

ORDINANCE NO. _____

BILL NO. _____ (2018)

A BILL FOR AN ORDINANCE AMENDING SECTION 2.80B.070, MAUI COUNTY CODE, TO ADOPT THE UPDATED MOLOKA`I ISLAND COMMUNITY PLAN

BE IT ORDAINED BY THE PEOPLE OF THE COUNTY OF MAUI:

SECTION 1. The Molokai Community Plan, having an effective date of December 19, 2001, as amended, is hereby repealed, and the updated Moloka`i Island Community Plan (2018), attached hereto and incorporated herein by reference as Exhibit "1," is adopted.

SECTION 2. The Molokai Community Plan name was changed to the Moloka`i Island Community Plan. Notwithstanding this name change, the Moloka`i Island Community Plan is a community plan as referenced in, and in compliance with, the Revised Charter of the County of Maui (1983), as amended, and Maui County Code.

SECTION 3. Section 2.80B.070, Maui County Code, is amended by amending subsection C to read as follows:

"C. The following community plans are incorporated by reference and adopted pursuant to this chapter:

1. Hana Community Plan - Ordinance No. 2347 (1994), as amended;
2. Paia-Haiku Community Plan - Ordinance No. 2415 (1995), as amended;
3. Kahoolawe Community Plan - Ordinance No. 2413 (1995), as amended;
4. West Maui Community Plan - Ordinance No. 2476 (1996), as amended;

5. Makawao-Pukalani-Kula Community Plan - Ordinance No. 2510 (1996), as amended;
6. Kihei-Makena Community Plan - Ordinance No. 2641 (1998), as amended;
7. Lanai Community Plan - Ordinance No. 4343 (2016), as amended;
8. Moloka`i Island Community Plan [- Ordinance No. 3022 (2001), as amended] 2018; and
9. Wailuku-Kahului Community Plan - Ordinance No. 3061 (2002), as amended."

SECTION 4. Material to be repealed is bracketed. New material is underscored. In printing this bill, the County Clerk need not include the brackets, the bracketed material, or the underscoring.

SECTION 5. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM AND LEGALITY:

Department of the Corporation Counsel
County of Maui

pc:misc:002abill01:tntf

**MOLOKA`I ISLAND
COMMUNITY PLAN UPDATE
(2018)**

EXHIBIT “1”

County of Maui
September 2018

ACKNOWLEDGMENTS

MOLOKA`I PLANNING COMMISSION

Michael Jennings (Chair)
Billy Buchanan
Zhantell Dudoit
Marshall Racine
Wiliama Akutagawa

Douglas Rogers (Vice-Chair)
Ron Davis
Lawrence Lasua
Diane Swenson

MOLOKA`I COMMUNITY PLAN ADVISORY COMMITTEE

Steve Chaikin (Chair)
Pi`ilani Augustiro
Lori Buchanan
Debra Kelly
Edwin Mendija
Robert Stephenson
Carl Adolpho

Lance "Kip" Dunbar (Vice-Chair)
Dathan Bicoy
Gregory Jenkins
Deldrine Kauinohea Manera
John Sprinzel
Glenn Teves
The late Moses Luczon

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Yuki Lei K. Sugimura

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Yuki Lei K. Sugimura, Committee Vice-Chair
Elle Cochran, Committee Member
Stacy Crivello, Committee Member
Don S. Guzman, Committee Member
Riki Hokama, Committee Member
Mike White, Committee Member

Planning Committee Staff:

Traci Fujita, Legislative Attorney
Rayna Yap, Committee Secretary

Office of Councilmember Kelly T. King:

Susan Foley, Executive Assistant
Terra Foti, Executive Assistant
Kate Griffiths, Executive Assistant

**COUNTY OF MAUI
OFFICE OF THE MAYOR**

Alan M. Arakawa, Mayor
Keith Regan, Managing Director

DEPARTMENT OF PLANNING

Michele McLean, Planning Director
Joseph Alueta, Deputy Planning
Director

LONG RANGE DIVISION, DEPARTMENT OF PLANNING

Pam Eaton, Planning Program Administrator
Joy Paredes, Division Secretary
Richele Lesa, Office Operations Assistant
David Yamashita, Planner Supervisor
Jennifer Maydan, Project Lead, Senior Planner
Mary Jorgensen, Senior Planner
Doug Miller, Senior Planner
Annalise Kehler, Cultural Resource Planner
Daniel McNulty-Huffman, GIS Supervisor
Mark King, GIS Analyst
Michael Napier, GIS Analyst
Kristana Erikson, GIS Analyst

CONSULTANT TEAM AND SPECIAL STUDIES

Chris Hart & Partners, Inc.
John M. Knox & Associates, Inc.: *Moloka`i Economic Development Paper and
Moloka`i Housing Issue Paper*
Belt Collins Hawai`i LLC, John Kirkpatrick: *Land Use Forecast*
SMS Research & Marketing Services, Inc. and Belt Collins Hawai`i Ltd: *Socio-
Economic Forecast*
Wilson Okamoto Corporation: *County of Maui Infrastructure Assessment
Update 2003*
R. M. Towill Corporation: *Public Facilities Assessment Update County of Maui
2007*
PlanPacific, Inc.: Existing land use database for *Socio-Economic Forecast*

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LIST OF ACRONYMS

| | |
|----------|--|
| BCT | Business Country Town |
| BMP | Best Management Practices |
| CIP | Capital Improvement Program |
| County | County Department of Transportation |
| DOT | |
| CPAC | Community Plan Advisory Committee |
| CRS | Community Rating System |
| CTAHR | University of Hawai`i, College of Tropical Agriculture and Human Resources |
| CWPP | Community Wildfire Protection Plan |
| CWRM | State Commission on Water Resource Management |
| DBEDT | State Department of Business Economic Development and Tourism |
| DEM | County Department of Environmental Management |
| DHHC | County Department of Housing and Human Concerns |
| DHHL | State Department of Hawaiian Homelands |
| DLNR | State Department of Land and Natural Resources |
| DoCARE | State DLNR, Division of Conservation and Resource Enforcement |
| DOA | State Department of Agriculture |
| DOE | State Department of Education |
| DOH | State Department of Health |
| DOFAW | State DLNR, Division of Forestry and Wildlife |
| DPW | County Department of Public Works |
| DWS | County Department of Water Supply |
| EMA | County Emergency Management Agency |
| FEMA | Federal Emergency Management Agency |
| FIRMS | Flood Insurance Rate Maps |
| GIS | Geographic Information System |
| HDOT | State Department of Transportation |
| HFRA | Healthy Forest Restoration Act |
| HMP | County Hazard Mitigation Plan |
| HRS | Hawai`i Revised Statutes |
| HAZUS-MH | Hazards U.S. Multi-Hazard program |
| ISWMP | Integrated Solid Waste Management Plan |
| LEED | Leadership in Energy and Environmental Design |
| LID | Low Impact Development |
| MCC | Maui County Code |
| MCHC | Moloka`i Community Health Center |
| MECO | Maui Electric Company |
| MEDB | Maui Economic Development Board |

| | |
|--------|--|
| MEO | Maui Economic Opportunity |
| MFD | Maui Department of Fire and Public Safety |
| MFI | Median Family Income |
| MGD | Million Gallons per Day |
| MIS | Moloka`i Irrigation System |
| MLSWCD | Moloka`i Soil and Water Conservation District |
| MoPC | Moloka`i Planning Commission |
| MPD | Maui Department of Police |
| MW | Megawatt |
| NFIP | National Flood Insurance Program |
| NGO | Non-Governmental Organization |
| NOAA | National Oceanic and Atmospheric Administration |
| NRCS | Natural Resource Conservation Service |
| OED | County Office of Economic Development |
| OHA | State Office of Hawaiian Affairs |
| PD | County Department of Planning |
| PR | County Department of Parks and Recreation |
| SHPD | State Historic Preservation Division |
| SLR | Sea Level Rise |
| SMA | Special Management Area |
| STRHs | Short Term Rental Homes |
| TMK | Tax Map Key |
| TNC | The Nature Conservancy |
| TVR | Transient Vacation Rental |
| UH | University of Hawai`i |
| UHMC | UH Maui College, Moloka`i Education Center |
| UHERO | University of Hawai`i Economic Research Organization |
| UHMC | University of Hawai`i Maui College |
| USDA | United States Department of Agriculture |
| USGS | United States Geological Survey |
| WWRF | Waste Water Reclamation Facility |
| WWTF | Wastewater Treatment Facility |

1 | INTRODUCTION

Moloka`i is an island tremendously rich in natural and cultural resources. Its physical geography makes it one of the most striking places in the world to live and visit, and its bountiful agricultural lands are among the most fertile in the State. Moloka`i is famous for having the highest sea cliffs in the world, the most intact pre-contact system of man-made fishponds that exist anywhere in Polynesia, and the longest contiguous fringing coral reef system in the United States.

Moloka`i is often referred to as the “Last Hawaiian Island.” It is the most rural of the Hawaiian Islands and, excluding Ni`ihau, has the highest percentage of native Hawaiians in the State. Many Moloka`i residents still practice a subsistence-based lifestyle, relying on fishing, hunting, farming, and gathering for food, spiritual wellbeing, and cultural practices. Subsistence and bartering also play an important role in the island’s economy. There is a strong sense of `ohana on Moloka`i. Large extended families are common and sharing resources is customary. For many Moloka`i residents, maintaining close ties to the ocean, land, and ancestral places fosters a sense of connectedness to past, present and future generations.

Many Moloka`i families have lived on the island for generations, while some are more recent arrivals. Key events have shaped the structure and vitality of Moloka`i’s economy and land use, and in turn, have influenced the population makeup and employment of the island. Today, the people, brought together from many different cultures, share common values – a love for `ohana, the land and sea, and the rural lifestyle. The tightly-knit community, with its array of expertise and backgrounds, desires to be sustainable and part of the global economy.

But despite these great strengths, Moloka`i has historically had a limited economy partially due to the island’s remote location, small population base, and strong control by a few major landowners. Moloka`i residents are very protective of their rural and traditional-based lifestyles and have resisted economic development centered on tourism and real estate. Establishing a more vibrant job-producing economy, in harmony with Moloka`i’s rural lifestyle and cultural and environmental resources, will necessitate more creativity, harder work, and a greater spirit of entrepreneurialism than required for other areas with greater economies of scale. Moloka`i’s natural environment, cultural resources, and agricultural lands are key assets that, if properly managed and protected, will help to strengthen and diversify the island’s economy and ensure opportunities for future generations.

The Moloka`i Island Community Plan identifies current and anticipated future conditions and needs on Moloka`i. These conditions and needs are addressed throughout the Plan by identifying strategic planning goals, policies, and actions that will guide decision-making and implementation through 2035. Chapter 1 provides a general description of the planning area, the planning framework provided by the Maui County General Plan and the Hawaii State Planning Act, an overview of the community plan process, Plan organization, fast facts about Moloka`i, and a summary of the major problems and opportunities facing the island.

The Moloka`i Community Plan name was changed to the Moloka`i Island Community Plan in this update to acknowledge that Moloka`i is an island comprised of several communities (Central, East End, and West End). Notwithstanding this name change, the Moloka`i Island Community Plan is a community plan as referenced in, and in compliance with, the Revised Charter of the County of Maui (1983), as amended, and the Maui County Code.

OVERVIEW OF MOLOKA'I ISLAND COMMUNITY PLAN AREA

Moloka'i is one of four islands that make up the County of Maui (see Figure 1.1). Its elongated shape embraces widely varying topographic and climatic regimes. The island of Moloka'i is comprised of approximately 172,000 acres, (including the northern peninsula of Kalaupāpā) formed by a series of three volcanoes. The peninsula of Kalaupāpā, and some of the surrounding area on the northern coast make up Kalawao County, which is administered by the Hawai'i State Department of Health. The Kalaupāpā National Historical Park is managed by the National Park Service.

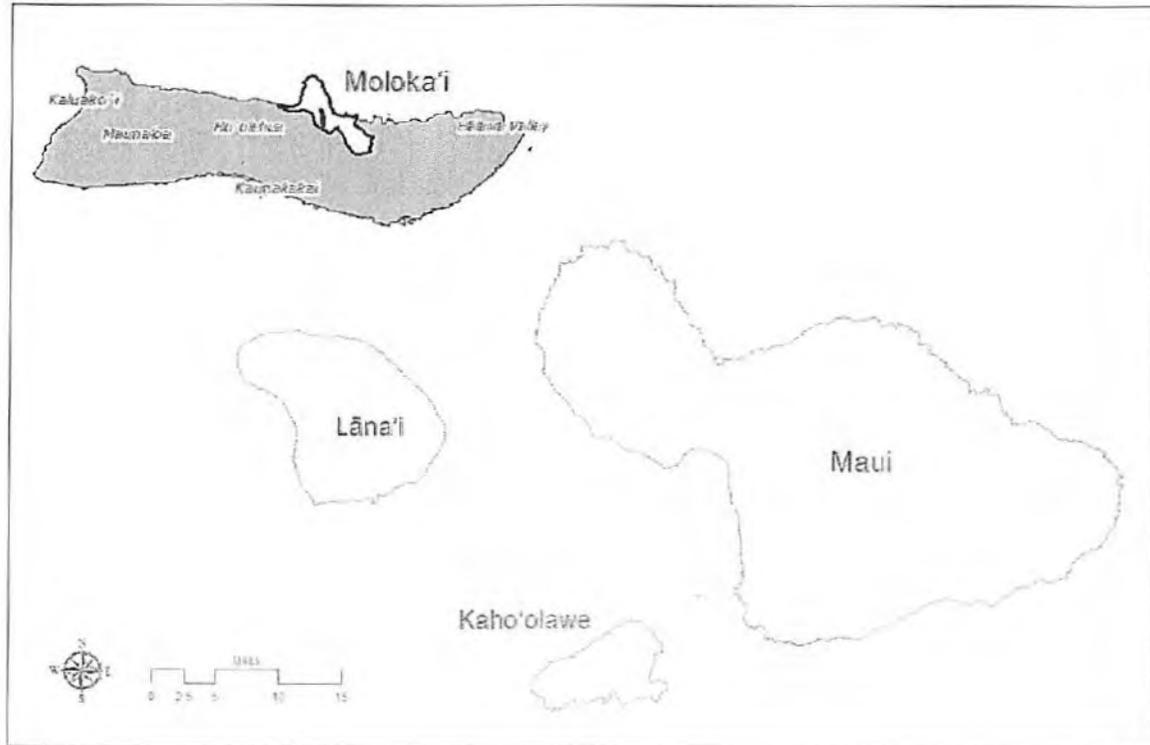
Kaunakakai, the island's major population and commercial center, is located about midway along the south coast. The island's only resort destination area is located at Kaluako'i, on the western end of the island. Hotel Moloka'i and Moloka'i Shores, just outside of Kaunakakai, also offer limited visitor accommodations.

