SRC"), "for-benefit organization," and in the case of Hawai'i, "sustainable business

517 Kelly, Marjorie and Shanna Ratner. 2012. "Keeping Wealth Local: Shared Ownership & Wealth Control for Rural Communities." Ford Foundation, Wealth Creation in Rural America Project.
518 http://democracycollaborative.org/
519 www.policylink.org
520 http://www.theselc.org/

corporation" (SBC). The SBC must submit itself to statutory standards regarding governance, transparency, and accountability:[521]

- A new corporation or existing corporation can voluntarily elect to become a SBC by including a statement that delineates the corporation as an SBC in their incorporating articles.
- A SBC must have a general public benefit as part of its corporate purposes and may have one or more specific public benefits focused on low-income communities, opportunities beyond jobs, the environment, human health, arts, sciences, or education, or investment towards a public benefit purpose.
- The directors must take into account both shareholder and public benefits.
- Patents held by the SBC must be creating and retaining good jobs in Hawai'i, upholding fair labor standards, and enhancing environmental protections.
- A public benefit director must be included on the board of directors and is responsible for preparing the annual benefit report to shareholders delineating whether the SBC carried out its general and specific public benefit purposes.
- The annual benefit report to shareholders must describe how the SBC pursued its general and specific public benefits and the extent they were successful based on a 3rd party's standards.
- 3rd party certification is also required to authenticate SBC policies and practices. Examples include nationally recognized entities such as B Lab[522] or Green America[523] or one of the Hawai'i-based green business programs, such as the Sustainability Association of Hawai'i,[524] Mālama Kaua'i,[525] or the Kona-Kohala Chamber of Commerce.[526]

Low-Profit Limited Liability Company (L3C)

Americans for Community Development describes the L3C as a "for-profit with a nonprofit soul." An L3C enjoys a number of LLC benefits including limited liability, broad financing options, flexible management structures, and the ability to limit fiduciary duty, but because of their its social mission, it can raise capital not available to regular corporations, such as program-related investments ("PRIs"). PRIs are investments in which the primary purpose is charitable, not income-producing or political.[527] Subsequently, the L3C has a branding advantage that separates it from the traditional LLC.[528]

L3Cs also expand on LLC financing options by attempting to capitalize on PRIs and including different investment tranches, or layers, for different types of investors.[529] The L3C allocates high risk and low return investments to a foundation tranche and allocates lower risk and higher return investments to a market tranche. This makes an L3C more attractive to market investors.[530]

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521 Act 209, 2011 Leg. Sess., Reg. Sess. (Haw. 2011). HRS Chapter 420D. http://www.sahawaii.org/p/sustainable-business-corporation.html
522 www.bcorporation.net
523 www.greenamerica.org
524 http://www.sahawaii.org/
525 http://www.malamakauai.org/aboutGreenBiz.php
526 http://www.kona-kohala.com/Kuleana/kuleana-green-business-program.html
527 http://www.irs.gov/Charities-&-Non-Profits/Private-Foundations/Program-Related-Investments
528 Carter G. Bishop, The Low Profit LLC (L3C): Program Related Investment by Proxy or Perversion?, 63 Ark. L. Rev. 243, 249 (2010).
529 John Tyler, Negating the Legal Problem of Having "Two Masters": A Framework for L3C Fiduciary Duties and Accountability, 35 Vt. L. Rev. 122 (2010).
530 Bishop, p. 245.

The L3C form closely follows the IRS code regarding PRIs and codifies the PRI elements into a business form. Because of the L3C's ability to receive PRIs, an L3C must ensure the primacy of charitable, tax-exempt purposes, which cannot be waived due to the express language of the L3C statute. The pursuit of charitable, tax-exempt purposes thus becomes an additional fiduciary duty of the directors[531]

L3C legislation has been enacted in eight states and two Native American nations, and L3C legislation has been proposed in eleven other states, including Hawai'i.[532]

Employee Stock Ownership Plan (ESOP)

An ESOP is a for-profit form of business in which the workers own either all or part of the company. The ESOP mechanism is a common way for family business owners to sell their companies to their employees, resulting in significant tax advantages to the family, expansion of employee assets and control, and the preservation of an important component of the local economy. As businesses, ESOPs' primary responsibility is to make a profit. However, because they are worker-owned, ESOPs tend to be very community-oriented.

More than 10 million employees own all or part of 10,900 companies through ESOPs, generating equity benefits of $869 billion for their employee-owners.[533] Examples in Hawai'i include HPM Building Supply, DTRIC Insurance, Aqua Hotels and Resorts, and Roberts Hawai'i.

For businesses exploring the transition to an ESOP, many resources are available from the National Center for Employee Ownership,[534] The ESOP Association (which has a Hawai'i chapter),[535] and the Ohio Employee Ownership Center.[536]

Cooperative

A cooperative (co-op) is a voluntary, democratically-controlled, member-owned organization.[537] Generally the benefits of a cooperative are distributed in some fashion to the (usually local) member/participants and not to investors. There are five general types of co-ops:[538]

- Consumer: Consumer co-ops are by far the largest category generating close to 97% of all memberships. Members seek to purchase goods and services, and profit distribution is often based on the member usage, therefore the more a member uses or purchases from the co-op the more they get in profit return.
- Worker: Worker co-ops are owned and governed by their employees. Often organized on the one-person/one vote principle, employee-owners elect the board, which dictates management objectives. Profit dividends can be distributed based on hours worked, salary, or seniority.
- Purchasing: Purchasing co-op members are businesses seeking to improve competitiveness through their collective purchasing power. These co-ops can negotiate prices, collaborate on joint advertising, and secure common billing services. Profit can be retained to further the co-op and returned to members based on usage.

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531 Tyler. Pp. 117, 143-44.
532 http://www.americansforcommunitydevelopment.org/ index.php
533 http://www.alternet.org/beyond-throwaway-cities-how-build-export-proof-local-economy?akid=9142.1086315.2P1XY6&rd=1&src=newsletter682969&t=16
534 http://www.esop.org/
535 http://www.esopassociation.org/chapters/find-a-chapter/hawaii-chapter
536 http://www.oeockent.org/
537 See the International Cooperative Alliance Statement of Principles. http://www.ica.coop/coop/principles.html
538 For expanded discussion on types of co-ops see National Cooperative Business Association. http://www.ncba.coop/ncba/about-co-ops/co-op-types

- Producer: Common among agriculture producers, the intent of producer coops is to create greater industry power for producers. Producers can better negotiate or create their own processing facilities. This type of co-op also includes marketing and value-added processing co-ops.
- Multi-stakeholder: This is a hybrid coop in whose members represent more than one typical co-op ownership group, such as consumers, workers, and producers. It is growing in popularity as a tool for strengthening local food systems.

Examples

Co-ops operate in almost every business sector of the economy, with approximately 30,000 incorporated, owning $3 trillion in assets through 350 million memberships (by 40% of the US population).[539] Well known coops include ACE Hardware, True Value Hardware, and Best Western Hotels. Many operate in Hawai'i, including the Paradise Home Care Coop, the Hawai'i Bioenergy Producers Coop, the Hilo Farm Supply Coop, the Hāmākua North Hilo Agriculture Coop, the Hawai'i Cattle Producers Coop, the Ka'ū Agricultural Water Coop District, the Ka'ū Coffee Coop, and the Wood Valley Agricultural Coop. Other examples include:

Organic Valley Family of Farms: Organic Valley is one of the largest organic brands in the nation and the largest farmer-owned organic cooperative in North America. It began with 7 dairy farmers in the 1980's and is now a national brand with 1,700 farms and $715 million in sales.[540]

Biofuel Oasis:[541] This worker-owned coop in Berkeley, California started with biodiesel production from recycled vegetable oil and has since expanded to include a retail store featuring food and urban gardening supplies.

Patient/Physician Coop (PPC):[542] Established in 2005, PPC is a non-profit organization of patients, physicians and member representatives. PPC is not an insurance product or discount program; it is a group of physicians who have joined together to give their patients access to affordable, basic health care through mutual support. Through the concept of cooperative purchasing, the members function as a group to obtain access to health care at affordable prices. Primary or basic medical care services are provided to members with no co-payments or with a $0 office visit co-payment and no health qualifications. Currently, members may select from 49 primary care physicians in the greater Houston area. Each member signs a monthly payment plan agreement with a primary care provider through which the availability of the physician and his or her services are paid in full.

Alliance to Develop Power (ADP):[543] ADP is a nonprofit coop in Springfield, Massachusetts whose mission is to create living wage jobs for its members. It started in the 1990s with affordable housing development and has since diversified to include member-ownership of the services needed to maintain the housing, like landscape services, painting, and construction. Business profits are re-invested in community programs for youth, agriculture, and financial education.

We Can Do It![544] This women-owned and -run housecleaning cooperative in Brooklyn was incubated by the nonprofit Center for Family Life (CFL). CFL helped the women build the co-op from scratch, provides

539 Deller, Steven, et. al. "Research on Economic Impact of Cooperatives." University of Wisconsin Center for Cooperatives. June 19, 2009, pg. 2.
540 Green American. 2012. "The Sharing Solutions: 5 Ways Cooperatives are Creating a New Economy." Green American, September/October, 2012, Issue 90.
541 http://biofueloasis.com/
542 http://www.patientphysiciancoop.com/
543 a-dp.org
544 http://www.wecandoit.coop/

mothers and grandmothers with the flexible work schedules that they need, and works with them to explore new products and services such as making their own nontoxic cleaners.

Evergreen Community Cooperatives:[545] Founded in 2008, Evergreen is a network of cooperatives in Cleveland built to meet the supply and service needs of local businesses, government offices, and organizations while building wealth and assets within the community. It captures the $3 billion spent each year by anchor institutions (hospitals and universities) and leverages it for community benefit. With its anchor partners, it identifies supply chain needs that an Evergreen company can address and then co-designs the business to address those needs.

The first of Cleveland's planned network of cooperatives opened its doors for business in September 2009. The co-op industrial-scale laundry is a state-of-the-art, ecologically green commercial facility capable of handling ten million pounds of health-care linen a year. Its business plan provides all employee-owners a living wage and health benefits. After seven years on the job, if current projections are realized, each employee will have a $65,000 equity stake in the enterprise.

In October 2009, a second employee-owned, community-based company began large-scale installations of solar panels for the city's largest nonprofit health, education, and municipal buildings. Another business scheduled to start operations is a year-round hydroponic greenhouse capable of producing three million heads of lettuce and approximately 300,000 pounds of basil and other herbs a year. Many other enterprises are in the planning stage.[546]

Mondragon: Cooperatives can be modest in scope or evolve into significant ventures, such as the Mondragon Co-op in Spain, which employs over 83,000 people in several dozen industries. Mondragon Cooperative (MC) is composed of many co-operative enterprises grouped into four areas: industry, finance, retail, and knowledge. In each enterprise, the co-op members (averaging 80-85% of all workers per enterprise) collectively own and direct the enterprise. Through an annual general assembly the workers choose and employ a managing director and retain the power to make all the basic decisions of the enterprise (i.e., what, how and where to produce and what to do with the profits).

As each enterprise is a constituent of the MC as a whole, its members must confer and decide with all other enterprise members what general rules will govern MC and all its constituent enterprises. In short, MC worker-members collectively choose, hire and fire the directors, whereas in conventional enterprises the reverse occurs. One of the co-operatively and democratically adopted rules governing the MC limits top-paid worker/members to earning 6.5 times the lowest-paid workers.

The MC rule that all enterprises are to source their inputs from the best and least-costly producers – whether or not those are also MC enterprises – has kept MC at the cutting edge of new technologies. Likewise, the decision to use of a portion of each member enterprise's net revenue as a fund for research and development has funded impressive new product development. R&D within MC now employs 800 people with a budget over $75 million. In 2010, 21.4% of sales of MC industries were new products and services that did not exist five years earlier.

In addition, MC established and has expanded Mondragon University, which enrolled over 3,400 students in its 2009-2010 academic year and offers degree programs conform to the requirements of the European framework of higher education. Total student enrollment in all its educational centers in 2010 was 9,282.

The largest corporation in the Basque region, MC is also one of Spain's top ten biggest corporations (in terms of sales or employment). It includes a co-operative bank, Caja Laboral (holding almost $25 billion

545 http://www.evergreencoop.com/index.html
546 http://www.alternet.org/beyond-throwaway-cities-how-build-export-proof-local-economy?akid=9142.1086315.2P1XY6&rd=1&src=newsletter682969&t=16

in deposits in 2010), and MC has expanded internationally, now operating over 77 businesses outside Spain.[547]

Resources and Funding

USDA Rural Development:[548] The USDA offers educational, research, technical assistance, data, and funding resources to coops.

Laulima Center for Rural Cooperative Business Development:[549] The USDA funds The Kohala Center's Laulima program, which provides technical assistance to increase the capacity Hawai'i Island rural residents to create and sustain successful cooperative business structures. Laulima Center services include coop business education and training, group facilitation and organization, strategic planning, feasibility assessments, business planning, market analysis, and fund development and financing.

There are many other regional and national coop associations that provide a wide range of information and support, including the Cooperative Development Institute,[550] the National Cooperative Business Association,[551] and the Northwest Cooperative Development Center.[552]

Community Development Corporation (CDC)

CDCs were devised in the 1960s as a revitalization strategy that would employ non-profit, community-based firms to develop locally-controlled assets. Roughly 4,000 CDCs produce more than 37,500 units of affordable housing and 12 million square feet of commercial and industrial space each year. CDCs also own more than 280 businesses, with equity stakes in another 250 businesses, and they own supermarket-anchored shopping centers in over a dozen U.S. cities.[553] CDCs also sponsor a range of other community programs and services, including community organizing, building of community leadership, education/training, and health and social services.

Examples of CDCs on Hawai'i Island include the Hilo-Hāmākua CDC (HHCDC), Hawai'i Island CDC (HICDC) and the Ocean View CDC (OVCDC). Resources for CDCs are available from Living Cities,[554] NeighborWorks,[555] the National Alliance for Community Economic Development Associations,[556] and LISC (Local Initiatives Support Corporation).[557]

Non-Profit Social Enterprise

Non-profit social enterprises are non-profit organizations that develop businesses both to make money and to further their mission. Responding creatively to fiscal constraints, many non-profits (especially in the social services) have found that by developing their own subsidiary businesses they can generate more revenue internally and also complement job and life skills training programs by directly providing entry-level jobs for the clients they serve.