There are small plantation communities in Maunaloa and Kualapu'u, along with Hawaiian homestead settlements in Ho'olehua, Kapa'akea, Kamiloloa, One Ali'i, and Kalama'ula.¹ The settlement pattern along the southeast coast becomes more rural and scattered as it extends from Kaunakakai to Hālawā Valley. (See Appendix 1.1 for a summary of Moloka'i's history).

¹ Pineapple plantation years were not without problems. It was a time of a dramatic turning point in the economy, lifestyle, and rural landscape of Moloka'i and Lanai. The pineapple companies completely shuttered on Moloka'i in 1988. The plantation model gave Hawaii the diverse local culture of today. The history of the plantation, whether it be sugar or pineapple, remains a struggle of times in the history of native Hawaiians.

Plantations formed the basis of what Hawaii is today. Labor unions grew out of the need to protect the common interests of laborers. A new language, known as Pidgin English, and a definite sense of simple understanding of communications came from the plantation days. Foods from different ethnicities were shared from table to table. Every plantation home had a garden to supplement their subsistence. More important, the local people of the plantation era were recognized as those who embodied respect for the land, a strong work ethic, respect for the host culture from the flow of immigrants, and an imprint of "caring and sharing" for one another, no matter the ethnicity.

Figure 1. 1 Moloka'i Island Community Plan Region



FAST FACTS ABOUT MOLOKA'I

PHYSICAL FEATURES

- Moloka'i is 261 square miles or 172,000 acres (includes Kalaupāpā).
- The island is about 38 miles long and 10 miles wide with 88 miles of coastline.
- It is the fifth largest island of the eight main Hawaiian Islands.
- Kamakou is the highest peak at 4,970 feet (1,514 meters).

POPULATION AND DEMOGRAPHICS (according to the 2010 Census)

- The first Hawaiian homestead settlement, in Kalama'ula, initially named Kalaniana'ole Settlement, was created on Moloka'i as an agricultural homesteading demonstration project shortly after passage of the Hawaiian Homes Commission Act in 1921. Its success, dubbed "The Moloka'i Miracle," led to permanent authorization of an Act of Congress in 1926.
- Figures from the 2010 Census show the population was 7,255 (excluding Kalawao County); a decrease of approximately 150 people from 2000.
- Native Hawaiians made up 24 percent of the 2010 population (excluding Kalawao County).
- Population by age: 15 percent was 0 to 9 years, 14 percent was 10 to 19 years, 47 percent was 20 to 59 years, and 24 percent was 60 years and over.
- The average daily visitor count in 2012 was 707, and there were 429 visitor units.

FLORA AND FAUNA

- Moloka'i has 79 endangered and 3 threatened terrestrial species, 11 endangered, and 2 threatened marine species listed under the Endangered Species Act.
- The East Moloka'i Forest Conservation Area covers 40,000 acres.
- Moloka'i's south shore has the longest continuous fringing coral reef in the U.S.
- Pāpōhaku Beach is one of the State's longest white sand beaches and contains one of the last relatively intact dune systems in Hawaii.
- Moloka'i's coastal areas contain sand dunes, lithified sand formations, rare endemic Hawaiian coastal plant species, nesting seabirds, green sea turtles, the Hawaiian monk seal, and Hawaiian cultural sites.

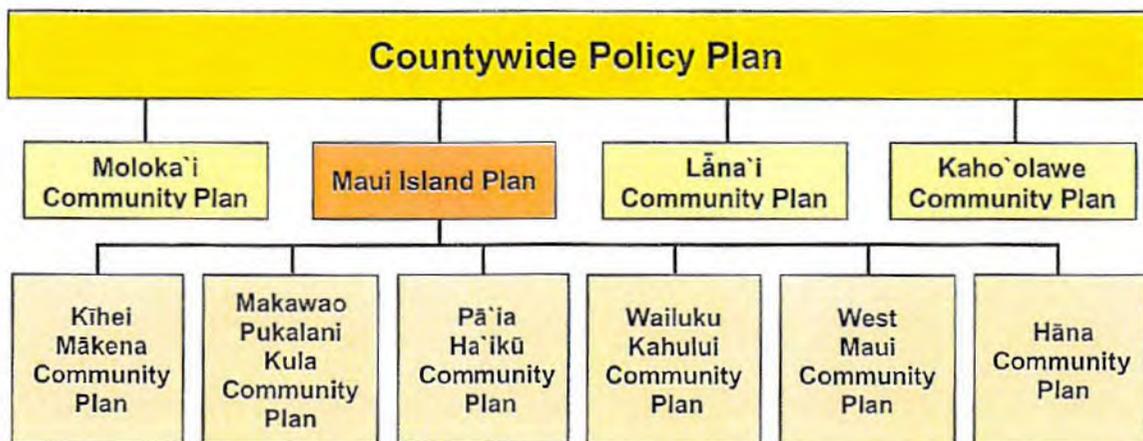
1.1 COUNTY OF MAUI GENERAL PLAN STRUCTURE

A. GUIDANCE FROM THE COUNTYWIDE POLICY PLAN AND HAWAII STATE PLAN

The County of Maui General Plan consists of the Countywide Policy Plan, the Maui Island Plan, and nine community plans (see Figure 1.2). The General Plan, adopted in 1980 and updated in 1990, sets forth long-term social, economic, environmental, and land use needs of the County. The Countywide Policy Plan was adopted in 2010, the Maui Island Plan was adopted in 2012, and initiation of the community plan updates began in 2010. The General Plan conforms to the Hawai'i State Planning Act and follows guidance set forth in the State Functional Plans.

In 2011, the Hawai'i State Legislature established sustainability as a State priority by adopting Section 226-108, Hawaii Revised Statutes ("HRS"), Sustainability, into the Hawai'i State Planning Act. In 2012, the Hawai'i State Legislature adopted Section 226-109, HRS, Climate change adaptation priority guidelines. The adaptation policy specifies that county or State plans must consider potential climate change impacts to agriculture, conservation lands, coastal and nearshore marine areas, natural and cultural resources, energy, the economy, and many other factors. Chapter 2 further discusses how these guidelines influence or shape the community plans.

Figure 1.2 County of Maui General Plan Organization



From 2004 to 2012, the Maui County Code (MCC) was amended to create new requirements under Chapter 2.80B, relating to the General Plan and community plans. Section 2.80B.070, MCC, provides the specific requirements for the community plan planning process, including requiring

that the community plans implement the General Plan's vision, principles, goals, and policies, and actions related to the following core themes as listed in the Countywide Policy Plan:

- Protect the Natural Environment
- Preserve Local Cultures and Traditions
- Improve Education
- Strengthen Social and Healthcare Services
- Expand Housing Opportunities for Residents
- Strengthen the Local Economy
- Improve Parks and Public Facilities
- Diversify Transportation Options
- Improve Physical Infrastructure
- Promote Sustainable Land Use and Growth Management
- Strive for Good Governance

B. THE 2018 MOLOKA`I ISLAND COMMUNITY PLAN UPDATE

The Moloka'i Community Plan was initially adopted in 1984 and updated in 2001. The 2018 Moloka'i Island Community Plan Update incorporates the new requirements of Section 2.80B, MCC, including:

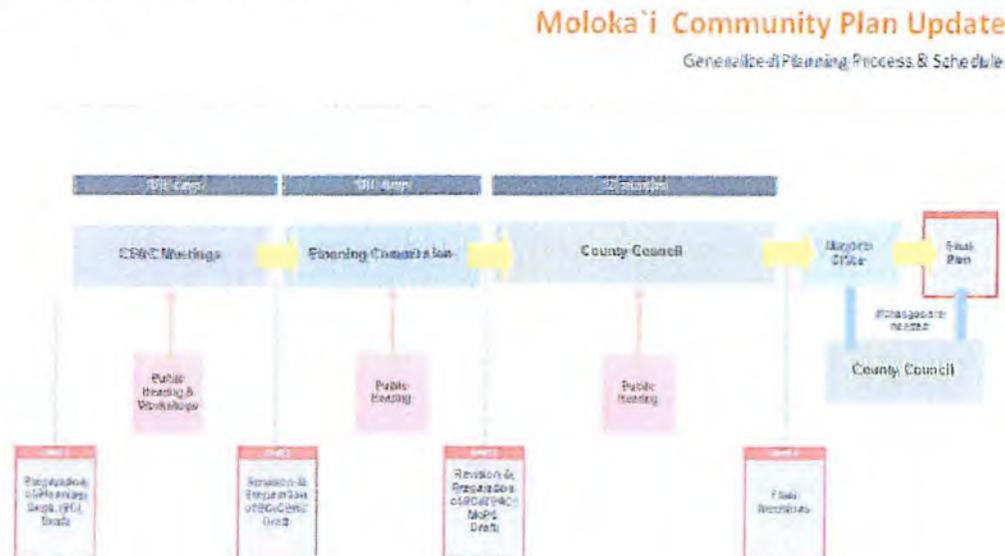
- A list of scenic sites and resources.
- A description of a projected multi-modal transportation system.
- A list of streetscape and landscaping principles and desired improvements.
- Implementation requirements that identify priorities, timelines, estimated costs, and the County department accountable for the completion.

The Department of Planning's (PD's) Long-Range Planning Division worked with the Moloka'i community, stakeholders, agencies, the Moloka'i Community Plan Advisory Committee (CPAC), the Moloka'i Planning Commission (MoPC), and the Maui County Council (County Council) between 2010 and 2018. Technical studies and issue papers referenced during the update process are identified in Appendix 1.2.

Section 2.80B, MCC, specifies the CPAC shall be composed of 13 members appointed by the County Council and the Mayor. It also specifies the PD staff and the CPAC conduct meetings and workshops that include public participation. The CPAC's recommendations are then forwarded to the MoPC for public hearings and review. The draft plan is then sent along with any comments or revisions to the County Council for review and enactment by

ordinance. This process and the time frame are summarized graphically in Figure 1.3.

Figure 1. 3 Generalized Community Planning Process & Schedule



Prior to embarking on the Plan update, the PD’s Long- Range Planning Division conducted four community engagement events and numerous interviews to hear directly from residents about their ideas and concerns (see Appendix 1.3). The events included:

- June 2010 - Open house on issues, needs, and ideas.
- October 2010 - Two workshops on vision, issues, goals, and strategies.
- November 2014 - Open house to present the feedback from previous events.

C. PLAN ORGANIZATION

The 2018 Moloka'i Island Community Plan Update is organized into 12 chapters with maps and appendices. Chapters provide the related background, existing conditions, issues, goals, policies, and actions. Goals are intended to describe a desirable condition of the island by the year 2035. They are intentionally general but are attainable. Policies are not intended as regulations, but instead provide general guidelines for County decision makers, departments, and collaborating organizations working toward

attainment of the goals. Implementing actions are specific tasks, procedures, programs, or techniques that carry out policies. Actions may be implemented by a lead County agency or by another entity, such as the State or non-profit groups assisted by the County.

As defined in Section 2.80B.020, MCC, the Plan is not intended to be used in the review of applications for ministerial permits, which are permits that do not involve judgment or discretion and are issued based on established criteria or a set of adopted standards as established by law.

Chapter 1 provides an introduction.

Chapter 2 explores Moloka'i's future vision and discusses sustainability and climate change adaptation.

Chapters 3 and 4 discuss Moloka'i's environment, and natural, cultural, historic, and scenic resources, as well as hazard mitigation and climate change adaptation.

Chapter 5 addresses economic development strategies to diversify the economy based on the Moloka'i Economic Development Issue Paper, and feedback from community engagement events and interviews.

Chapters 6 and 7 address land use, housing, and community design policies and actions that will shape future locations and forms of development.

Chapters 8 and 9 address the existing and future needs for infrastructure and public facilities and services. The governance section looks at what changes in the system and function of governance are needed to guide the community toward a sustainable future.

Chapter 10 is the East End Policy Statement.

Chapter 11 is the West End Policy Statement.

Chapter 12 addresses implementation and monitoring and prioritizes the list of actions from previous chapters including cost estimates, timelines, and the implementing agencies. The implementation table will facilitate funding decisions during the County budget process.

Appendix 1.4 provides an important framework for agency actions that may impact Native Hawaiian traditional and customary practices. This appendix was also reviewed by the PD, CPAC, or vetted by the community.

Chapter 1 Introduction

1.2 PROBLEMS AND OPPORTUNITIES

INTRODUCTION

The following outline of the problems and opportunities that Moloka'i faces represents not only issues that the county government must address, but also the top concerns expressed by the community through public outreach events and deliberations of the CPAC and MoPC.

It is important to clearly define a problem to figure out how to solve it; likewise, it is also important to have a critical understanding of opportunities that exist within the community and how to best take advantage of them to create a more sustainable, resilient, and livable future for Moloka'i.

PROBLEMS

- A. Economic Activity and Socio-Economic Characteristics:** The high cost of living and limited economic activity are the most significant problems facing the Moloka'i community. There is a lack of economies of scale and economic diversity, and therefore, a lack of job opportunities. Moloka'i has lower incomes, higher unemployment rates, and a higher number of people receiving public assistance, when compared Statewide.² These socio-economic challenges have contributed to substance abuse, domestic violence, crowding, and generational welfare.
- B. Education:** The educational level on Moloka'i is uniquely diverse in relation to formal versus place-based education when compared to the rest of the State. While some youth pursue higher education and are able to live and work on Moloka'i, many do not obtain post-high school education, or choose not to return to the island after college. This creates community impacts that affect the economic vitality of Moloka'i.
- C. Water:** The Moloka'i community has long recognized the need for careful management of groundwater resources and watershed areas that contribute to recharge of the island's sole source aquifer, *Uwe kalani, ola ka honua*³. When the heavens weep, the land lives. These water resources are required to support natural ecosystems as well as the many economic, cultural, and subsistence activities of our human population. The numerous studies by USGS and legal case conclusions document that current and future demand exceeds sustainable supply

² John M. Knox & Associates, Inc. (December 2010). *Moloka'i Economic Development Issue Paper*.

³ Mele no ka Wai a Kane. Traditional.

at this time⁴. Future water use and development will likely call for increasing the efficiency of storage and distribution infrastructure, cooperative monitoring strategies, and community wide conservation efforts to ensure aquifer sustainability and water quality. Excess withdrawal from wells may significantly affect freshwater discharge into streams, which may have a detrimental effect on natural, cultural, and subsistence resources.