Non-profits have a range of options for how to structure and finance social enterprises, including full philanthropic support, partial self-sufficiency, cash flow self-sufficiency, operating expense self-

547 http://www.mondragon-corporation.com/ENG.aspx
548 http://www.rurdev.usda.gov/LP_CoopPrograms.html
549 http://www.kohalacenter.org/laulima
550 http://www.cdi.coop/
551 http://www.ncba.coop/
552 http://nwcdc.coop/
553 Gittell, Ross & Margaret Wilder. (1999). "Community Development Corporations: Critical Factors that Influence Success." Journal of Urban Affairs. Volume 21, Number 3, pages 341-362.
554 http://www.livingcities.org/
555 http://nw.org/network/index.asp
556 http://www.naceda.org/
557 http://www.lisc.org/

sufficiency, full-scale commercialization, and mixed enterprises. Regardless, non-profits have to build internal capacity for business-specific activities (e.g., managerial capacity) and select a financial structure that reinforces the organization's mission, uses scarce resources efficiently, is responsive to change, and is practical.[558]

Examples

Goodwill Industries also runs a social enterprise which last year turned donations from 79 million people into revenue that provided job training to 4.2 million people. By reselling donated clothing, furniture and household goods, Goodwill diverts an estimated 2 billion pounds from landfills every year.[559]

Arc of Hilo takes a similar approach.[560] The Arc provides residential, educational, recreational, and vocational support to people with disabilities while also providing employment opportunities through its laundry services, commercial janitorial services, yard services, and plant nursery.

Kauhale O Wai'anae is a community driven re-development initiative focused on youth leadership training that weaves together entrepreneurial internships and college course work. It is a collaboration among MA'O Organic Farms,[561] Searider Productions of Wai'anae High School,[562] and Makaha Studios.[563] Through a hybrid nonprofit/for-profit business model, Kauhale is able to create industry while developing youth empowerment for the Wai'anae Coast.

Working Assets started as a credit card company, added phone service, and then created the subsidiary CREDO Mobile. The company operates as a privately-owned for-profit business, with most of the employees owning the stock. Profits are invested in progressive causes, already totaling $70 million.

Resources

Resources to build non-profit social enterprises are available from Enterprising Nonprofits,[564] the Social Enterprise Alliance,[565] and the SE Toolbelt.[566]

Community Land Trust (CLT)

CLTs enable non-profit community-based organizations to take land off the market and place it in a trust. In housing CLTs, a majority of the equity gain accrues to the trust (only a minority accrues to the resident), allowing the trust to offer housing to a subsequent owner at an affordable price. This type of "shared equity" model splits ownership between homeowner and the non-profit – the underlying land is owned by a nonprofit entity, while the house and other improvements are owned by individuals or cooperatives. Homeowners typically hold a 99-year, inheritable ground lease to the land. In addition to creating means for equitable housing, CLT's can also work to preserve or enhance natural resources and agricultural land. Land trusts may own the land outright or may hold conservation easements.[567]

Examples

558 Dees, Gregory J. 1998. Enterprising Nonprofits. Social Enterprise. Harvard Business Review.
559 http://www.goodwill.org/about-us/
560 http://www.hiloarc.org/
561 http://maoorganicfarms.org/
562 http://www.seariderproductions.com/
563 http://www.makahastudios.com/
564 http://www.enterprisingnonprofits.ca/
565 https://www.se-alliance.org/
566 http://www.setoolbelt.org/
567 Parker, Dominic P. 2004. "Land Trusts and Choice to Conserve Land with Full Ownership or Conservation Easements." Natural Resource Journal. Vol. 44. Pp. 483.

Troy Gardens is a project of the Madison Area Community Land Trust that is a unique example of a CLT that weds conservation and affordable housing.[568] The Troy Gardens Coalition planned and implemented a mixed housing/open space plan that was accepted by community residents and the City of Madison. Because of the multiple purposes of the land trust, the organization accesses financial and technical resources available for conservation, preservation, and affordable housing.[569]

Nā Hale O Maui (NHOM):[570] NHOM is Hawai'i's only CLT. It offers affordable homes as well as homebuyer seminars.

Lopez Community Land Trust uses a similar model in a rural context in Washington.[571] It provides affordable housing, agricultural programs (e.g., CSA, mobile processing unit), and other rural development programs like training in homebuilding and homebuyer counseling.

Resources

The National Community Land Trust Network provides a range of supports to develop and manage CLTs, including technical assistance, training, and online and print resources.[572]

Diversify Investment

The Carsey Institute study identified investments as a critical tenet for successful rural economic development in the New Economy.[573] Specifically, it recommends increasing access to capital by encouraging the existing private market to make available financial capital and creating alternatives to the private market. Similarly, Alperovitz and Dubb suggest that new wealth building forms (cooperatives, land trusts, municipal enterprises, and so on) are practical ways to stabilize local community economies.[574]

This section introduces a diversity of private and public funding and financing alternatives to support and encourage wealth creation and democratization.

Conventional Investment

Start-up businesses typically access the following types of financing:

Seed Round Funding – this type of funding is used to finance a company or idea through the proof of concept phase to the beginning of the stage when they actually generate revenue. Investors at this stage tend to be friends, family, or those close to the entrepreneur.

Angel Investors – this type of funding relies on wealthy individuals interested in investing in very small businesses or start-ups. Some angel investors are mission-driven, like the Investors Circle.[575]

Royalty Financing – this type of funding provides investors a percentage of revenues. It relieves the entrepreneur of implicit pressure that early equity investing creates to grow rapidly towards an "exit" and avoids dilution of the original owners. It is more appropriate than debt in the early stages of a

568 http://www.troygardens.net/
569 Campbell, Marcia Caton & Danielle A. Salus. 2002. "Community and conservation land trusts as unlikely partners? The Case of Troy Gardens, Madison, Wisconsin." Land Use Policy.
570 http://www.nahaleomaui.org/
571 http://www.lopezclt.org/
572 http://www.cltnetwork.org//index.php
573 Brown-Graham, Anita and William Lambe. 2008. "Measure & Methods: Four Tenets of Rural Economic Development." Carsey Institute Policy Brief No. 9.
574 Alperovitz, Gar and Steve Dubb. 2012. "The Possibility of a Pluralist Commonwealth and a Community-Sustaining Economy." The Democracy Collaborative.
575 http://www.investorscircle.net/

business since repayments are based on revenues and allow for better cash flow management. It provides a new financing structure that can fund a business in the late product development or early revenue stages of development when debt financing is either inappropriate or not available and when equity capital might be too dilutive.[576]

Series A Funding – the initial investment by professional financiers, including:

- Commercial Banks & Credit Unions: Commercial banks and credit unions offer direct loans. They also offer participation loans that may be partially funded by another outside source. Banks and credit unions may also fund loans through a government guaranteed loan program such as the Small Business Administration (SBA) or the United States Department of Agriculture (USDA) Rural Development agency (see below).
- Farm Credit System: The Farm Credit System is a national financial cooperative that lends money and provides financial services to agriculture in rural America. The Federal Land Bank Association of Hawai'i and the Hawai'i Production Credit Association merged to form Farm Credit Services of Hawai'i.[577]
- Federal Loan Programs:
    - USDA Rural Development grants and loans,[578] including revolving loan funds,[579] business loans and grants,[580] and energy programs[581]
    - Farm Service Agency loans,[582] including microloans, beginning farmers and ranchers, farm operating loans, farm ownership loans, and minority and women farmers and ranchers
    - Small Business Administration works through commercial banks and credit unions and also provides an array of financing, from the smallest needs in microlending to substantial debt and equity investment capital (venture capital).[583]
- Hawai'i State Agricultural Loans:[584] The Hawai'i State Department of Agriculture provides direct loans after farmers have been declined through commercial banks, loan participation programs and loan guarantee programs.

Venture Capitalist Investment – large investments in growing proven businesses. Some venture capitalists are mission-driven, like SJF Ventures[585] and Renewal Funds.[586]

Private Equity Fund – usually buy out well-established businesses that are undervalued by the marketplace.

Alternative Private Financing Institutions

According to Biz2Credit Small Business Lending Index (June 2013), large banks (> $10 billion in assets) approved 16.9% of small business loan applications, and small banks (< $10 billion in assets) approved

576 http://slowmoneynocal.org/a-closer-look-at-royalty-financing
577 http://www.hawaiifarmcredit.com/index.html
578 http://www.rurdev.usda.gov/RD_Loans.html
579 http://www.rurdev.usda.gov/BCP_rbeg.html; http://www.rurdev.usda.gov/BCP_irp.html
580 http://www.rurdev.usda.gov/LP_BusinessPrograms.html
581 http://www.rurdev.usda.gov/Energy.html
582 http://www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=landing
583 http://www.sba.gov/category/navigation-structure/loans-grants
584 http://hdoa.hawaii.gov/agl/
585 http://www.sjfventures.com/
586 http://renewalfunds.com/

49.8%. In contrast, credit unions approved 44.8%, and "alternative lenders" (e.g., CDFIs, accounts receivable financiers, microlenders) approved 63.4% of applications.[587]

Credit unions are cooperative, member-owned, nonprofit financial institutions that provide credit at competitive rates and other financial services to members. Many credit unions are certified as CDFIs. Some credit unions are experimenting with local investment options. For example, Self-Help Credit Union[588] has a "Go Local" certificate of deposit (CD), from which the capital will exclusively fund local loans and investments, including local independent businesses, home mortgages (that are guaranteed to remain at the Credit Union), and local economic development projects. (Insert PA Credit union List)

CDFIs (Community Development Financial Institutions) are financial institutions certified by the United States Treasury to fund a variety of community development programs, often using a range of financing tools packaged together, including Small Business Administration (SBA) guarantees, flexible amortization, and long term payouts. CDFIs include community development banks, credit unions, loan funds, venture capital funds, and microenterprise loan funds. CDFIs aim to fill capital needs that are not served by conventional sources of finance.

Accounts receivable lenders (often known as factors) purchase a company's accounts receivable (i.e., payment due from customers) at a discount (often 70-85% of the purchase prices of the accounts), providing business owners with working capital. The factor then recoups the investment as customer payments are made.

Microlenders provide small loans designed to spur microentrepreneurship. They often target women, minority entrepreneurs, and low-income entrepreneurs in economically disadvantaged communities and established empowerment zones that lack collateral or long credit history and are unable to meet minimal qualification of traditional lenders.

Examples of microlenders in Hawai'i include:

- Feed the Hunger Foundation, which provides loans to low income individuals with businesses in the food system through local lending organizations.[589] Feed the Hunger Foundation has been awarded $1 million from the Economic Development Administration of the Department of Commerce to invest in the development of a more sustainable and secure local food system in Hawai'i.
- Akamai Capital, which provides investment capital for companies in operating within socioeconomically disadvantaged communities as well as financial technical assistance and training[590]
- Kuleana Makes Cents, which makes small loans (generally under $5,000) and provides business support services.[591]

Cooperative Funding: Some financial institutions focus specifically on funding cooperatives, like the LEAF Fund[592] and the Northcountry Cooperative Development Fund.593 At its May 5, 2011, meeting, the board of directors of the National Cooperative Business Association agreed to move forward on the creation of the National Cooperative Capital Investment Fund for the purpose of providing capital exclusively to co-ops.

587 http://www.biz2credit.com/small-business-lending-index/june-2013.html
588 https://www.self-help.org/
589 http://www.feed-hunger.com/
590 http://akamaicapital.com/
591 http://kuleanamakescents.webs.com/
592 http://leaffund.org/
593 http://www.ncdf.coop/

Natural Capital Investment: Shade Fund is a program of the Natural Capital Investment Fund[594] that provides loans to small businesses that conserve land and water resources, like entrepreneurs who work in forestry and forest products, small-scale agriculture, eco-tourism, natural food and medicines, biomass, and energy efficiency.[595]

Mālama Loans: OHA offers Native Hawaiians 4% fixed rate, 7-year loans through for business development, home improvement, and education.[596]

Public Incentive Funding

Federal, state, and local government agencies often create incentives to advance targeted economic development, including innovation funds and tax credits.[597] The State of Hawai'i offers several tax credits to encourage high-priority investment, including: [598]

- Research and Development – a 20% tax credit in addition to the 20% federal tax credit on research and development expenditures
- High Technology Business Investment – an income tax credit equal to 80% of a Hawai'i taxpayer's investment in a qualified business of up to $2 million per Qualified High Technology Business per year
- Motion Picture, Digital Media, and Film Production – a tax credit (15% on O'ahu and 20% on other islands) for qualified production costs of production companies producing a qualified film, television commercial, or digital media production.

New Market Tax Credits

The New Market Tax Credits (NMTC) was designed to spur community and economic revitalization in low-income areas.[599] Since 2000, NMTCs have helped 15,000 businesses in low income communities, developed or rehabilitated over 66 million square feet of real estate, and created almost 500,000 jobs. NMTCs work like this:

- The federal government authorizes credits through the CDFI Fund of the Department of Treasury and awards allocation authority to qualified Community Development Entities (CDEs) through a competitive process.
- CDEs determine what projects get funded. CDEs receive Quality Equity Investments (QEIs) from investors up to the amount of the allocation authority and use the QEI dollars to make a loan or equity investment in a project or business called a Qualified Active Low-Income Community Business.
- Developers and business owners get flexible financing. CDEs are required to offer financing with non-traditional or more flexible terms than conventional financing.
- Low-income communities benefit from investments.
- QEI investors get a 39% tax credit over a seven year period, receiving 5% per year in the first three years and 6% per year in the final four years.[600]

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594 http://www.conservationfund.org/our-conservation-strategy/major-programs/natural-capital-investment-fund/
595 http://www.shadefund.org/
596 http://www.oha.org/page/malama-loan-info
597 Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf
598 http://www.hawaiicounty.gov/rd-business-development
599 www.cdfifund.gov/nmtc
600 www.enterprisecommunity.com

Communities have used NMTCs to replace supermarkets and ensure local access to healthy food at affordable prices.[601]

Public Capture of Extracted Wealth

Government is in a position to secure a portion of community wealth that is extracted by private entities and reinvest it locally. Examples of tools used include:

- Community Fees & Taxes – special fees or taxes levied by cities and states, outside of general funds, which can be earmarked to create community wealth assets. Examples include:
  - Depletion Taxes – taxes on the depletion of non-renewable resources such as oil, natural gas, coal, and precious metals
  - Real Estate Transfer Taxes – taxes that are generally a percent of real estate value that are paid every time a property is sold
  - Impact Fees – developer exactions that are payments required of developers to ensure that new developments pay a fair share of the public costs they generate
  - Systems Benefits Charges – fees placed on electricity bills to support renewable energy, energy efficiency, low-income customer support, and other programs.
- Community Endowments – an enduring stock of assets dedicated to use in the community interest. These endowments are ways to bring resources not previously owned by community into enduring use by the community. Examples include land banks, community foundations, and community forests.
- Community Benefits Agreements – a legally enforceable contract between community groups and a developer, detailing benefits the developer agrees to provide the community (see Appendix V4B).