- D. Transportation:** As one of the least populated islands in the most isolated island chain in the world, Moloka'i suffers from expensive transportation costs for freight, goods, and people. Limited freight transportation to and from the island contributes to higher costs for groceries, fuel, and other goods, and complicates the export of Moloka'i produce. Limited airline and discontinued ferry transportation options impact both the ability of tourists to visit the island and opportunities for residents to travel off island.
- E. Energy Costs:** Moloka'i faces some of the highest electricity costs in the nation, which presents challenges for businesses and residents.
- F. Erosion and Sedimentation:** Erosion is an issue on Moloka'i that is negatively impacting soils, streams, fishponds, wetlands, coastal waters, and reefs, as well as the cultural and subsistence practices that rely on these resources. While erosion is being actively addressed by several organizations and partnerships, continued work is needed to address this problem. Erosion is caused by runoff and land use activities including ranching, farming, and development, as well as forest damage caused by feral ungulates. Siltation of Moloka'i's reefs and coastal waters is having detrimental effects on fish, limu, and other ocean resources which the Moloka'i community depends on for subsistence fishing and gathering, and for cultural practices.
- G. Housing:** The availability of workforce housing, ownership and rental, and the variety of housing types on the island are limited. There is a lack of fully entitled land to build new housing in locations conducive to workforce housing. There is a limited variety of housing types available to meet the needs of Moloka'i residents. However, the recent

⁴ Stearns, Harold T. and MacDonald, Gordon A. (1947). *Geology and Groundwater Resources of the Island of Molokai, Hawaii*. USGS Bulletin 11.

Lindgren, Waldemar (1903). *The Water Resource of Molokai Hawaiian Islands*. USGS Water Supply Paper No. 77.

Kuku'i CCH-M097-1 (2000). *In the Matter of the Contested Case Hearing on the Water Use Permit Application filed by Kuku'i(Moloka'i), Inc. Findings of Fact*. DLNR/CWRM.

lifting of a moratorium on the subdivision of agricultural homestead lots will allow some families to move from other areas of Moloka'i to Ho'olehua, thus freeing up some housing.

- H. Climate Change:** Climate change will become increasingly serious before the middle of the 21st century and will impact Moloka'i's economy, built environment, historic and cultural resources, infrastructure systems, ecosystems, and natural resources.
- I. Communications Infrastructure:** Limited access to high-speed internet and cellular/mobile telephone service presents challenges for education, health care, residents, and businesses.
- J. Governance:** Due to political, demographic, and district designations, Moloka'i is not able to have a real voice in its own future.

OPPORTUNITIES

- A. Strong Caring Community:** Moloka'i is a special place with a distinctly rural Hawaiian lifestyle. Unlike many other places, residents still help each other without expecting reciprocation. The island's interdependence has allowed residents to survive stressful times and events. There is an abundance of community luau and a significant number of extended families living together or near each other. There is a feeling of sharing, belonging, and community which that should be preserved.
- B. Cultural Resources and Traditions:** *Moloka'i nui a hina. 'Aina momona. Pule o'o. Moloka'i no ka heke.* Moloka'i has an abundance of cultural and archaeological resources and a community with a strong connection to cultural traditions and practices that must be protected and that provide a solid foundation for the future. In oral tradition, the island is purported to be the birthplace of hula. Moloka'i has numerous sites distributed throughout the island on the Hawai'i and/or National Register of Historic Places. As a result, development of a new model of sustainable tourism may be a possibility for economic growth. This alternative approach, described in *Moloka'i Responsible Tourism Initiative: A Community-based Visitor Plan for Moloka'i, for Ke 'Aupuni Lokahi-Moloka'i* ⁵, is based on the distinctive characteristics and attributes of the island.

⁵ McGregor, Davianna Pomaikai, PhD (2006). *Moloka'i Responsible Tourism Initiative – A Community Based Visitor Plan for Moloka'i*.
Chapter 1 Introduction

- C. Distinctive Rural Character:** Moloka'i's natural beauty and rural character are key assets of the island. Unlike other islands in the State, Moloka'i's beaches are still generally accessible and uncrowded. In addition, the rural character and genuine sense of aloha is a draw for many visitors, affording an experience that is different from other islands. Based on several community workshops and interviews, it is clear that a slow and cautious approach to future development on the island is preferred by many to retain Moloka'i's distinctive rural character.
- D. Entrepreneurial Spirit:** Many Moloka'i residents live there because they value the sense of community and lifestyle of the island. Since employment opportunities on Moloka'i are limited, many residents have turned to starting and running their own businesses. This is evident in Kaunakakai, where almost all of the businesses are owned by local residents, some of whom have successfully maintained their operations for several decades.
- E. Community Environmental Restoration:** There are various ongoing programs and partnerships to restore Moloka'i's watersheds and ecosystems. Environmental restoration is an opportunity for the community, youth, large landowners, and government agencies to share common goals of restoring and protecting Moloka'i's environment. Working together will not only accelerate environmental restoration, but will also help build trust between different groups, foster a sense of stewardship responsibility, and expose youth to careers in environmental restoration.
- F. Natural Environment:** Moloka'i's natural environment offers many opportunities to move toward a more sustainable future. With abundant agricultural lands, a year-round growing season, and, with prioritization of agriculture, an adequate supply of water, Moloka'i has the capacity to grow produce for on-island consumption and exportation. Subsistence resources are relatively abundant and support an integral component of the Moloka'i lifestyle. Additionally, numerous opportunities exist to produce renewable energy on the island.
- G. Subsistence Economy:** Subsistence is Moloka'i's second economy. According to the Governor's *Moloka'i Subsistence Task Force Final Report* (June 1994),² one quarter of the food acquired by Moloka'i residents comes from subsistence. The establishment of community-based subsistence fishing areas should be supported.

H. Youth: New programs for youth related to science and technology.

2 | MOLOKA`I'S FUTURE

This chapter provides the Plan's vision and strategic framework that guide the key policies and actions needed to address the major issues that face the island in the next 20 years. The components of this strategic framework include:

- 2.1 Moloka`i Vision Statement.
- 2.2 Population Growth Forecast.
- 2.3 Sustainability and Climate Change Adaptation.

The Moloka`i vision statement, retained from the 2001 Community Plan, articulates the community's belief in who and what it is, what it wants to become, and how to achieve that vision.

The population discussion in Section 2.2 presents a brief analysis of past and future population trends. The *Socio-Economic Forecast Report*⁶, produced by the County of Maui PD, is the primary source of data for this discussion.

Finally, in response to the State of Hawai`i's adoption of the 2011 priority guidelines and principles to promote sustainability and the 2012 climate change adaptation priority guidelines, Section 2.3 discusses how climate change adaptation strategies and measures to develop a more sustainable island community are woven into the Plan.

⁶ County of Maui, Department of Planning. Socio-Economic Forecast Report. September 2014.

2.1 MOLOKA`I'S VISION STATEMENT

Vision Statement

Moloka`i is the last Hawaiian Island. We who live here choose not to be strangers in our own land. The values of aloha `āina and malama `āina (love and care for the land) guide our stewardship of Moloka`i's natural resources, which nourish our families both physically and spiritually. We live by our kūpuna's (elders) historic legacy of pule o`o (powerful prayer).

We honor our island's Hawaiian cultural heritage, no matter what our ethnicity, and that culture is practiced in our everyday lives. Our true wealth is measured by the extent of our generosity. We envision strong `ohana (families) who steadfastly preserve, protect, and perpetuate these core Hawaiian values. We are a wise and caring community that takes pride in its resourcefulness, self-sufficiency and resiliency, and is firmly in charge of Moloka`i's resources and destiny.

We envision a Moloka`i that leaves for its children a visible legacy: an island momona (abundant) with natural and cultural resources, people who kokua (help) and look after one another, and a community that strives to build an even better future on the pa`a (firm) foundation left to us by those whose iwi (bones) guard our land.

2.2 POPULATION GROWTH FORECAST

Population growth can have both positive and negative impacts on a community. It can exacerbate infrastructure capacity deficiencies, place additional demands on natural resources, shift the cultural and social makeup of the population, and change the physical landscape. Population growth can also contribute to the quality of life of a community by stimulating the economy, growing the tax base, providing employment opportunities, and providing economies of scale. The Plan aims to address community needs and provide economic opportunities to keep Moloka'i's families on the island. It is intended to manage future resident and visitor population growth so that the island's natural resources, infrastructure, and services are not compromised.

Population change on Moloka'i in the coming decades will occur through natural population growth (live births minus deaths), in-migration, and out-migration. While the island experienced a moderate population decline from 2000 to 2010, the population is forecasted to moderately increase during the Plan's 20-year planning horizon (2015 – 2035), according to the State of Hawai'i Department of Business, Economic Development and Tourism (DBEDT).

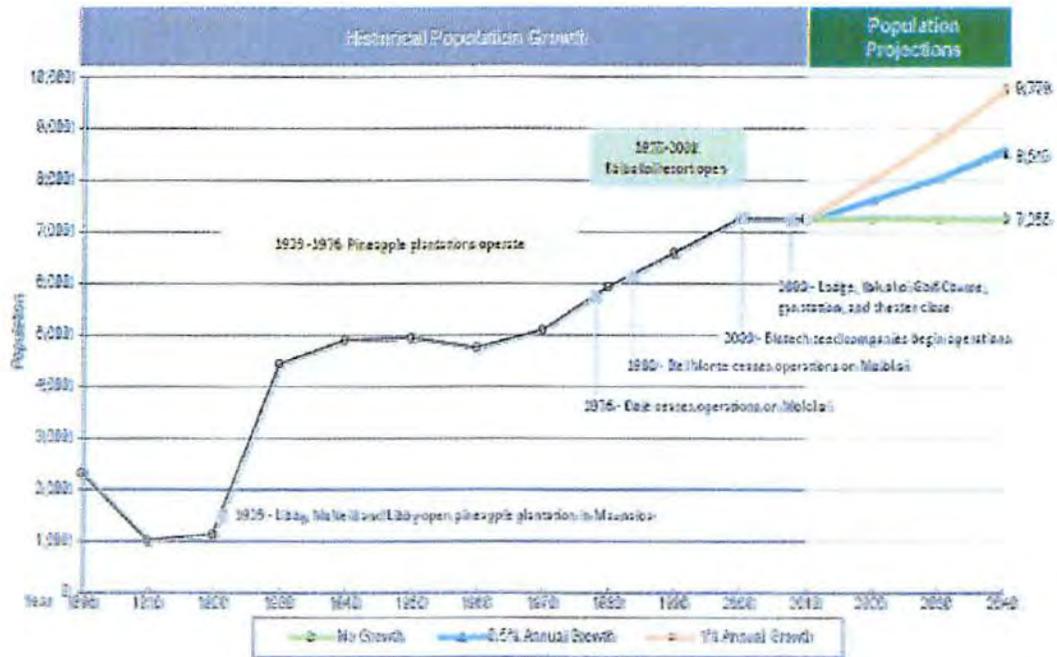
A. HISTORIC TRENDS AND POPULATION FORECAST

The 2014 County of Maui *Socio-Economic Forecast Report*⁷ is a planning tool based on projections developed by DBEDT. The population projections are based on trends and model assumptions, absent policy changes or directives. The population growth forecast provides a starting point for discussions about the island's future.

The 2010 Census counted 7,255 residents living on Moloka'i. The *Socio-Economic Forecast Report* estimated that a 1 percent annual increase in resident population would add about 2,500 residents to the island by the year 2040, for a total population of around 9,800. Figure 2.1 depicts Moloka'i's historic population growth and identifies significant economic events between 1896 and 2010. It also shows population projections to 2040 based on three scenarios: (1) no growth; (2) a mid-range annual growth of ½ percent; and (3) a higher annual growth of 1 percent.

⁷ County of Maui, Department of Planning. *Socio-Economic Forecast Report*. September 2014.

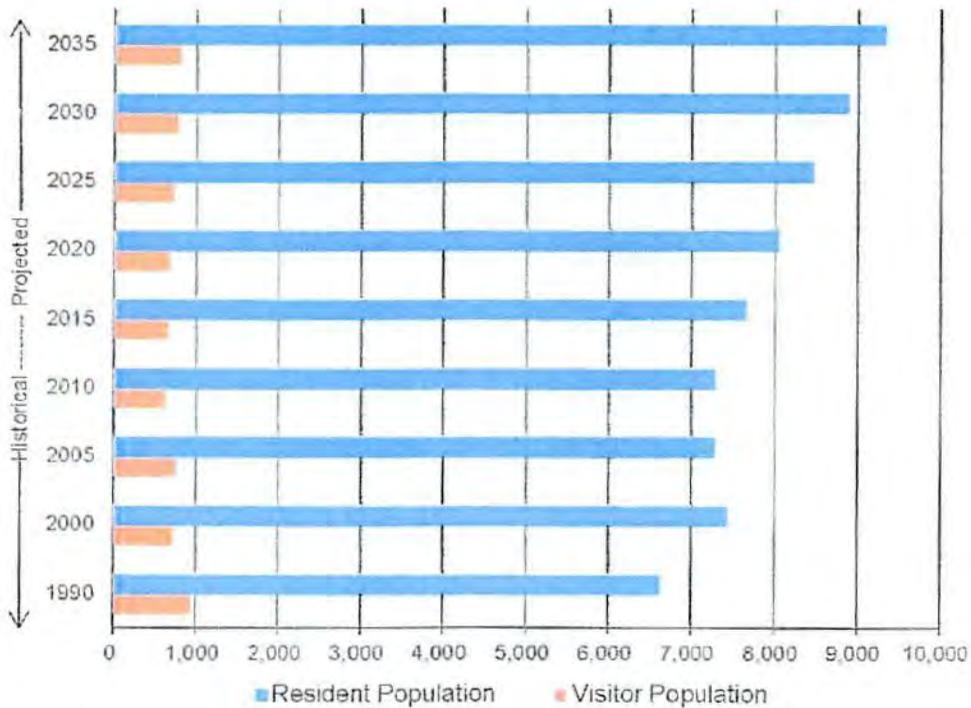
Figure 2.1 Historical and Forecasted Moloka'i Resident Population 1896-2040⁸



⁸ Hawai'i State Department of Business, Economic Development and Tourism (2012). *Population and Economic Projections for the State of Hawai'i to 2040*. Honolulu, HI. Chapter 2 Moloka'i's Future

Figure 2.2 depicts the historical and forecasted average daily resident and visitor population from 1990 to 2035. In 1990, the ratio of tourists to residents was approximately 1 to 7. By 2010, the ratio dropped to approximately one visitor for every 12 residents; this ratio is forecasted to remain relatively unchanged through 2035.