Local Capital

To complement more democratic, generative ownership, Kelly and Ratner suggest that local businesses use alternative forms of capitalization that don't give total control to capital.[602] Below is a sampling of some of the alternatives for raising capital for local businesses:

Peer-to-Peer (P2P) Lending

Peer-to-peer lending (also known as person-to-person lending, peer-to-peer investing, and social lending and abbreviated frequently as P2P lending) is the practice of lending money to unrelated individuals, or "peers," without going through a traditional financial intermediary such as a bank or other traditional financial institution. It is often used for seed funding. For-profit examples of peer-to-peer lending include Prosper[603] and LendingClub.[604]

Lending Circles: The Mission Asset Fund,[605] located in San Francisco, developed an innovative lending product to serve residents of the Mission District area. 44% of Mission District residents in San Francisco do not have credit histories. Lending Circles were created to provide micro-financing and help people build credit histories.

601 http://policylinkcontent.s3.amazonaws.com/Webinar-7-11-13.pdf
602 Kelly, Marjorie and Shanna Ratner. 2012. "Keeping Wealth Local: Shared Ownership & Wealth Control for Rural Communities." Ford Foundation, Wealth Creation in Rural America Project.
603 http://www.prosper.com/
604 http://www.lendingclub.com/
605 http://missionassetfund.org/

Lending Circles build on the longstanding practice of intra-community lending in communities across the world, known as *susus* in Africa, *paluwagan* in the Philippines, *lun-hui* in China, and *tandas* in Mexico. A Lending Circle is simple are a group of people who get together to create a group lending fund. Everyone in the group contributes money to the fund, and everyone gets a chance to take a loan out. Traditional circles can be high risk (abuse often happens), and they don't build credit history.

The Mission Asset Fund Lending Circle process involves the following:

- A group comes together and agrees upon how much they are willing to put into the general fund each month. For example, each member of a group of five contributes $10 per month for five months.
- At the end of each month, one person from the group gets the total amount contributed ($50 in the case of the five members who each contributed $10 each month). This keeps going until each member has had a chance at the loan.
- Loans are secured a local financial institution, with no fees to the participants.
- Payments are reported to credit agencies, so group members' credit scores improve, thereby providing a bridge to mainstream credit. On average, participants in the Mission Asset Fund of Lending Circle program see an increase of 49 points on their credit score after participating for just six months.
- Financial education is provided to help build knowledge about financial system, loans, and how to build assets.

Other organizations are also working to facilitate lending circles. Yattos provides an online tool for a group of friends to form a lending pool.[606] eMoneyPool takes it a step further and, like the Mission Asset Fund, reports users' transaction history to credit bureaus in order to improve credit scores.[607]

Crowdfunding

Crowdfunding is a collective cooperation of people who network and pool their money and resources together, usually via the Internet, to support efforts initiated by other organizations. Nearly $2 billion dollars was appropriated by crowdfunding projects in 2011. For example, a radio show in its third season raised just over $170,000. The developers of a digital guitar app interfacing with smartphones raised over a third of a million dollars, as well. In 2011, the *Ho'olulu Ka 'Ulu* Festival (Breadfruit Festival) was able to raise $5,000 through kickstarter.com.[608] This is one of now many different crowdfunding web sites,[609] and more are started all the time.

Donations vs. Investments: Any solicitation of the public to make an investment falls under securities law and requires filings with securities regulators before the offering can be made. There are many crowdfunding platforms that avoid this requirement by only allowing donations. No return on investment can be offered on these sites (other than small perks of nominal value). It is possible to crowdfund investments as long as the required legal filings are done first. This process is often called a Direct Public Offering (DPO).[610]

Opportunities for Hāmākua: Conzortia Business Funding has launched a crowdfunding site targeting Hawai'i residents.[611] Other sites might be avenues for ther Planning Area to pursue a range of

606 http://www.yattos.com/index.yto
607 https://www.emoneypool.com/static/index
608 https://www.kickstarter.com/projects/1269888685/breadfruittraditional-roots-and-modern-fruits/posts
609 http://en.wikipedia.org/wiki/Comparison_of_crowd_funding_services
610 http://www.cuttingedgecapital.com/crowdfunding/
611 http://www.conzortia.com/honolulu/projects

community objectives, like Neighbor.ly for civic projects, Weeve[612] for nonprofits, and Indiegogo[613] for most any type of project. Several other recent crowdsourcing developments relate to industry sectors that have potential in the Planing Area:

- **Agriculture**
  - DPOs are being used to finance local agribusinesses with small, local investors. Examples include People's Community Market[614] and Farm Fresh to You CSA.[615]
  - Credibles, or "edible credits," creates a model for pre-paying for local produce.[616]
  - The Soil Trust invests donations into to invest in local food enterprises.[617]
  - Slow Money[618] recently announced a new crowdsourcing tool for local food systems called Gatheround.619 Gatheround will allow anyone to make a direct investment in a small food enterprise.620
- **Renewable Energy**
  - Mosaic connects small investors with high quality solar projects.[621]
- **Creative, Education, and Research**
  - Some crowdfunding sites, like Kickstarter,[622] focus on creative projects.
  - ArtistShare,[623] Pledgemusic,[624] and other crowdsourcing sites are for musicians.
- **Retail**
  - Several crowdfunding sites specifically target small businesses, including 40Billion[625] and Fundable.[626]
  - DPOs are being used to finance local businesses like Quimper Mercantile[627] with small, local investors.
  - LION Investing (Local Investment Opportunities Network) connects local investors in the Olympic Peninsula, Washington[628] and Madison, Wisconsin[629] area with local business owners who need capital.

612 http://www.weeve.it/
613 http://www.indiegogo.com/
614 http://peoplescommunitymarket.com/
615 http://www.farmfreshtoyou.com/index.php?cmd=greenloans
616 https://credibles.org/
617 http://www.soiltrust.org/
618 http://slowmoney.org/
619 http://www.gatheround.org/
620 http://organicconnectmag.com/wp/funding-our-own-local-food-economy/#.UYgfOIKayqc
621 https://joinmosaic.com/
622 http://www.kickstarter.com/
623 http://www.artistshare.com/v4/
624 http://www.pledgemusic.com/
625 http://www.40billion.com/
626 http://www.fundable.com/
627 http://www.quimpermerc.com/
628 https://l2020.org/LION
629 http://lioninvesting.com/ourstory/the-concept/

- Crowsnest Pass, Alberta, which encompasses five small towns totally 5,500 people, is using the Crowsnest Opportunity Development Co-operative (CODC)[630] to put citizens back in the driver's seat of their community by investing in local businesses.[631]
- GreenFunder is a Hawai'i-based crowdfunding site that raises money for socially responsible projects and businesses.[632]

- Construction and Real Estate
  - Fundrise was developed to let communities invest in local real estate projects to help determine what gets built.[633]
  - Prodigy Network is another leader in real estate crowdfunding.[634]

- **Local Stock Exchange:** The 26th Legislature of 2011 adopted Senate Concurrent Resolution (SCR 134 SD 1) to form a work group to investigate the feasibility of a locally-focused, Hawai'i based stock exchange. The work group's report concluded that:
  - There is a need for an investment exchange.
  - The entity should not be State-sponsored.
  - More investigation is needed to determine the demand for this type of local investment, what the focus of the local investment entity would be, and what type of local investment would generate the greatest equity investment for start-up companies or existing companies.
  - Efforts to establish a Hawai'i Exchange for Local Investment should be a coordinated effort on the part of the state to determine what type of industry the state wants to focus its energy and resources on, what type of jobs would be needed, and what type of educational opportunities would need to be provided.
  - The Hawai'i Community Exchange[635] seeks to help generate local investment in local companies using a broker-dealer supervised Internet platform that supports reasonable costs, transparent processes, rigorous due diligence, and quality communications with meaningful metrics. HCE is currently testing a match-making platform with Mission Markets Inc.[636] The next step would be to incorporate as a Hawai'i Sustainable Business Corporation (Hawai'i's Version of the B-Corporation).

- **Support:** At least two enterprises have formed to help communities choose the wisest local investment strategies:
  - Cutting Edge Capital collaborates with "changemakers" to bring local investment capital to a resilient, just, sustainable economy.[637] It helps entrepreneurs and nonprofit organizations raise capital through strategies tailored to each organization and community.
  - Community Sourced Capital helps local businesses borrow money from people in their community.[638]

630 http://codcoop.org/
631 http://axiomnews.ca/node/3433
632 http://www.greenfunder.com/index.php
633 http://www.nytimes.com/2013/05/15/realestate/commercial/washington-projects-invite-the-small-local-investor.html?ref=business&_r=0
634 http://prodigynetwork.com/en/
635 hilocalexchange.org
636 http://www.missionmarkets.com/
637 http://www.cuttingedgecapital.com/

Promote Regional Assets

When innovative products and services have been developed as part of industry clusters tied closely to Hāmākua's regional identify, those unique, place-based products have to be promoted. For example, websites and mobile applications can be used to map regional assets and distinctive features of the local economy. Walking tour mobile apps are a great way to add educational/cultural components to historic areas One goal of promotion should be to build long-term relationships with nearby urban markets and residents. To be most effective, local businesses should become regional businesses by reaching out to a regional customer base, making urban areas feel they are part of the region. [639]

Agricultural Tools and Strategies

DBEDT's Rural Economic Development Report advocates for establishing a regional agriculture development campaign that develops regional product labels and educates about regional products.[640] The Agricultural Development Division of the Hawai'i Department of Agriculture[641] has two related programs:

- **Buy Local, It Matters** Campaign encourages residents to support Hawai'i farmers by making conscious decisions to purchase locally grown produce.
- **Hawai'i Seals of Quality** represents the cream of the crop of Hawai'i's agricultural producers. It is a statewide branding program to protect the integrity and value of Hawai'i agricultural and value-added processed products. Products with this seal are genuine, Hawai'i-grown or Hawai'i-made premium products. Several agribusinesses in the Planning Area participate in the Seals of Quality program, including:
    - Hāmākua Heritage Farm
    - Hāmākua Springs Country Farms
    - Hawaiian Vanilla Company
    - Ho Farms
    - Wailea Agricultural Group

Visitor Industry Tools and Strategies

A growing trend in the travel industry is to offer mobile "apps" that guide visitors through the sites and business that a region has to offer. The National Association of State Chief Information Officers (NASCIO) maintains a catalog of mobile apps used by various States.[642] Apps featuring Hawai'i included: Official Hawaiian Islands Visitors' Guide, Festivals of Hawai'i, "Royal Footsteps Along the Kona Coast" Scenic Byway.[643]

The next step will be to use "Quick Response" (QR) codes on interpretive signage that links visitors' mobile devices to audio and video feeds about sites. Lake Metroparks is placing QR codes on park bulletin boards to allow visitors to scan and open the web page for that particular park. The page

638 http://www.communitysourcedcapital.com/
639 http://historickailuavillage.com/royal-footsteps-along-the-kona-coast/
640 SMS Research & Marketing, Inc. 2010. "Rural Economic Development Planning Report." Hawai'i Department of Business, Economic Development, & Tourism, Office of Planning.
641 http://hdoa.hawaii.gov/add/
642 www.nascio.org/Apps/
643 http://historickailuavillage.com/royal-footsteps-along-the-kona-coast/

provides the address, GPS coordinates, information about the park, and a link to the trail map, if applicable.

Foster Network Leadership

As many rural areas in Hawai'i continue to grapple with recovery from the phase out of plantation-era economics, in some cases now close to 40 years later, it is becoming increasingly clear that long-term systems of transformation and recovery are required to make lasting change. Ideally, these systems would coordinate the complementary types of strategies introduced in this section – enhancing regional identity, building local industry clusters, connecting to anchor institutions, advancing innovation, building business and workforce capacity, democratizing ownership, and diversifying investment. These systems could combine the necessary facilities and infrastructure with a network of comprehensive services that bring technical, financial, and educational support to ensure that new and existing enterprises have the greatest chance for lasting success.

Often, "*loose systems with a common cause can more effectively change large systems,*" suggesting that a "network" approach to building systems of economic transformation may be most effective for advancing community-based economic development in rural communities. As introduced in Appendix V4A, networks are sets of relationships and the patterns they create. These patterns influence the quality of communication and the likelihood of collaboration and innovation. As Clay Shirky (author of *Here Comes Everybody*) expressed, "We are living in the Golden Age of network theory, where sociology, math, computer science and software engineering are all combining to allow the average user to visualize, understand, and most importantly, rely on the social and business networks that are part of their lives."

This network approach to support an entrepreneurial economy is supported by the Carsey Institute study, which identified social connections as a critical tenet for successful rural economic development in the New Economy.[644] Social connections provide access to critical supports. The creation and maintenance of the dense social networks – linking people, businesses, and institutions to each other and the wider regional economic networks and opportunities – are pivotal for economic vitality in rural towns.

Networks were also a key component of ACENet's and CAN's success. Serving as regional catalysts, they engaged local entrepreneurs, nearby urban markets, both rural and urban residents, support organizations, and university researchers as part of a regional network focused on identifying and implementing high leverage regional economic development activities. Through the process of network building, they built and trained leadership, catalyzed innovation-fueling collaborations, supported pilot projects, and helped to increase the sense of pride, engagement, and identity in the region.[645]

Networks are also a core component of Littleton, Colorado's "economic gardening" approach to local economic development. Based on network theory that indicates that an increase in the number of business connections increases innovation – particularly "weak ties" to "hubs" outside an enterprise's normal network – the city actively connected trade associations, industry clusters, CEOs, academic institutions, and research organizations.[646]

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644 Brown-Graham, Anita and William Lambe. 2008. "Measure & Methods: Four Tenets of Rural Economic Development." Carsey Institute Policy Brief No. 9.

645 Holley, June and Leslie Schaller. 2009. "Entrepreneurship With A Regional Flavor." Appalachian Center for Economic Networks; Holley, June. 2006. "Regional Flavor: The Creative Power of Communities." Rural Research Report, Summer 2006, Volume 17, Issue 6; Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf

646 Woods, Jim and Christian Gibbons. 2010. "Economic Gardening – Is It Right For Your Community?" PM Magazine, ICMA Publications, October, 2010, Volume 92, Number 9.