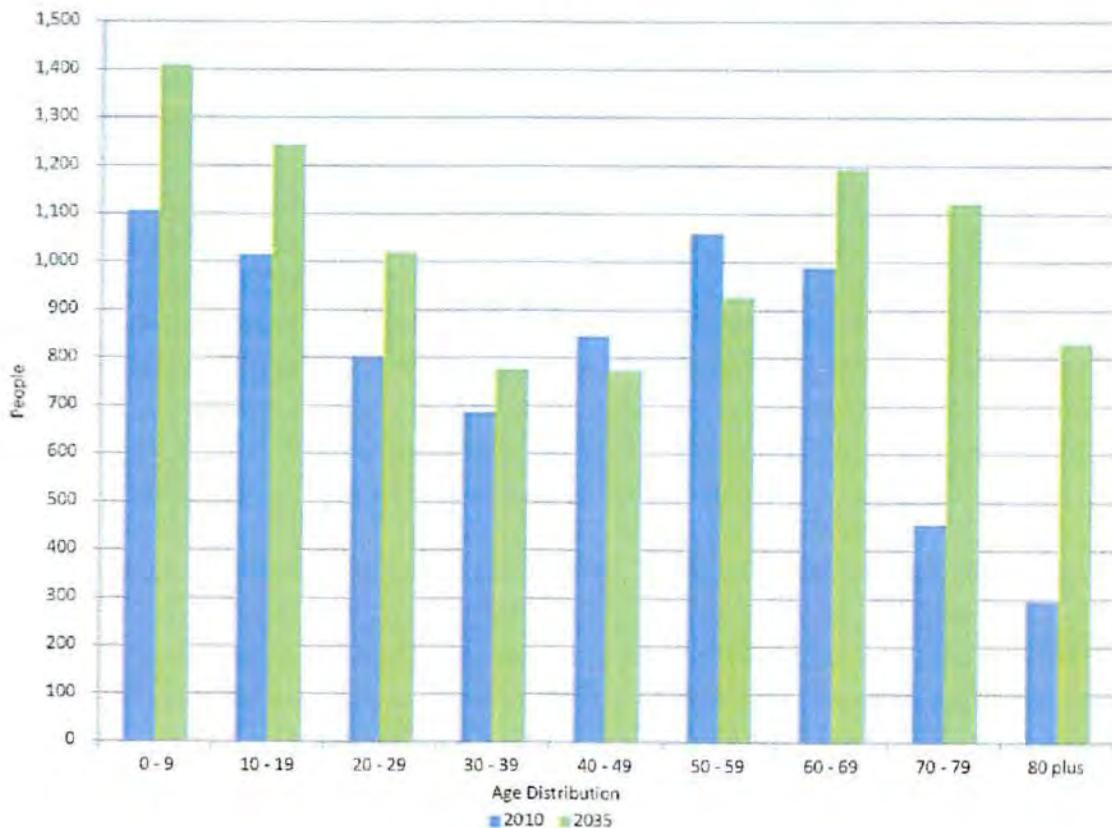
Figure 2. 2 Historical and Forecasted Moloka`i Average Daily Resident & Visitor Population 1990-2035⁹



⁹ Ibid.
Chapter 2 Moloka`i's Future

Figure 2.3 portrays Moloka'i's historical and forecasted age distribution from 2010 to 2035. It is clearly evident that the island's population is aging. The 70 plus age group is forecasted to grow from about 750 to nearly 2,000; an increase of over 160 percent between 2010 and 2035. This demographic change has significant impacts to public services as they relate to the elderly, including housing, transportation, health care, and eldercare services. In addition to the challenge of providing more senior services, the wage-earning population that typically supports children and seniors will be proportionally smaller. The potential issues and opportunities presented by population growth will be addressed throughout the various chapters of the Plan.

Figure 2. 3 Historical and Forecasted Moloka'i Age Distribution – 2010 and 2035¹⁰



¹⁰ Ibid.
Chapter 2 Moloka'i's Future

2.3 SUSTAINABILITY AND CLIMATE CHANGE ADAPTION

One intent of this Plan update is to help establish a sustainable and resilient future for Moloka'i. This section provides an introduction and brief guide on how sustainability and climate change adaptation are woven into the Plan through a variety of policies and actions.

A. SUSTAINABILITY

Sustainability has become a fundamental concept within comprehensive and community planning over the past decade. It refers to the ability to meet present needs without compromising the ability of future generations to meet their needs. It requires a consideration of long-term environmental, social, cultural, subsistence, and economic costs of present day actions. Sustainability is a process rather than an end state. Communities function within a system where environmental, economic, and social systems are linked and balanced.

Sustainability is particularly important in a region as fragile and remote as the Hawaiian Islands. In 2011, the Hawai'i State Legislature established sustainability as a State priority by adopting priority guidelines and principles to promote Section 226-108, HRS, *Sustainability*, into the Hawai'i State Planning Act. Updates to the County of Maui's General Plan will integrate the concept of sustainability and these guiding principles (see Appendix 2.1 Definition of Sustainability in Hawai'i and Appendix 2.2 Sustainability).

B. CLIMATE CHANGE ADAPTATION

In 2012, the Hawai'i State Legislature adopted Section 226-109, HRS, relating to climate change adaptation priority guidelines (see Appendix 2.3 Climate Change Adaptation Priority Guidelines). The guidelines are intended to prepare the State for climate change impacts on the natural and built environment and on society. Near-term implementation options and long-term strategies should be considered. Additionally, under the *Hawai'i State Planning Act*, priority guidelines shall take precedence when addressing areas of concern, such as county decision making, allocation of resources, county general plans, development plans capital improvement project appropriations, and land-use decision making.

Climate change will become increasingly serious before the middle of the 21st century and will have profound impacts on Hawai'i's natural environment,

communities, and economy. Major climate change effects forecasted for Hawai'i include:

- Warmer temperatures.
- Sea level rise (SLR) with resultant flooding, beach erosion, and damage to coastal property.
- Sea surface temperature increase and ocean acidification with negative impacts to coastal and marine ecosystems.
- Increased frequency and severity of storms, and increased vulnerability to storm damage.
- Increased drought with variable effects on aquifer recharge, stream flows, and freshwater resources.

These outcomes will adversely affect areas of the economy, including agriculture, tourism, fisheries, and trade; the built environment, including infrastructure systems, housing, and recreation; historic and cultural resources; as well as ecosystems and natural resources¹¹.

Limitations in downscaling of climate models make long-term predictions for local impacts very complex. However, current observations of trends, such as declining rainfall, increased temperatures, and sea level rise can serve as indicators to help inform communities as they begin to plan for climate change.

Climate change mitigation measures, such as lessening our dependence on fossil fuels to reduce emissions and changing the way the County designs and builds communities, will need to be implemented to lessen the human impact on climate. Climate change adaptation requires strategies and actions to reduce the vulnerability of biological systems. By acting now, it is possible to reduce potential damage in the future. Science-based coastal and climate hazard information must be compiled, understood, and appropriately applied to specific planning areas on Moloka'i. Inventories must be developed, and gaps in data identified, to better understand how climate change will affect Moloka'i and how to minimize those impacts.

C. WORKING TOGETHER TOWARD A SUSTAINABLE AND RESILIENT MOLOKA'I

This is a pivotal moment in time for Moloka'i to face the intertwined challenges of sustainability and climate change. In recognizing the links

¹¹ *Climate Change Adaptation Priority Guidelines, Act 286.*
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between society, the environment, and the economy, sustainability acknowledges the ecological limits of natural systems and affirms that humanity's wellbeing is fundamentally dependent on the health of our environment. Moloka`i can become resilient and ready for change by strengthening its society, its natural and built environment, and by diversifying its economy. How these elements work together is described below:

Society – Moloka`i's People and Culture: Caring for the people is a key component of ensuring an abundant and resilient Moloka`i. This will involve providing educational opportunities for all ages and a full spectrum of social services. It will also be important to foster community participation in stewardship of the natural environment and historical and cultural resources. It will be crucial to build collaboration between different levels of government, large landowners, nonprofit organizations, private businesses, and the community. Moloka`i's culture and sense of place will be honored by protecting historic and archaeological sites, cultural landscapes, and the natural and cultural resources upon which subsistence and traditional Hawaiian lifestyles depend.

Ensuring a resilient and abundant society will also require providing a variety of affordable housing types for all stages and ages of life. Also critical will be increasing food security through expanding production of locally grown food, supporting subsistence farming, hunting, fishing, and gathering, as well as introducing Moloka`i's youth to agriculture through programs such as Future Farmers of America and 4H.

The Natural and Built Environment: How the built environment is designed greatly influences the protection and sustainability of the natural environment and the sustainability of a society and culture. A well-designed and engineered community is economically efficient when characterized by a compact and pedestrian oriented mix of land uses, multi-modal transportation networks, and diversity of housing types. It should provide a strong sense of place and culture, and preserve open space, agricultural land, and natural resources.

Moloka`i will build upon its historic small-town development patterns, integrate land use and transportation planning, and make development decisions predictable, fair and cost-effective to create sustainable communities into the future.

Climate change adaptation strategies, such as building on existing hazard mitigation principles and developing new ways of designing communities and

infrastructure, will also be necessary for the health and safety of the people and the environment. This will be achieved by actions such as relocating critical structures out of hazard-prone areas, incremental adaptation of harbors, increasing water conservation and reuse, and managing aquifer recharge areas.

Natural resources and landscape features, such as native forests, valleys, wetlands, springs, dunes, and coral reefs will be protected, and restoration should be encouraged; they should be valued for the environmental services they provide and for their cultural importance. Negative and adverse impacts of feral ungulates and invasive species shall be managed, while simultaneously recognizing Native Hawaiian access and gathering rights, and the importance of subsistence activities.

Principles of Native Hawaiian land management, including ahupua`a, will be integrated to help guide resource management. Green technology, sustainable building practices, and green infrastructure solutions will also be implemented.

The Economy: Fostering a robust and diversified economy is the third component to working toward an abundant and resilient Moloka'i. This will require growing a culturally-appropriate tourism industry, supporting agriculture, encouraging new industries and entrepreneurs, expanding education and support services for small businesses, and providing necessary infrastructure, land, and affordable sea and air transportation options. An important aspect of improving Moloka'i's economy is lowering the costs of water distribution by efficiently managing energy through the establishment of a strategic integrated management approach to supply water and energy more efficiently. This can be achieved by increasing the use of renewable energy sources and vehicles powered by renewable energy. Water resources can be used in a sustainable manner by recycling wastewater for irrigation and the reuse of household graywater.

3 | NATURAL, HERITAGE, AND SCENIC RESOURCES

This chapter discusses ecosystems and natural resources in section 3.1; heritage resources, including the interface of the natural environment with human built structures and activities in section 3.2; and scenic resources that shape our experience of place every day in Section 3.3. The elements discussed in this chapter are fundamental to sustaining the quality of life enjoyed by Moloka'i residents and are essential for supporting the living cultural traditions of Native Hawaiians. Subsequent chapters discuss impacts from multiple natural and human-created hazards, including climate change, land use, and community design that need to be considered in combination with the elements of this chapter.

Mana`e is the heart and life source of Moloka'i. The larger Moloka'i community identifies Mana`e as a pu`uhonua (safe refuge). Mana`e traditionally sustained the highest population on the island and contained the oldest settlement sites, dating back to 450 A.D., showing that Mana`e is where our ancestors first settled. It has the most critical natural resources, including water. It is made up of four major valleys with between 3-5 million gallons of pristine rivers/waters flowing through these valleys every day, feeding the rich estuaries and near shore fisheries, in addition to the multitude of intact terraces. In addition, Mana`e's abundance of water on the north shore finds its way to the south shore through underground tunnel systems and springs, providing for the ideal ecological conditions that supported numerous fishponds along Mana`e's south shore. This is the value of Mana`e, the land of `āina momona (abundance). Thus, it is critical to protect Mana`e as a special place for all of Moloka'i as a pu`uhonua, cultural kipuka, (a rural area that serves as a living repository of Hawaiian traditional knowledge, understandings, and practices), and a place essential to `āina momona (continued food and water security) for its abundant fishponds, lo'i kalo (taro patches), rich forests, streams, and springs.

3.1 NATURAL RESOURCES

Moloka'i's pre-human diverse ecosystems were extensively altered by human settlement beginning with the arrival of the Polynesians, continuing through the plantation era and into present day. The most significant changes were the result of clearing of forest lands for agriculture and building sites and the introduction of non-native flora and fauna. Many hooved animals initially introduced as free-range, eventually became wild. These feral ungulates destroyed the forest understory and tree roots, setting off a chain of environmental damage that extended from the upslope area to the nearshore ecosystem. Erosion created barren land where invasive plants became established, resulting in native species loss, reduced water recharge of the aquifer, decreased bio-diversity, and a less resilient forest ecosystem. Excessive erosion also resulted in sedimentation of surface waters and coral reefs, and led to progressive propagation of invasive plants, such as mangroves and gorilla ogo, which threatened coral reefs and coastal ecosystems along Moloka'i's south shore.

The forest ecosystem greatly influences many elements of the Moloka'i community's natural and heritage resources, recreation, agriculture, tourism, infrastructure, and economic viability. Recent studies have calculated financial values for services provided by forest ecosystems.¹² (See Appendix 3.1)

According to the Conservation Alliance-ING Direct:

A University of Hawai'i study examined the various services provided by Ko'olau O'ahu's forests - including water recharge, water quality, climate control, biodiversity, and cultural, aesthetic, recreational, and commercial values. These services were calculated to have a net present value of between \$7.4 and \$14 billion. Approximately half of that amount is attributed to the forest's contribution to ground and surface water quality and quantity. Other watersheds across the state were estimated to be comparable in value.¹³

Protection and restoration of Moloka'i's forest ecosystems will help to ensure an abundant water supply; it will reduce erosion, surface water runoff,

¹² State of Hawaii (2011). *The Rain Follows the Forest*. Department of Land and Natural Resources.

¹³ State of Hawaii (2011). *The Rain Follows the Forest*. Department of Land and Natural Resources, Pg.4.

flooding, sedimentation that fills ancient coastal fishponds, and siltation of reefs and ocean waters.

Development may disrupt the natural processes of ecosystems and may increase non-point pollutants in surface water runoff. Most development occurs in coastal areas; nonpoint source pollutants from homes, businesses, farming and industry in coastal areas can decrease water quality and reef health. Modern building techniques that integrate development into the landscape can reduce the impact on water quality, animal and plant habitats, and ecosystem connectivity. *Green infrastructure* uses natural systems, constructed soil, rock, or plant-based systems for surface and storm water management. In 2013, Maui County strengthened storm water regulations by requiring on-site retention of site runoff for new development.

A. EXISTING CONDITIONS

Moloka'i's largest native forest ecosystem is located in the East Moloka'i mountains that contain deep, mostly inaccessible valleys with high-quality habitat for stream fauna, forest birds, native snails, and insects. Moloka'i's other significant habitats are lava tube caves, montane bogs, wet forests and shrublands, cliff and coastal systems, and nine offshore islets. These natural ecosystems provide recovery, or critical habitat identified by the U.S. Fish and Wildlife Service for 79 endangered and 3 threatened terrestrial species, and 11 endangered and 2 threatened marine species, including the Maui parrotbill, `ākohekohe (crested honeycreeper), and Blackburn's sphinx moth.¹⁴

Approximately 30 percent of Moloka'i is in the State Conservation District, which is under the jurisdiction of the Department of Land and Natural Resources (DLNR). Most areas dominated by native species are in mountains or along the coasts (see Map 3.1). Numerous Federal, State, and county plans and regulations support actions to protect, conserve, or restore the natural resources of these areas. Partnerships between agencies, nonprofit organizations, community groups, and stakeholders have been formed, but there is a need to expand both partnerships and collaboration to more effectively address the complexity and scope of environmental issues.

¹⁴ U.S. Fish and Wildlife Service Endangered Species Database, May 2015; <http://www.fws.gov/endangered/>.