A similar, informal network approach drives the Cleveland Model, in which nonprofits cooperate with public institutions and private employers, indicating that "planning" need not mean remote government officials drawing up a blueprint and then imposing it. Rather, community economic planning can be collaborative, with multiple institutional actors involved.[647]

DBEDT's Rural Economic Development Report makes some specific recommendations for building and sustaining rural networks:

- Develop skilled leadership to bring the community together to move in new directions;
- Develop regional agricultural associations;
- Develop relationships between regional producers and retail enterprises;
- Promote and educate about regional products; and
- Create websites with maps indicating where products originate.[648]

A study conducted by Collaborative Economics for the Bay Area Council Economic Institute lends further support for the networked approach.[649] It suggests that innovation is collaborative and networked. In the traditional economy, ideas were held tightly within institutions; in the innovation economy, ideas flow more freely within networks. The unit of innovation has become the network, not simply the firm.

The study argues that "innovation brokers" play a special role in finding inventors, transformers, and financiers and connecting them in partnerships that can produce economic and community benefits to improve the broader climate for innovation. The following are a series of steps that innovation brokers can use to establish an ongoing cycle of innovation over time:

- Raise the Stakes – introduce innovation as the imperative. Share the latest thinking and experiences; give innovation a human face; and package key concepts, data, and testimonials about innovation to pursue a broader dissemination strategy.
- Reassess the Region – identify current and potential sources of innovation. Make the case for reassessment; focus on the cornerstones of innovation – assets, networks, culture, and community.
- Connect the Innovators – conduct a disciplined, collaborative process. Take time to design a disciplined process to engage innovators; focus on opportunities and requirements to capitalize on opportunities.
- Broker Breakthroughs – help innovators take collaborative action. Provide an action plan template and insist on breakthrough outcomes; make sure actions have champions and will produce breakthrough outcomes.
- Network the Brokers – accelerate and expand innovative collaborations.
- Redefine Success – change the metrics in economic development.

Others have shared similar "lessons learned." Holley suggests that, to establish and strengthen networks, efforts must be targeted at

- Nurturing quality connections so projects can be high risk and high impact

647 http://www.alternet.org/beyond-throwaway-cities-how-build-export-proof-local-economy?page=0%2C2&akid=9142.1086315.2P1XY6&rd=1&src=newsletter682969&t=16
648 SMS Research & Marketing, Inc. 2010. "Rural Economic Development Planning Report." Hawai'i Department of Business, Economic Development, & Tourism, Office of Planning.
649 http://www.coecon.com/Reports/Innovation/InnovDrivenEconoDev.pdf

- Bridging differences – connect people and ideas that normally don't go together
- Supporting overlapping projects or collaborations, many very small, initiated by many
- Mapping the network in order to visualize structure – diagnose strengths and weaknesses, and identify strategies for growing the network, and
- Growing and engaging the periphery to bring in new resources and innovation.[650]

Transition Town:[651] The Transition Movement is an example of network leadership used to fuel community development. It is a network of vibrant, grassroots community initiatives that seek to build community resilience in the face of environmental and economic challenges. Transition Initiatives differentiate themselves by seeking to mitigate these converging global crises by engaging their communities in home-grown, citizen-led education, action, and multi-stakeholder planning to increase local self-reliance and resilience. Their premise is: "If we wait for the governments, it'll be too little, too late. If we act as individuals, it'll be too little. But if we act as communities, it might just be enough, just in time."

Based on local practice from around the world, Transition United States has articulated these "Seven Guiding Principles of Transition," which align closely with basic principles of network leadership:

- Positive Visioning – dedication to a tangible, practical vision for the community
- Help People Access Good Information and Trust Them to Make Good Decisions – present information about challenges in ways that are accessible and engaging and that enable people to feel enthused and empowered
- Inclusion and Openness: – reaching the community in its entirety, and endeavoring, to engage the local business community, the diversity of community groups, and local government authorities
- Enable Sharing and Networking – share successes, failures, insights, and connections to more widely build up a collective body of experience
- Build Resilience – build the capacity of our businesses, communities, and settlements to withstand shock across a wide range of areas (food, economics, energy, etc.) and on a range of scales
- Inner and Outer Transition – support change both in world views and in community
- Subsidiarity (self-organization and decision making at the appropriate level) – work with everyone at the most appropriate, practical, and empowering level, modeling the ability of natural systems to self-organize.

Transition United States offers a range of resources to people interested in starting a Transition Town initiative, including a directory of Transition Towns, online and live training, online networking, and a knowledge hub of material related to awareness raising, organizing, and projects.

CBED Implementation Examples

At the beginning of this section, it was noted that the strategies describe above are most effective when employed simultaneously and in coordination with one another. Some of the most successful rural communities have taken that to heart and used holistic, integrated strategies to community-based economic development.

650 www.networkweaving.com
651 http://www.transitionus.org/

MA'O Organic Farms & Kauhale (Wai'anae Community Re-Development Corporation):[652] Dana Forsberg, through her film "Growing People," documents the groundbreaking youth leadership program of MA'O farms that combines a revival of pre-colonial Hawaiian food practices with a path to a college degree – and how young people are able to reconnect to their heritage when they empower themselves and build community through their work at the farms.[653] The Wai'anae Community Re-Development Corporation (WCRC) started MA'O on a 5-acre certified organic farm in Lualualei Valley in the Wai'anae moku of O'ahu and has expanded their efforts over 12 years to grow organic food and young leaders on what is now a 27-acre farm. MA'O has become nationally recognized as a model for weaving youth leadership development and sustainable agriculture through its Youth Leadership Training (YLT) Program as demonstrated by the fact that their farm is co-operated by youth aged 18-23 who are required and supported to pursue associates degrees at Leeward Community College (LCC).

In addition, WCRC has established the Kauhale Education and Entrepreneurship Initiative (Kauhale) that merges MA'O with the established and award-winning youth digital media programs, Searider Productions[654] and Mākaha Studios.[655] A partnership with the University of Hawai'i West O'ahu (UHWO) has also led to the creation of a bachelor's certificate in Sustainable Community Food Systems (SCFS) and farm/education pilots on UHWO lands in the Ewa moku. The SCFS certificate provides an opportunity for students to understand the interdisciplinary connections between agriculture, science, business, Hawaiian cultural traditions, and political and social justice issues.

Concurrent with these educational efforts, MA'O is working with Kamehameha Schools (KS) as they launch a new, long-term initiative that will significantly deepen the support and intergenerational impact of Bernice Pauahi's legacy to children, families, and communities on the Wai'anae Coast. The vision is a healthy, vibrant native Hawaiian community whose youth and families lead for the future, firmly grounded in knowing who they are and where they come from.

The vision includes expansion of the MA'O model to the North Shore of O'ahu to scale its efforts to generate viable community-based social enterprises, production of sustainable organic food, and an educated workforce. This regional approach (spanning the moku of Wai'anae, Ewa, and Wai'alua) weaves an extensive network of community, public, and private entities to mobilize and leverage assets and resources targeted at taking back control of the local food system to generate opportunities that help sustain a vibrant local economy.