Hawaii's Comprehensive Wildlife Conservation Strategy identified key management areas and the parties responsible for managing them.¹⁵ Although there has been extensive conservation work accomplished to date, the State has identified additional threatened areas that need to be protected, such as cave ecosystems, coastal wetlands and shorelines, and stream corridors. Key threats to these areas include feral ungulates, predators, invasive species, and human intrusion. Often when addressing one threat, another threat can be reduced. For example, forest restoration is being addressed by multiple management actions by many partners, including abatement of feral ungulates. Once feral ungulates cease to disturb the soil, the native forest can regenerate in small areas, which reduces the area for invasive plant species to establish and reduces subsequent soil erosion, deposition in nearshore waters, and siltation of coral reefs.

Hawaii State plans, such as the *Coastal Non-Point Pollution Control Program*¹⁶, the *Hawaii Implementation Plan for Polluted Runoff Control*¹⁷, and the *Ocean Resource Management Plan*¹⁸, are addressing comprehensive ecosystem management by connecting upland land-based activities to ocean resource conditions. Excessive sediment, and other non-point pollutants such as nutrients, herbicides, and heavy metals, are being addressed by multiple efforts (see Map 3.2). Hawaii's "Local Action Strategy" has partner agencies addressing land-based pollution threats to reefs in the Kawela watershed. Best Management Practices (BMPs) for control of feral ungulates and wildfire are being extended to other areas and sediment retention basins will be constructed and maintained along the south shore. The USDA Natural Resources Conservation Service (NRCS) implements many soil conservation projects on Moloka'i using the Farm Bill's Environmental Quality Incentives Program and other landowner assistance programs. More programs need to be implemented to manage erosion and runoff, such as implementation of green infrastructure strategies that use grass swales, grass waterways, vegetated terraces, berms, and retention systems.

Restoration of wetlands and riparian areas can play a vital role in reducing polluted runoff by intercepting surface runoff, subsurface flow, and certain groundwater flows. Moloka'i community groups, nonprofit organizations, and schools are actively restoring lo'i kalo (taro patches) and 'auwai (irrigation ditches) that reduce and filter sediment loads. At Kawaikapu Preserve, the Moloka'i Land Trust plans to use the ahupua'a management

¹⁵ *Hawaii's Comprehensive Wildlife Conservation Strategy*. (2005) Department of Land and Natural Resources. Honolulu, Hawaii.

¹⁶ State of Hawaii (1996). *Coastal Nonpoint Pollution Control Program*, 2010 Update.

¹⁷ State of Hawaii (2000). *Hawaii Implementation Plan for Polluted Runoff Control*.

¹⁸ State of Hawaii (2013). *Ocean Resources Management Plan*.

system to restore lands, including ancient taro fields. In Hālawā Valley, restoration of taro fields, which once measured in the hundreds of acres, is ongoing.

The Ocean Resource Management Plan emphasizes links between human activities and the environment, and the need for increased stewardship¹⁹, which usually begins with awareness of a connection between one's activities and an environmental issue. A survey of Hawai'i residents about coral reef management priorities found a high level of public awareness of the decline of reef health, but little knowledge of how their personal land-based behaviors contribute to that decline, or how to minimize damaging activities to help the reefs.²⁰ Public environmental education and involvement activities available on the island of Moloka'i contribute to building a volunteer base for on-going stewardship. Some nonprofit organizations use volunteer monitoring, based on Best Management Practices (BMPs), to build stewardship. Involvement in volunteer monitoring and citizen science raises awareness, creates stakeholders, and increases science literacy within the community.

The Hawaiian Islands Humpback Whale National Marine Sanctuary includes ocean waters adjacent to Moloka'i's southern, western, and eastern shorelines. The Sanctuary also encompasses the ocean channels between Moloka'i, Lāna'i, and Maui, as well as an extensive ocean area off Moloka'i's west shore (see Map 3.1). Created by the U.S. Congress in 1992, the Sanctuary protects humpback whales and their habit. It constitutes one of the world's most important humpback whale habitats. The National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries and DLNR jointly manage the Sanctuary.

Water runoff with excessive sediment and pollutants, recreational over-use, and commercial over-fishing are primary threats to the health of reefs and fisheries. The DLNR's Division of Aquatic Resources manages four areas to protect ocean fishery resources near Moloka'i. The Kaunakakai Harbor Fishery Management Area restricts the fishing season, harvest methods, and fishing areas. Bottomfish Restricted Fishing Areas (BRFA) are located in two open ocean areas between the southeast end of Moloka'i and Maui, and far offshore from the southwest point. A third BRFA is located along the shoreline off the northeast side of Kalaupāpā, National Historic Park, extending eastward in the nearshore waters along Moloka'i's north shore. The BRFAs are co-managed by the DLNR and National Marine Fishery Service (NMFS), a division of NOAA.

¹⁹ Ibid.

²⁰ NOAA (2010). *Hawaii Coastal Zone Management Program, Final Evaluation of Findings*. Office of Ocean and Coastal Resource Management. Chapter 3 Natural, Heritage, and Scenic Resources

The Mokio Preserve is a 1,718-acre parcel located in northwest Moloka'i owned and managed by the Moloka'i Land Trust (MLT), with five miles of coastline, dunes, and wetland ecosystems. East of Mokio is the Mo'omomi Preserve, consisting of 921 acres of the most intact coastal beach strand and sand dune area in the main Hawaiian Islands. It is owned and managed by the Nature Conservancy with MLT and other partners assisting with stewardship activities.

About 85-90 percent of Hawai'i's food is imported, which makes the community particularly vulnerable to natural disasters and global events. It is estimated that there is less than a one-week supply of food stored on each island. The State of Hawai'i's *Increased Food Security and Food Self-Sufficiency Strategy*²¹ seeks to increase the amount of locally grown food consumed by Hawai'i residents. This will increase food self-sufficiency, which is a component of food security. Since the 1970s, Hawai'i has become less self-sufficient in eggs, milk, livestock, hogs, and pigs.

Moloka'i imports most of its food, including important proteins like dairy, chickens, and eggs. Moloka'i does well in production of key foods such as starches, `uala (sweet potato), kalo (taro), and `ulu (breadfruit), but has lower production in fruits and vegetables. Many Moloka'i residents rely on hunting and fishing for a significant portion of protein foods. With an increase of fishing and hunting by off-island residents there has been a decline in numbers and sizes of many desirable fish and crustaceans. This is a concern from both a cultural and food security perspective.

²¹ Hawaii Office of Planning, Department of Business, Economic Development, and Tourism; and Hawaii Department of Agriculture. 2012. *Increased Food Security and Food Self-Sufficiency Strategy*.

<http://files.hawaii.gov/dbedt/op/spb/INCREASED FOOD SECURITY AND FOOD SELF SUFFICIENCY STRATEGY.pdf>

Climate & Natural Resources, Energy, and Social Resilience

Climate Change and Natural Resources

The observed effects of climate change on natural resources will continue to challenge the health of ecosystems on Moloka'i. Increased frequency and severity of climate-related disturbances, such as storms, flooding, drought, wildfire, invasive species, and ocean acidification, combined with increased effects of human, land, and natural resource use will test the resiliency of Moloka'i.

Marine ecosystems, coral reefs, and nearshore habitats are experiencing increasing sea surface temperatures, leading to thermal stress and coral bleaching. SLR and coastal inundation will change the nearshore environment, including habitat loss and shifts. This will be amplified by accelerated SLR and changes in storm and cyclone patterns, which will increase wave energy and erosion patterns.

Terrestrial ecosystems are experiencing warming air temperatures, which may cause ecosystems to shift upslope or decline in size. Higher elevations may experience an even greater degree of change. Variations in precipitation patterns could affect terrestrial ecosystems through increases in flooding, erosion, drought, and fire. As the extent of native habitats diminishes, the range for pests, diseases, and invasive species may expand.

B. ISSUES

- Issue 1: Ecosystems are declining due to an increase in invasive animal and plant species, soil erosion, coastal deposition, and human effects.
- Issue 2: Excessive sediment from erosion and coastal deposition severely impact coastal water quality and the health of all marine life.
- Issue 3: Cumulative impacts to surface and coastal waters from pollutants including sediment, home and business chemicals, herbicides, and fertilizers are not well understood by many in the community.
- Issue 4: Climate change will stress and change ecosystems with some ecosystems declining, while some may adapt successfully.

- Issue 5: The coral reefs and loko i`a (fishponds) ecosystems along Moloka'i's south shore are being threatened by the progressive propagation of invasive plant species such as mangroves and gorilla ogo. These species retain sediment, causing poor water quality, over grazing, mono cropping, and excessive pesticide and fertilizer use.
- Issue 6: Food security.
- Issue 7: The ecological impacts to the Kaunakakai Wharf have not been fully mitigated and are an ongoing concern.

C. GOAL, POLICIES, ACTIONS

Goal **Preserve, protect, and manage Moloka'i's exceptional natural land and water resources to ensure that future generations may continue to enjoy and protect the island environment.**

Policies

1. Ensure collaboration and partnerships for natural resource management, watershed planning, funding, and action implementation.
2. Encourage implementation of State plans and programs for comprehensive ecosystem management.
3. Encourage protection and restoration of the biodiversity of native plant and animal terrestrial, freshwater, and marine species and habitats through land conservation, resource management, education, invasive species prevention and control, wild fire prevention, and stewardship.
4. Require all grading and grubbing permits on Moloka'i to comply with Title 20, Chapter 20.08, MCC.
5. Ensure the design and construction of new development protect surface water, groundwater, and coastal water quality from nonpoint and point source pollution.

6. Encourage low impact development education programs, including green infrastructure for designers, developers, and builders.
7. Support a significant increase in public outreach, education, and involvement events to build community-based stewardship and implementation capacity.
8. Recognize and support sustainable agricultural, forestry, and game best management practices, and sustainable subsistence fishery management, as key elements to maintain, preserve, and protect Moloka'i's land, water and marine resources.
9. Encourage and support the establishment and expansion of native plant communities by utilizing appropriate practices and techniques for propagation and planting.
10. Encourage implementation and adequate funding for the Hawaii Department of Agriculture's Plant Quarantine Program on Moloka'i.
11. Encourage food security through programs and activities to increase the amount of locally grown food in agriculture, permaculture, agroforestry, aquaponics, and traditional Hawaiian farming systems.
12. Encourage adequate funding for ecosystem protection and restoration.
13. Support development of game, fishery, and coastal management areas and management plans.
14. Ensure that watershed protection and other conservation measures, including fencing, facilitate Native Hawaiian access rights related to subsistence activities and traditional and customary practices.
15. Protect and maintain Moloka'i's oceans, beaches, and other recreational areas to ensure a safe environment for recreational and cultural activities.

16. Support traditional ecological knowledge as a tool or resource strategy.
17. Encourage and support research that studies water quality, invasive species, and circulation issues around the Kaunakakai Wharf Road and Small Boat Harbor.
18. Support watershed or ahupua`a-based resource management partnerships.
19. Support State and Federal agencies to collect baseline data on south shore water quality and coral reef conditions.
20. Encourage coordination between landowners and the U.S. Department of Agriculture, Natural Resources Conservation System, to increase infiltration to the aquifer, control surface water runoff, and reduce sediment and nutrient loss from entering surface and coastal waters by constructing small-scale retention, bioretention, or other conservation projects.

Actions

| Table 3.1 Natural Resources Actions | | | |
|--|--|---------------------------|---|
| No. | Action | Lead County Agency | Partners |
| 3.1.01 | Assist with conferences or workshops of key Federal, State, and local agencies, and community and nonprofit leaders to discuss, plan, and prioritize actions to address environmental and natural resource issues. | OED | PD DWS MLSWCD `Aha Kiole o Moloka'i |
| 3.1.02 | Compile GIS data and traditional ecological knowledge to map the highest value ecological areas and natural resources. | PD | DLNR Major landowners NGOs MLSWCD `Aha Kiole o Moloka'i |

| Table 3.1 Natural Resources Actions | | | |
|--|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 3.1.03 | Compile GIS data to map primary and secondary groundwater recharge areas to help prioritize protection and restoration efforts. | DWS | CWRM PD USGS `Aha Kiole o Moloka'i |
| 3.1.04 | Assist in conducting workshops with stakeholder groups to develop an integrated natural and heritage resources management system, including traditional Hawaiian ecological knowledge. | OED | DLNR – Nā Ala Hele Trail and Access Program NGOs `Aha Kiole o Moloka'i |
| 3.1.05 | Assist in conducting or coordinating public education and involvement events to build community-based stewardship and implementation capacity. | OED | DLNR Major landowners NGOs MLSWCD `Aha Kiole o Moloka'i |
| 3.1.06 | Assist in the development of a West Moloka'i dry native forest and lowland shrub restoration program. | OED | DLNR Major landowners NGOs MLSWCD `Aha Kiole o Moloka'i |
| 3.1.07 | Consult with Moloka'i Education Center to develop and manage a native plant nursery for community restoration projects. | OED | Moloka'i Education Center DLNR MLSWCD NRCS Ho'olehua Plant Materials Center/USDA NGOs Private landowners `Aha Kiole o Moloka'i |
| 3.1.08 | Conduct outreach to agricultural, ranching, and development interests to implement BMPs to reduce excess sediment loss, herbicide and pesticide use. | OED | DOH Clean Water Branch CTAHR NRCS MLSWCD `Aha Kiole o Moloka'i |

Table 3.1 Natural Resources Actions

| No. | Action | Lead County Agency | Partners |
|--------|---|--------------------|---|
| 3.1.09 | Work with Federal, State, and county agencies to initiate a program to provide education and support for community stewardship of the coastal areas, including conducting baseline studies on coastal water quality and coral reef conditions. | OED | DLNR DOH, Clean Water Branch NGOs NRCS USGS NOAA MLSWCD Large Landowners Agricultural Operations `Aha Kiole o Moloka`i |
| 3.1.10 | Develop a toolbox of green infrastructure BMPs and conduct workshops for consultants, designers, developers, and builders. | DPW | State Office of Planning - Greenway Program `Aha Kiole o Moloka`i |
| 3.1.11 | Develop a toolbox of BMPs for use by residents and businesses to improve ecosystem health and water quality in urban and coastal areas. Provide assistance or workshops on BMPs and education to change business and household practices. Maintain a website for public education on water quality pollution prevention and BMPs. | DWS | DOH-Clean Water Branch DPW PD DLNR MLSWCD `Aha Kiole o Moloka`i |
| 3.1.12 | Assist with development of a community-based game management plan, including BMPs. | OED | DLNR NRCS Major landowners NGOs MLSWCD `Aha Kiole o Moloka`i |
| 3.1.13 | Continue to support organizations that eradicate invasive species. | DWS | OED `Aha Kiole o Moloka`i |

| Table 3.1 Natural Resources Actions | | | |
|--|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 3.1.14 | Encourage the State to establish a quarantine treatment facility on Moloka'i. | OED | Moloka'i Invasive Committee Maui Species 'Aha Kiole o Moloka'i |
| 3.1.15 | Assist in developing educational materials to educate visitors, including visitors engaged in hunting and fishing, about the importance of natural and cultural resources to the cultural and subsistence practices of Moloka'i's residents, and how they may prevent damage to these resources. | OED | DLNR OHA Cultural Practitioners NGOs 'Aha Kiole o Moloka'i |
| 3.1.16 | Work with the State, private landowners, and cultural practitioners to ensure that watershed protection, as well as other conservation measures, provide appropriate access, through fencing and other means, for cultural and subsistence activities. | Environmental Coordinator | DLNR OHA Cultural Practitioners NGOs 'Aha Kiole o Moloka'i |

3.2 HERITAGE RESOURCES

Throughout Moloka'i's landscape, there is an abundance of archaeological and historic sites and traditional cultural properties that document habitation by ancient Hawaiians and the more recent immigrants and their settlements. Archaeological, historic, and cultural resources combine to express the heritage of the people and place. Today, numerous Native Hawaiian traditional and customary practices, including fishing, gathering, cultivating lo'i, hunting, caring for burials, and accessing sacred and religious sites, continue to be practiced on Moloka'i. The health of Moloka'i's natural and cultural resources, and access to these resources by Native Hawaiian practitioners, mauka to makai, is critical to the perpetuation of Native Hawaiian culture. Many residents practice a subsistence lifestyle, relying upon the island's resources for fishing, hunting, and gathering. The people of Moloka'i are proud of their history, cultural identity, and unique Moloka'i lifestyle, and are determined to uphold and strengthen these qualities for future generations.