Primary components of the MA'O/Kauhale/WCRC approach include:

- Enhance Regional Identity: By starting from "place" and "community" rather than just focusing on the replication of a model, the MA'O/Kauhale/WCRC approach builds on assets and resources that already exist in the region and shapes strategies from "where people are at."
- Build Entrepreneurial & Workforce Capacity in Local Industry Clusters: Using an edu-preneurial (education and entrepreneurship) approach, MA'O established an education-to-workforce pathway for disadvantaged youth and other community members both in organic, sustainable agriculture and in digital media and storytelling. This fundamentally changes educational delivery from a wide range of isolated schools, programs, and initiatives to an integrated education-enterprise continuum supported by public and private partnerships.

652 http://maoorganicfarms.org/
653 Forsberg, D. (2013). "SocDoc Graduate Exhibition 2013." UC Santa Cruz Film + Digital Media. Retrieved on July 7, 2013 from http://film.ucsc.edu/news_events/2013/05/22/socdoc_graduate_exhibition_2013
654 http://www.seariderproductions.com/
655 http://www.makahastudios.com/

- Connect to Anchor Institutions & Diversify Investment: New investments of funds, land, and other assets and resources have come through a diverse network of collaborative efforts with educational partners (public elementary, intermediate, and high schools; private schools; and higher learning institutions), land owners, financial and philanthropic entities, local businesses (restaurants, food retailers, farmers' markets), health organizations, and other community-based organizations.
- Foster Network Leadership: The MA'O/Kauhale/WCRC approach catalyzes multi-sector relationships and incorporates ongoing capacity and leadership development, especially among the community's youth.

Appalachian Center for Economic Networks (ACEnet):[656] ACEnet is a regional nonprofit economic development organization in a region that has some of the highest poverty and unemployment rates in the country. ACEnet has successfully added value to the Appalachian region's agricultural assets by creating a system of support for specialty food entrepreneurs that involves multiple, interrelated strategies: enhancing regional "flavor," building a local agriculture cluster, encouraging innovation, building capacity, local financing, and e-commerce promotion.

Specifically, ACEnet focused on serving the specialty food and agricultural cluster in the Appalachian region by catalyzing and supporting a regional network. ACEnet engaged food manufacturers, locally-owned restaurants, farmers, businesses providing services (such as graphic designers and accounting services), markets (large grocery stores to convenience stores), distributors, nearby urban markets, and non-profits, agencies, and universities that ACEnet helped to customize services to more effectively serve food-related businesses. This regional network focused on identifying and implementing high leverage regional economic development activities. Through the process of network building, they built and trained leadership, catalyzed innovation-fueling collaborations, supported pilot projects, and helped to increase the sense of pride, engagement, and identity in the region.[657]

Defining the specialty food cluster to include food producers, their markets, and organizations that supported their success was critical to develop a new cluster infrastructure – a set of permanent services and programs that enable more food cluster businesses to start-up and then continue to expand over the years. ACEnet supports agriculture and entrepreneurship through

- Business incubation support and services: Each year, the ACEnet kitchen incubator produces over 250,000 unique units, generating approximately $700,000 in entrepreneurial sales.
- Expanding business capacity through business counseling and training: Over 200 entrepreneurs, youth, and adults receive business entrepreneurship training annually.
- E-commerce, and market access programs: ACEnet's development of an e-commerce web site offers regional entrepreneurs a world-wide vehicle through which to show case and sell their locally crafted products.
- Increasing access to capital by providing business loans: ACEnet Ventures,[658] a nonprofit corporation, supports business expansion and job creation with loans coordinated with ACEnet's programming.
- Developing and advancing economic policy development to support agriculture and small business development.

656 http://www.acenetworks.org/

657 Holley, June and Leslie Schaller. 2009. "Entrepreneurship With A Regional Flavor." Appalachian Center for Economic Networks; Holley, June. 2006. "Regional Flavor: The Creative Power of Communities." Rural Research Report, Summer 2006, Volume 17, Issue 6; Central Appalachian Network. 2006. Strategies for Sustainable Entrepreneurship. http://www.cannetwork.org/roundtable/strategies.pdf

658 http://www.acenetworks.org/loans/

This has led to the emergence of a regional flavor cluster that involves artisans and food businesses joining with tourism bureaus and businesses to combine offerings and open large regional markets. The building blocks for this effort are micro-regions where artisan, food, recreation, tourism, and heritage organizations work together on a continual stream of region-building projects. In the process, these projects enhance the uniqueness and quality of area businesses, encourage many local and regional consumers to develop long-term buying relationships with those entrepreneurs and the region, and train local organizations to work together effectively. The regional flavor initiatives emerged from the area's natural and heritage assets, parks and recreational amenities, musical venues, rich history, and the work of skilled artisans.

When local assets are combined into unique sets of experiences, activities, and stories, there is an increase in economic activity as residents become more strongly committed to the region and purchase more regionally made products and services while visitors to the region develop long term emotional bonds and return to spend dollars with each visit.

Handmade in America:[659] Handmade in America is a non-profit organization promoting craft and culture for community and economic development in western North Carolina. Its multi-pronged strategy includes regional placemaking and branding, craft cluster development, entrepreneurial capacity building, promotion, and network weaving. Handmade in America:

- Collaborates with other organizations to accomplish common goals and avoid duplication of services.
- Offers a comprehensive curriculum of two-hour "Craft Labs" on business subjects, industry-specific skills, creativity, and access-to-market courses that are tailored to meet the unique needs of craft artists.
- Offers the Appalachian Women Entrepreneurs (AWE) program to support rural Western North Carolina women interested in creating or growing their small business. The AWE program connects these women with one another, with resources and markets.
- Provides curated exhibition opportunities.
- Hosts a comprehensive directory of artists, galleries, craft resources, and craft events in Western North Carolina.
- Grows clusters of craft mediums, from the raw manufacturing of the material, to the artist who utilizes the material, and the consumer who buys the finished product.
- Facilitates multi-faceted, asset-based approach to rural revitalization through the Small Towns Program.
- Supports town-to-town mentoring relationships to facilitate placemaking projects that highlight regional assets and define each town.
- Offers an online trip planner for visitors interested in finding artists and galleries.

Fifth Season Cooperative:[660] The Fifth Season Cooperative is a multi-stakeholder cooperative made up of producers, producer groups, food processors, distributors, and buyers from the 7 Rivers Region of Wisconsin, Minnesota, and Iowa. Members represent all of the key players in the food system at the local level. The goal is to build a robust regional food system that supports a healthy environment, a strong economy, and thriving communities.

659 http://www.handmadeinamerica.org/
660 http://fifthseason.coop/

As partially demonstrated in "**Error! Reference source not found.**", Fifth Season employs multiple, integrated strategies to local economic development, including:

- Enhancing Regional Identity: Building on the work of the 7 Rivers Alliance,[661] a regional leadership group that boosts economic growth by fostering collaboration, Fifth Season is strengthening the region's economic infrastructure.
- Building Local Industry Clusters: Fifth Season is significantly advancing the agriculture industry in the region by building food nodes and a food hub and encouraging local buying.
- Connecting to Anchor Institutions: Fifth Season sells agricultural products to local retailers, restaurants, hospitals, and school districts.
- Democratizing Ownership: As a multi-stakeholder coop, Fifth Season is owned and governed by its member growers, producer groups, processors, distributors, workers, and buyers.
- Diversifying Investment: Fifth Season is raising capital through a Direct Public Offering (the sale of Class B Series I Preferred Stock), with a minimum investment of $500 for 20 shares. Each share earns an annual dividend of 5%.

661 http://7riversalliance.com/

Figure 21. A Multi-Stakeholder Coop Approach to Building a Regional Food System