Moloka'i is historically significant as a center of Hawaiian culture and learning. It is purported in oral tradition to be the birthplace of the hula and a training ground for powerful priests. Hawaiians have traditionally believed the `āina (land) is their ancestor and that it is their kuleana (responsibility) to search for balance and harmony with nature: the people will take care of the land, and in turn the land will take care of the people. The island's natural resources are intimately connected to the cultural resources and together they provide the foundation for the traditional Hawaiian lifestyle. Until the 1800s, a communal system of land tenure and subsistence enabled ahupua`a tenants to access the land and its resources for subsistence, medicinal, cultural, religious, and other purposes. Even as western concepts of private property were incorporated into Hawaii's land tenure, native tenants retained certain rights and interests in land. By the mid-1800s, Europeans and Americans were established on Moloka'i. At the same time, land tenure in Hawaii was undergoing a significant transformation. During the Māhele (land division), private interests in land were established, but these interests were subject to the rights of native tenants. As the European and American populations increased, the plantation and ranching industries took hold on the island, producing commercial ventures operating throughout the 1800s and 1900s. Several small-scale attempts at sugarcane cultivation were made between 1870 and 1900; however, sugar plantations on Moloka'i did not reach the same level of success as those on neighboring islands.

Beginning in the 1920s, growth in cattle ranching and pineapple plantations influenced growth and development on Moloka'i. Kaunakakai became the

shipping and political center of the island and the home of the Molokaʻi Ranch headquarters. In 1923, Libby, McNeill & Libby established a pineapple plantation in Maunaloa. Kualapuʻu, originally the location of a small out-station for Molokaʻi Ranch, became home to the California Packing Corporation pineapple plantation in 1927.

A. EXISTING CONDITIONS

Molokaʻi has hundreds of documented archaeological and historic sites, as well as numerous undocumented sites. West and Central Molokaʻi lands have been extensively surveyed, while the East End has not yet been adequately surveyed. Appendix 3.2 provides a reference list of archaeological surveys conducted on Molokaʻi, including *Molokai: A Site Survey*, April 1971 by Catherine C. Summers. Molokaʻi sites are listed in the State Historic Preservation Division’s (SHPD) Statewide Inventory of Historic Properties, and numerous Molokaʻi sites have been entered in the Hawaii and/or National Registers of Historic Places. See Map 3.3 which depicts Molokaʻi’s State Historic Districts, places of interest, and other cultural resources.

Archaeological sites and traditional cultural properties are distributed across the landscape and include both Hawaiian cultural sites as well as areas of more recent use. A traditional cultural property is defined as an area or place “that is eligible for inclusion in the National Register because of its association with cultural practice or beliefs of a living community”.²² Some of Molokaʻi’s most noted traditional cultural resources include the ancient Hawaiian complexes of Hālawā Valley, the ʻIliʻiliʻōpai heiau of Mapulehu, the East End fishponds, Kukuʻi Lanikaula, the Makahiki Grounds of Nāʻiwa, the Hula Piko of Kāʻana Kapuāiwa Coconut Grove, St. Joseph Church, and the R.W. Meyer Sugar Mill of Kalaʻe. Appendix 3.3 provides a list of cultural sites that the community desires to protect.

Some Molokaʻi residents feel there is a lack of awareness and respect for the importance of Molokaʻi’s cultural and archeological sites by locals and visitors alike, which often leads to intentional or unintentional damage.²³ There is also concern that some sites not formally identified are being damaged or destroyed by unregulated ground altering activities, land development, and all-terrain vehicle use. In addition, neglected archeological sites such as

²² U.S. Department of the Interior, National Park Service. (1998). *National Register Bulletin* 38.

²³ Chris Hart & Partners, Inc. January 2011. *Cultural Resources Issue Paper*. Prepared for the County of Maui Long-Range Planning Division, Wailuku, HI.

heiau, fishponds, rock walls, and house platforms, are often damaged by negative human activity, animals, or tree roots.

Many of the historic buildings in Kaunakakai remain along the town's main commercial corridor, Ala Malama. However, many wood, plantation vernacular style storefronts have been altered and character-defining features removed. Maunaloa has suffered from wholesale demolition of laborer housing. About 20 years after pineapple operations ceased in the 1970s, approximately 57 of the 200 plantation homes were demolished, and few wood plantation vernacular commercial buildings remain intact. Conversely, the original camp homes at Kualapu'u remain largely intact. Many have been altered, but the majority of the homes retain the character defining features of early twentieth century Hawaiian plantation laborer housing.

Moloka'i's cultural sites are actively used by many in the community for cultural, spiritual, and subsistence purposes and are important to the perpetuation of Hawaiian traditions and cultural practices. According to the *Governor's Moloka'i Subsistence Task Force Final Report*²⁴, among the random sample group surveyed, 28 percent of their food is acquired through subsistence activities and 76 percent of respondents ranked subsistence as important to their own families. Erosion and reef siltation, over-fishing and improper harvesting, and non-native invasive marine species threaten traditional subsistence practices. Moloka'i has a wealth of traditional cultural practitioners with extensive experiential knowledge of local customs, resources, and ecosystems. Many of these practitioners believe it is their responsibility to teach younger generations traditional conservation practices and adherence to a code of conduct. This community place-based traditional resource management can function collaboratively with the more contemporary, resource management approach. One example is the 'Aha Moku initiative, a joint venture established between the native Hawaiian community and the State to integrate the traditional cultural natural resource management system into existing government regulatory policy.²⁵

In the past several decades, the rights of Native Hawaiians, particularly relating to access and gathering, have been extended and clarified. State and county governments and agencies have obligations to protect the reasonable exercise of traditional and customary practices of Native Hawaiians, to the extent feasible. Relying on the rights recognized in key constitutional and

²⁴ Matsuoka, Jon K., Davianna P. McGregor, and Luciano Minerbi. June 1994. *Governor's Subsistence Task Force Final Report*. Prepared for the State of Hawaii, Department of Business, Economic Development and Tourism, Honolulu, HI.

²⁵ <https://www.dropbox.com/sh/n6fcippt899slvv/AACJ2SfBZDsXB3FOZWFOv96Xa?dl=0>

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statutory provisions, as well as court decisions²⁶, the Hawaii Supreme Court established an analytical framework for State and county agencies to follow when considering land use and development projects²⁷.

B. ISSUES

- Issue 1: Cultural, historic, and archaeological sites are vulnerable to destruction, theft, neglect, and environmental degradation. Due to the Hawaiian language not being a written language, these sites represent Moloka'i's libraries and history.
- Issue 2: Cultural and environmental degradation affect the ability of Hawaiian cultural practitioners to practice their traditional lifestyles, including subsistence practices.

C: GOAL, POLICIES, ACTIONS

Goal Moloka'i's cultural, historic, and archaeological sites, and cultural practices will be protected and perpetuated for their cultural and historical value, and for enjoyment of and sustainable use by future generations.

Policies

1. Encourage proper management of and appropriate interpretation of significant cultural resources and sites.
2. Promote the rehabilitation, reuse, and historic registration of significant cultural resources, historic structures, and cultural landscapes.
3. Where appropriate, require identification and mitigation of potential impacts to subsistence activities and resources

²⁶ Hawaii Constitution, Article XII, Sec. 7

<https://www.dropbox.com/sh/a0w7lodq791x1h7/AABtT8Z5AXWlg8-LralYagfga?dl=0>, HRSS§ 1-1, 7-1; Ka Pa'akai o Ka 'Aina v. Land Use Comm'n, 94 Hawai'i 31 (2000); Pele Defense Fund v. Paty, 73 Haw. 578 (1992).

²⁷ Ibid; see also Public Access Shoreline Hawai'i v. Hawai'i County Planning Comm'n, 79 Hawai'i 425 (1995).

when reviewing development permits and discretionary land use proposals.

4. Support access for subsistence hunting, fishing, and gathering. Support appropriate public access to the shoreline, public trails, and hunting areas in a manner that protects natural and cultural resources and respects cultural practices.
5. Protect and support Native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with Article XII, Section 7, Hawaii State Constitution, Sections 1-1 and 7-1, and Hawaii court decisions.
6. Support the establishment of the island as a community-based subsistence fishing area, pursuant to Sections 188-22.6, HRS, to conserve marine and nearshore resources for generations to come.
7. Increase community awareness and stewardship of Moloka'i's historic and cultural resources.
8. Protect traditional cultural landscapes, such as Hālawā Valley, Hoku Kano-ʻUalapuʻe Complex, Kaʻamola, and Kamalo through the designation of all of Manaʻe within a Traditional Land Use Overlay.
9. Encourage the restoration, management, and use of Moloka'i's fishponds.
10. Support the inclusion of educational programs that emphasize culturally significant arts and practices, the Hawaiian language, and Moloka'i history into the curriculum of Moloka'i schools.
11. Support community-based cultural tourism that does not have an adverse effect on natural resources and culture.
12. Encourage increased funding for SHPD.
13. Support Moloka'i cultural events that do not have an adverse effect on natural resources and culture.

14. Ensure that permits for any project that may affect historic property are provided to SHPD for review, and that SHPD's recommendations are issued as permit conditions.
15. Promote the education of visitors on the significance of historic and cultural sites, how to be respectful of these sites, and how to support the maintenance and preservation of these sites.
16. Encourage efforts in Waikolu Valley to partner with the Kalaupāpā National Historical Park - National Park Service, DLNR, the community, and other stakeholders to: (a) conduct archaeological studies; (b) conduct invasive species removal; and (c) implement traditional uses of the valley.

Actions

| Table 3.2 Heritage Resources Actions | | | |
|---|--|---------------------------|---------------------------------------|
| No. | Action | Lead County Agency | Partners |
| 3.2.01 | Complete and regularly maintain a GIS inventory of cultural, archaeological and historic resources and trails assembled from existing inventories and databases to be used for project review. | PD | SHPD |
| 3.2.02 | Identify other significant cultural property types, including rural historic landscapes and traditional cultural properties, and take action to include appropriate sites on the National Register of Historic Places. | PD | SHPD |
| 3.2.03 | Establish archaeological and historic districts where high concentrations of historic sites exist. | PD | SHPD |
| 3.2.04 | Provide education and incentives to encourage property owners to nominate structures and sites to the State and National Register of Historic Places. | PD | Real Property Tax |
| 3.2.05 | Coordinate with cultural practitioners and State agencies to develop public education programs on the proper gathering and use of subsistence resources. | Environmental Coordinator | Cultural Practitioners DLNR OHA |
| 3.2.06 | Develop educational materials addressing heritage and natural resources impacts from unpermitted ground altering activities; disseminate educational materials widely, including to private landowners and visitors; provide instructions for reporting unpermitted activities. Train Moloka'i Development Services Administration (DSA) personnel to immediately respond to complaints. | DPW | PD |

Actions

| | | | |
|--------|--|------------------------------|---|
| 3.2.07 | Pursue State and County cooperation to update and implement the Mālama Cultural Park master plan. | PR | PD |
| 3.2.08 | Explore options to protect cultural sites listed in Appendix 3.3. | PD | SHPD Landowners |
| 3.2.09 | Establish a comprehensive historical interpretive program, including historical markers, maps, and brochures, and identify ahupua`a and significant historical sites that are appropriate for public interpretation. | OED | PD |
| 3.2.10 | Coordinate with kūpuna knowledgeable in north shore protocol to hold community meetings to educate people about the history and cultural significance of Wailau and Pelekunu and to encourage pono cultural practices. | Environmental Coordinator | OED Cultural Practitioners DLNR OHA NGOs, Community Groups |
| 3.2.11 | Encourage the Governor to appoint members to the Moloka'i Island Burial Council so that regular hearings by this body may resume. | PD | SHPD OHA |
| 3.2.12 | Promote Moloka'i cultural events that do not have an adverse effect on natural resources. Develop Moloka'i cultural events and tourism guidelines that protect island culture and natural resources. | OED | USGS DLNR DoCARE NGOs, Community Groups Cultural Practitioners OHA |
| 3.2.13 | Provide educational training to applicable County agencies on the role that the County permit process plays in historic preservation. | PD | SHPD |
| 3.2.14 | Educate property owners regarding the need to prevent damage to, or destruction of, historic and cultural sites. | PD | SHPD |

3.3 Scenic Resources

Scenic views and corridors are abundant and diverse on Moloka'i. They include land, sky, sea, and historic structures at a variety of scales and locations: urban, rural, agricultural, and open spaces. Views of nature, including ocean, hill slopes, valleys, ridgelines, springs, waterfalls, and coastlines can be seen nearly continuously from roadways that cross the island or follow the coast.

A. EXISTING CONDITIONS

Scenic resources on Moloka'i benefit from the limited amount of development that preserves vast areas of open space, agricultural lands, forested mountains, historic landscapes and ocean coastline. Many ridgelines and higher elevation hillsides remain undeveloped, while vegetation along the coastline obstruct views in many locations.

A photo inventory of Moloka'i's scenic resources was conducted and mapped but has not been rated for resource value. The *Maui County General Plan 2030 Scenic & Historic Resources, Inventory & Mapping Methodology Reports* provide guidance on visual quality ratings based on eleven factors used to evaluate and prioritize scenic resources.²⁸ In addition, the inventory and mapping work has not yet occurred to develop the Scenic Roadway Corridors Management Plan and Design Guidelines.

B. ISSUES

- Issue 1: Scenic resources are vulnerable to loss or degradation when not identified.
- Issue 2: Most scenic resources can be difficult to restore once changed.
- Issue 3: Moloka'i's scenic views are underutilized due to a lack of signage and turnouts.
- Issue 4: The increasing spread of invasive and poorly maintained vegetation is blocking views to the ocean and mountains.

²⁸ Chris Hart & Partners, Inc. (June 2006). *Maui County General Plan 2030 Scenic & Historic Resources, Inventory & Mapping Methodology Reports* (County of Maui Long-Range Planning Division).

C. GOAL, POLICIES, AND ACTIONS

Goal **Preserve and protect diverse scenic resources for future generations.**

Policies

1. Restrict or mitigate the impact of development on scenic resources.
2. Ensure development is designed to protect scenic roadway views and significant views of ridgelines and hill-slopes to maintain open space scenic character.
3. Increase community awareness and appreciation of Moloka'i's scenic resources.
4. Support land purchase or provide tax incentives to design and construct scenic overlooks, roadside pull-outs, and signage. Maintain scenic view corridors to the ocean and mountains.
5. Retain significant vistas associated with archaeological features and culturally significant areas.

Actions

| Table 3.3 Scenic Resources Actions | | | |
|---|---|---------------------------|---------------------|
| No. | Action | Lead County Agency | Partners |
| 3.3.01 | Develop BMPs for land and development uses to protect identified priority view corridors or viewsheds. | PD | NGOs |
| 3.3.02 | Complete the visual inventory, analysis, and mapping of key scenic view corridors, ridgelines, and viewsheds. | PD | NGOs |
| 3.3.03 | Develop and implement the Scenic Roadway Corridors Management Plan and Design Guidelines. | PD | NGOs DPW HDOT |

| | | | |
|--------|--|----|------|
| 3.3.04 | Provide educational workshops for design consultants and developers on scenic resource BMPs. | PD | NGOs |
| 3.3.05 | Integrate scenic resource planning into natural and heritage resources strategies and plans. | PD | NGOs |

4 | HAZARDS

Hazards from natural forces have been measured in Hawaii since the early 1800s. Since 1955 there have been 24 major disaster declarations in the State of Hawaii due to tropical cyclones, earthquakes, landslides, lava flows and tsunamis. Natural disasters have inflicted significant property losses and resulted in death and injury to residents and visitors in the County of Maui. Direct and indirect costs should be considered when calculating the total loss from natural disasters, since recovery efforts divert available public and private resources, adversely impacting economic productivity.

The focus of disaster recovery is how to build resiliency, the bounce-back capability, into communities. People must first recognize the inherent risks involved in their choices of where and how to live. Then the communities can adopt “approaches that eliminate, reduce, mitigate or transfer those risks in ways that make them more manageable over the long haul”²⁹.

Communities with strong disaster resilience capabilities were often those that were already doing well at the things citizens and businesses most value – having leaders that people trust and institutions that work, having a healthy environment, having a regularly maintained infrastructure designed to anticipate stresses, and having a flexible economy that provides opportunities for broad cross-sections of workers and investors.³⁰

The islands that constitute Maui County are exposed to hazards that are sometimes unique to each island. Moloka'i has greater exposure to high surf from the large Northwestern Pacific swells than other islands. Wildfires and drought have significantly impacted Moloka'i. Floods and coastal erosion with economic, social, and environmental significance are more common on Moloka'i because its population center is near shorelines and mountains with steep grading. All islands in the County have similar exposure to tropical cyclones because of their geographic location. Similarly, all islands in the County have comparable exposure to earthquakes.

The hazard mitigation planning process analyzes a community's risk from natural hazards, coordinates available resources, and implements actions to reduce risks. Natural hazards must be considered when planning for future

²⁹ <http://www.soest.hawaii.edu/coasts/sealevel/>

³⁰ Brown, Ben. (December 2010) *What is Resilience? A Roadmap to Resilience: Towards a Healthier Environment, Society and Economy for South Alabama. A Report by the Coastal Commission of Alabama.*

growth and development of a community. The Maui County Hazard Mitigation Plan (HMP) provides a strategy to reduce or eliminate loss of property or life caused by natural hazard events. The HMP addresses the relationship among various types of hazards, identifies actions that benefit multiple hazards, and prioritizes resources to areas susceptible to the most severe or most frequent hazards. The HMP was completed in 2015 and received final approval from the Federal Emergency Management Agency (FEMA) the same year. (Specific references to the 2015 Maui County Multi-Hazard Mitigation Plan pertaining to descriptions in this chapter can be found in the footnotes). The updated HMP will also focus on mitigating the impacts of flooding to improve the County's Community Rating System (CRS) class ranking, which is currently 8. This ranking provides a 10 percent annual discount off flood policy premiums. A ranking of 1 out of the 10 classes is the highest and would provide a 45 percent discount. The National Flood Insurance Program (NFIP) is a Federal program created by Congress to mitigate future flood losses through sound, community-enforced building and zoning ordinances and to provide access to affordable, Federally-backed flood insurance protection for property owners. The NFIP is designed to provide an insurance alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods. The County is in the process of updating the Flood Insurance Rate Maps (FIRMs) that are used to determine which property owners with mortgages will be mandated by FEMA to purchase flood insurance and the cost of the insurance.

A. EXISTING CONDITIONS

Extensive areas of Kaunakakai and the East-end communities are located at low coastal elevations placing them at relatively high-risk from tsunami, coastal flooding, stream flooding, storm surge, and inundation. Areas around the tourist resort at Kaluako`i and the entire campground at Papohaku Park are also in tsunami inundation zones (see Hazards maps 4.1, 4.2 and 4.3).

Moloka`i High and Kualapu`u Elementary have been identified as hurricane evacuation shelters with a combined capacity of 3,197. Three facilities have been identified as evacuation shelters for tropical storms and three are identified as tsunami assembly areas. A State of Hawaii Civil Defense facility survey found recurring deficiencies with existing shelters (Martin & Chock, 2010). A Statewide effort is currently underway to validate the shelters and their capacities, the results of which will be amended into this Plan when completed.

There is a need for shelters in Central and East Moloka`i.

There are 11 warning sirens on island: 8 on the south shore, 1 on the Kalaupāpā Peninsula, one in Maunaloa and one on the West End. An additional 6 sirens are planned for Moloka'i as part of the Statewide Modernization and Upgrade Plan. Sirens have an effective average range of one-half mile. The Civil Air Patrol provides coastal warnings and the County of Maui Emergency Management Agency (EMA) transmits warnings to the public through the Emergency Alert System (EAS), which includes simultaneous broadcasts over all radio and television systems. Subscribers to EMA Notifications and Emergency Alerts will be notified via text, email, and phone calls. Additionally, phone calls will be made to public land lines in the affected area. Disaster response is coordinated through the County's Emergency Operation Center on Maui and the Moloka'i Incident Command Post. Communications are augmented through satellite transmission.

Flooding and Erosion – Annual storms can bring multiple hazards that impact coastal and inland areas. These impacts include flash floods, high waves, storm surge, high winds, and hurricanes. SLR increases high waves and storm surge that contribute to beach and shoreline erosion and coastal inundation. Major flood problems are associated with the heavy flow of four water courses in east Moloka'i. Wailua Stream, Wāwā'ia Gulch, Kamalo Gulch and Kawela Gulch become blocked because of inadequate bridge openings or deposits of eroded sediment. Many streams run freely onto the roads because of inadequate drainage and storm water infrastructure. This typically occurs around the east side of Kawela and at One Ali'i Beach Park. Roadway flooding can hamper travel and access and adversely affect emergency response times and capacity. When streams and rivers flood on the mauka side of the road, heavy debris often settles on the roadways. Additionally, mud runs off onto roadways making roads impassable and creating hazardous driving conditions. There are several unnamed waterways that flood areas by the Kaunakakai Fire Station and Education Center, impacting the cemetery and Kapa'akea Homestead. Rising sea levels will also block the drainage of streams causing overflow at the stream mouth.³¹ Manila Camp has also been affected by flooding from the "third river".

Tsunami - As of May 2010, 27 tsunamis with run-up heights greater than 3.3 feet (1 meter) have made landfall in the Hawaiian Islands during recorded history and 8 have had significant damaging effects on Maui, Moloka'i Lāna'i. Tsunamis reaching Moloka'i have exhibited tremendous variability in run-up heights, inundation distances, and the damage they have inflicted. The

³¹ 2015 Maui County Multi-Hazard Mitigation Plan, Chapter 10 and Chapter 13.

April 1946 tsunami on Moloka'i produced run-up heights of 7 and 44 feet on the east and west sides of Kalaupāpā Peninsula, respectively.

New GIS maps for all islands in the County have been developed for tsunami inundation areas. These maps include delineations of historical and modeled run-up data used for determining building standards and tsunami evacuation areas. Historically in Hawai'i, the NFIP FIRMs included the historical tsunami inundation limits. The new digital FIRMs should be amended to include for these limits.³²

Dams and Reservoirs - Dam and reservoir failures can cause damaging flash floods. The sudden release of impounded water can occur during a flood that overtops or damages a dam or reservoir; this can occur on a clear day if the dam has not been properly constructed or maintained. The Kualapu'u Reservoir is an earthen dam located in central Moloka'i, that stores 1.2 billion gallons of water for irrigation purposes. The dam is 57 feet high and 7,100 feet long with a drainage area of 134 acres. This State-regulated reservoir was built in 1969 has a high flash flood hazard rating.³³ The nearest town in the flood path, is Ho'olehua Pala'au Homestead located one mile away. Kualapu'u Reservoir has a State-approved Emergency Action Plan, and an engineering assessment was completed in January 2015 (see Hazards map 4.2).³⁴

High Surf - The most predictable and frequent coastal hazards in the Hawaiian Islands are sudden high waves combined with strong near shore currents. High surf is defined as waves ranging in height from 10 to 20 feet or more. High wave events threaten lives, coastal property, and infrastructure. High waves from hurricanes present a more complex hazard since they may coincide with high tide, storm surge, and high winds to produce a combined threat. They generally occur from June through December and most often hit the eastern shores of the Hawaiian Islands as hurricanes approach. High waves produced by north Pacific swells affect the entire northern and western coast of Moloka'i.³⁵ There is a greater threat to the more accessible and frequented areas along the north facing shores of the west La'au Point between 'Īlio Point and Mo'omomi Beach.³⁶ Natural hazards must be considered when planning for future growth and development of a community.

³² Ibid, Chapter 9.

³³ "High hazard" means a dam's or reservoir's failure will result in probable loss of human life. Source: HAR-190-1-Dam-Safety-Rules1.pdf

³⁴ 2015 Maui County Multi-Hazard Mitigation Plan, Chapter 11.

³⁵ Ibid, Chapter 16.

³⁶ *Atlas of Natural Hazards in the Hawaiian Coastal Zone*, 2002.

Wildfire -Wildfire is the term applied to any unwanted and unplanned fire burning in forest, shrub, or grass areas, regardless of whether naturally or human induced. Historically, Moloka'i has been very susceptible to wildfire; there are nine years on record where more than 1,000 acres burned. Between 1975 and 2009, wildfires on Moloka'i burned over 65,000 acres, which is approximately twice as much acreage as wildfires consumed on the island of Maui during the same period.

Wildfires can cause widespread damage to watersheds, human communities, and downslope coral reef ecosystems. The danger of wildfire is related to arid conditions, frequent high winds, and the high fuel potential of vegetation. Nine out of ten wildfires are human caused. Moloka'i's Central area and West End are dry regions with agricultural lands that are particularly susceptible to drought conditions and are therefore at high risk of wildfire.

In the early 2000's the Moloka'i Fire Task Force was created to improve interagency coordination and communication regarding wildfires on Moloka'i. The original core group consisted of Maui County Fire and Rescue Operations, The Nature Conservancy (TNC) and the State DLNR Division of Forestry and Wildlife (DOFAW). The Task Force has since evolved, and many other private sector, State, County, and local community agencies have become involved. The Task Force maintains a positive working relationship between the myriad of agencies involved in wildfire protection and the Moloka'i community.

The Task Force collects wildfire risk data and oversees development of the Community Wildfire Protection Plan (CWPP). The CWPP addresses elements of wildfire protection, hazard assessment, wildfire mitigation priorities, and community outreach and education. The goals and objectives of the Plan follow the requirements of the *Healthy Forests Restoration Act* (HFRA), which describes a CWPP as a fire mitigation and planning tool for at-risk communities that meet criteria contained in the HFRA.³⁷

Hazardous Substances & Waste - The Hawai'i Environmental Response Law (HERL) requires the DOH to report annually to the State Legislature about sites with potential or known hazardous substances, pollutants, or contaminants.³⁸ The 2014 Site Rehabilitation Prioritization (SRP) List of

³⁷ Detailed information and data on tsunamis is contained in the 2015 Maui County Hazard Mitigation Plan, Chapter 14 (drought) and Chapter 15 (wildfire). Additionally, the impact of drought on Moloka'i was addressed in the October 2004 County of Maui Drought Mitigation Strategies and the 2005 State Drought Plan.

³⁸ Martin & Chock. (2010) Maui County Multi-Hazard Mitigation Plan.

Priority Sites reported ten sites on Moloka'i with potential or known contamination. There was also a list of sites eligible for possible remedial action under the Comprehensive Environmental Response Compensation and Liability Act that identified one Moloka'i site for possible listing. Additionally, in 2014, there were four Moloka'i sites located on Federal property managed and funded under the Department of Defense/State Memorandum of Agreement (DSMOA) Program.³⁹

B. ISSUES

- Issue 1: There is low public awareness about hazard preparedness, mitigation, response, and recovery.
- Issue 2: In coastal areas, including Kaunakakai, SLR will increase risk of inundation, flooding, storm surge, beach erosion, and shoreline retreat and structural damage.
- Issue 3: Moloka'i has a high risk of wildfire.⁴⁰
- Issue 4: Moloka'i cannot solely depend upon other islands for resources for hazard and emergency response.
- Issue 5: The majority of Moloka'i's government, business, and health care facilities, except for the hospital and fire station, are located entirely within flood and tsunami inundation zones.
- Issue 6: Puko'o Fire Station is the only emergency facility located on the East End and is located within flood and tsunami inundation zones.
- Issue 7: There are no emergency facilities in the West End.

C. GOAL, POLICIES, ACTIONS

Goal **Moloka'i will be prepared for natural and human-created hazards.**

³⁹ *Environmental Response and Planning Community Knowledge Report to the Twenty-Seventh Legislature, State of Hawaii 2014.*

⁴⁰ Draft Maui County Hazard Mitigation Plan Update, 2015.

Policies

1. Promote public education about natural and human-induced hazards to improve preparedness and response and to reduce hazard risk and impacts.
2. Support a more coordinated emergency response system that includes clearly defined and mapped evacuation routes and Red Cross approved shelters located away from areas susceptible to natural hazards.
3. Support and advocate for better preparedness capacity by improving inter-agency planning, coordination, and implementation.
4. Support the integration of science-based coastal hazards information into land use planning and permitting, including revision of the Special Management Area (SMA) boundary in accordance with Section 226, HRS, Climate Change Adaptation Priority Guidelines.
5. Maximize protection of coastal natural resources and ecosystems and avoid the perpetuation of shoreline armoring.
6. Encourage the location or relocation of all critical infrastructure, facilities, and development out of the evacuation and inundation zones vulnerable to coastal hazards in accordance with the 2012 Hawai'i State Climate Change Adaption Adaptation Priority Guidelines and the HMP.
7. Prioritize mitigation efforts that will provide potential funding opportunities to flood proof or retrofit vulnerable critical facilities and infrastructure.
8. Support the goals, objectives and actions of the 2018 Moloka'i Community Wildfire Protection Plan.
9. Support the protection and restoration of natural systems, such as wetlands and dunes, for flood mitigation and climate change adaptation.

10. Promote the distribution of public education and outreach materials that explain FEMA's NFIP.
11. Per the Maui County Hazard Mitigation Plan, encourage the State to utilize the funding provided to retrofit, rehabilitate and/or replace highway bridges vulnerable to earthquake hazard.
12. Encourage a greater urgency to act on hazard policies, actions, implementation priorities, and funding.
13. Support the addition of Red Cross approved shelters.
14. Support the integration of traditional ecological knowledge-based coastal hazards information into planning for resilience.

Actions

| Table 4.1 Hazards Actions | | | |
|----------------------------------|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 4.01 | Continue the development of Moloka'i Incident Command Post in coordination with County EMA. | EMA | Red Cross Civil Air Patrol MPD MFD DPW EMS Volunteer Organization Active in Disaster Privately held Public Water Systems |
| 4.02 | Identify and submit flood and pre-disaster mitigation projects that qualify for funding under the FEMA Pre-Disaster Mitigation Program, Hazard Mitigation Assistance Program, NFIP Severe Repetitive Loss Program, and other FEMA funded mitigation and NFIP grants consistent with the Maui County HMP. | EMA | FEMA Region IX NFIP |
| 4.03 | Develop programs and distribute materials for public outreach and education to better educate the community and visitors on disaster preparedness, response, hazard mitigation, multi-hazard risks and vulnerabilities, and post-disaster recovery. Target materials and programs that will provide information on steps to take to protect lives and strengthen property against natural and human-related disasters. | EMA | MFD Mayor's Office Environmental Coordinator Red Cross Moloka'i Wildfire Task Force |

| Table 4.1 Hazards Actions | | | |
|----------------------------------|---|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 4.04 | Seek community information on possible hazardous waste sites buried decades ago; investigate and remediate if needed. | DEM | DOH Mayor's Office (Environmental Coordinator) |
| 4.05 | Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to coastal hazards, including SLR, and develop a more coordinated emergency response system of well-defined and mapped evacuation routes. | EMA | DPW DWS DEM |
| 4.06 | Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to wildfires and develop a more coordinated emergency response system of well-defined and mapped evacuation routes. Formalize existing practices on the use of heavy equipment during fires. | MFD | DOFAW Volunteer Fire Crew Moloka'i Fire Task Force |
| 4.07 | Develop a wildfire information campaign and signage to build public awareness of wildfire hazard. Improve community awareness of the human, economic, and environmental costs associated with wildfires caused by negligence or accident. Engage the community in creating and maintaining fire breaks. | MFD | Moloka'i Fire Task Force Private Property Owners |
| 4.08 | Support wildfire mitigation activities such as green belts around subdivisions and vegetation control around power poles that will minimize risk of wildfire susceptibility to properties and subdivisions. | DPW | MFD PD Moloka'i Fire Task Force MECO |
| 4.09 | Complete an inventory of vulnerable critical facilities and infrastructure. Include this information in the Maui County HMP for future mitigation project funding. | PD | EMA |

| Table 4.1 Hazards Actions | | | |
|----------------------------------|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 4.10 | Map SLR projections for specific geographic areas on Moloka'i, utilizing data from the NOAA Digital Coast SLR and Coastal Flooding Impacts Viewer. Map other climate-related coastal hazard areas. | PD | NOAA Pacific Services Center UH Sea Grant |
| 4.11 | Continue work with FEMA to update FIRMs that incorporate best available information on climate change and SLR. | PD | FEMA |
| 4.12 | Implement additional CRS activities to improve class ratings and discounts on flood insurance premiums. | PD | FEMA |
| 4.13 | Conduct erosion analysis of Moloka'i's shoreline to determine rate of erosion and use the results to determine setback calculations that also factor in incremental effects of SLR. | PD | NOAA Pacific Services Center UH Sea Grant |
| 4.14 | Coordinate with Federal, State and County agencies to obtain current SLR information and maps. Plan phased relocation of critical structures and roadways. Plan long-term strategic retreat of buildings. Identify priority planning areas where resources and planning efforts should be focused. Identify how and where to use adaptation strategies such as retreat, accommodation, and protection. | PD | NOAA Pacific Services Center, UH Sea Grant EMA DPW |
| 4.15 | Per the HMP, update the HAZUS-MH model to incorporate detailed data on State and County bridges located in Moloka'i. | EMA | FEMA |
| 4.16 | Support development of a cultural archive of the kūpuna's knowledge of traditional hazard mitigation practices. | PD | DHHL |
| 4.17 | Evaluate, update and prioritize shelters on Moloka'i. | EMA | Red Cross |

| Table 4.1 Hazards Actions | | | |
|----------------------------------|---|---------------------------|-----------------|
| No. | Action | Lead County Agency | Partners |
| 4.18 | Immediately seek funding and develop an implementation plan to move critical infrastructure and emergency services out of flood and tsunami inundation zones. | EMA | FEMA |
| 4.19 | Support the relocation of the Puko'o Fire Station on the East End of Moloka'i. | EMA | FEMA |

5 | ECONOMIC DEVELOPMENT

Several key economic events have shaped the structure and vitality of Moloka'i's economy. These events have also influenced the population makeup and employment opportunities on the island. Moloka'i has a long history of agriculture, beginning with the cultivation of taro and development of fishponds by the native Hawaiians. In 1859, Kamehameha IV established a sheep ranch at Kaluako'i, which was the origin of Moloka'i Ranch. In the 1920s, the first pineapple plantations were established, and the island experienced an influx of immigrant workers. Other agricultural crops have been commercially produced on Moloka'i, including sugar, honey, sweet potatoes, and watermelon. In the late 1970s, the Kaluako'i Hotel along with its golf course and condominiums opened, officially introducing resort tourism to Moloka'i. By the early 1980s, pineapple operations closed ending plantation agriculture on Moloka'i, triggering a substantial out-migration.

In 1967, the first corn test plots were started by Moloka'i Ranch, with the support of the University of Hawai'i (Dr. Jim Brewbaker and Dr. Elizabeth Johnson (Granger)). In 1966, Molokai Seed Service and Hawaiian Research, founded by Roland Holden, began business on Moloka'i. In 1972, Molokai Seed Services sold to Hawaiian Research all of its assets including land leases on Moloka'i. In December 2000 Monsanto purchased Hawaiian Research. In 2000, two biotech seed corn companies, Monsanto and Mycogen Seeds, began operations that became Moloka'i's first and second largest private employers. In 2001, the Kaluako'i Hotel closed; then, in 2008, the island's largest employer at the time, Moloka'i Ranch, closed its operations and laid off 120 employees. This meant the loss of some important community amenities such as the Kaluako'i golf course, a gas station, and a movie theatre complex.

In an effort to find solutions to the island's economic challenges, the Maui Economic Development Board (MEDB) and the Moloka'i Chamber of Commerce surveyed 90 Moloka'i business representatives. MEDB's 2009 report, *Entrepreneurship and the Future of Moloka'i*, concluded that, "... the quality of the labor force and job applicants was a limiting factor for the Moloka'i economy."⁴¹ Education levels, job skills, and a shortage of local managerial talent were cited as contributing factors. Despite these discouraging findings, MEDB also found that "...entrepreneurship is thriving on Moloka'i and that resourcefulness is inherent in the community."⁴²

⁴¹ Maui Economic Development Board, *Entrepreneurship and the Future of Molokai* (2009).

⁴² Maui Economic Development Board, *MEDB Annual Report on Operations, July 1, 2008 – June 30, 2009*.

Additionally, according to the 1994 *Governor's Moloka'i Subsistence Task Force Final Report*, subsistence is a viable sector of Moloka'i's economy. Subsistence practices on Moloka'i have continued into today primarily due to the availability and community-based management of natural resources. With Moloka'i's history of numerous economic strategies proposed by various entities that have had negative implications on Moloka'i's natural resources and native ecosystems, it is important to carefully move forward with future endeavors that will develop and diversify Moloka'i's economy. Such economic development strategies must be compatible with the island's character and lifestyle.

In the Wāiahole I contested case hearing, the Hawai'i Supreme Court held that the public trust doctrine affords protection for natural resources that are important for Native Hawaiian traditional and customary practices,⁴³ including subsistence. The Supreme Court further held that private commercial use is not a protected public trust use.⁴⁴ Additionally, as public and private interests often conflict, the State has a constitutional obligation to weigh competing interests in public trust resources with a presumption in favor of public use, access, and enjoyment.⁴⁵ In order to ensure Moloka'i's subsistence economy remains viable and the rural character of Mana'e remains intact, it is critical to ensure that the continuous development of Moloka'i's economy is done so in a way that is in accordance with the State's affirmative obligations.

A. EXISTING CONDITIONS

Moloka'i's economic development efforts face a unique set of challenges including:

- Limited local market capacity and competition due to the small, isolated population.
- Higher cost and limited product transportation options.
- Over-reliance on fossil fuel-based imports for energy production and transportation of people, food, and materials.

These economic challenges are magnified on Moloka'i; finding workable solutions will require thoughtful collaboration between business owners, major landowners, government entities, and the community.

⁴³ *In re Waiāhole Combined Contested Case Hearing (Waiāhole I)*, 94 Hawai'i 97, 136 9 P.3d 409, 448, 137.

⁴⁴ *Ibid.* at 138.

⁴⁵ *Ibid.* at 141-42.

The USDA awards grants to communities throughout the United States that have high rates of poverty. Moloka'i was designated as a Rural Enterprise Community from 1998 to 2008. Moloka'i is economically disadvantaged due, in part, to the lasting combined impacts of the Great Recession and the shutdown of the pineapple companies and Moloka'i Ranch. The following 2009-2013 American Community Survey statistics provide a snapshot of economic conditions on Moloka'i⁴⁶:

- Moloka'i has consistently had the State's highest unemployment rate; in November 2014, the unemployment rate was 14.2 percent versus the statewide average of 4.7 percent.⁴⁷
- The 2009-2013 estimated median family income (MFI) for East Moloka'i was \$51,807, which was 65 percent of the \$79,963 statewide MFI; West Moloka'i's MFI was \$44,656, which was 56 percent of the statewide MFI.
- An estimated 21 percent of people living on Moloka'i had incomes below the poverty level, which was nearly double the statewide rate of 11 percent.
- On Moloka'i, 28 percent of workers were employed in the government sector compared to 15 percent on Maui, and 21 percent statewide. Alternatively, Moloka'i had the lowest percentage of private-sector employees at 63 percent compared to 75 percent on Maui, and 72 percent statewide.
- Moloka'i had the highest percentage of workers employed in the agricultural, forestry, and fishing industries at 7 percent compared to Maui at 2.4 percent and the State average at 1.5 percent.
- Moloka'i has only one small hotel and 340 total visitor accommodation units that are mostly condos, and in 2014 the island had the lowest percentage of workers employed in the tourism sector with 15 percent versus 24 percent for Maui and 16 percent statewide.

Standard economic indicators such as unemployment rate, workforce composition, and personal income levels may signify a community in distress; however, Moloka'i has a significant subsistence economy that provides a vital and viable substitution for many imported goods. This key sector in Moloka'i's hidden economy is important to food sustainability and self-sufficiency.

Moloka'i's subsistence economy is based on the customary and traditional practices by Moloka'i residents that relies on wild and cultivated renewable resources for direct personal or family consumption, such as food, shelter, fuel, clothing, tools, transportation, culture, religion and medicine, for

⁴⁶ American Community Survey, 2009-13 5-year Estimate (unless otherwise noted).

⁴⁷ Hawaii State Department of Labor & Industrial Relations (DLIR), December 2014.

bartering or sharing, and for customary trade. Many families on Moloka'i continue to rely upon subsistence fishing, hunting, gathering, or cultivation for a significant portion of their food. Subsistence agriculture has also been critical to the perpetuation of traditional Hawaiian cultural values, customs and practices.

A number of residents on Moloka'i are very protective of their rural and traditional-based lifestyles and have resisted economic development centered on commercial tourism, real estate development, and in-migration of new residents -- all important elements in most of the State's economic development strategies. Although many Moloka'i residents are willing to accept economic tradeoffs to maintain their traditional lifestyles, others desire a more diversified, resilient, productive, and service-based economy. There is considerable community support for agriculture, aquaculture, and an active community-based tourism sector. Many residents would like to see small local businesses and entrepreneurs become the primary drivers of Moloka'i's economic renaissance. There is also a strong community desire to revitalize and reopen the Kaluako'i Hotel and Golf Course, the Maunaloa Lodge, and other amenities.

There is no longer direct freight service between Moloka'i and Maui, which creates logistical problems for producers of perishable goods. The Young Brothers freight schedule makes it difficult to ship perishable goods from Honolulu. Products originating or arriving outside of Hawai'i first arrive on Oahu then move on to Moloka'i. The additional leg of travel increases Moloka'i's shipping costs and shipping times, which can affect spoilage rates for agricultural products.

B. ISSUES

- Issue 1: Moloka'i's limited economic base has been unable to provide a sufficient level of employment to meet the needs of residents.
- Issue 2: Transportation between Moloka'i and the neighbor islands is costly and a challenge for economic development.
- Issue 3: The limited pool of qualified, well-trained, and reliable workers reduces local employment potential and makes business more challenging.
- Issue 4: Moloka'i has a high cost of electricity.

Issue 5: There is increasing concern that if something is not done now to reverse the trend of overharvesting and diminishing natural resources, there will be nothing left for future generations.

C. GOAL, POLICIES, ACTIONS

Goal A stable, balanced, diversified, and sustainable economy, respecting cultural and natural resources, that is compatible with Moloka'i's rural island lifestyle.

Policies

1. Support diversification of Moloka'i's economy.
2. Support improvements in education training programs and internships at all levels to ensure a well-educated and well-trained workforce.
3. Support the development of agriculture and value-added agricultural products and support traditional farming systems.
4. Support small business assistance and training programs.
5. Support the expansion of complementary tourism markets, including kama'āina, cultural, religious pilgrimage, ecotourism, agricultural, and sports in a manner that supports the conservation of Moloka'i's natural and cultural resources, the protection of Moloka'i's rural lifestyle and cultural traditions, and the sustainability of the island.
6. Support redevelopment projects, such as the Kaluako'i Hotel and Golf Course, and the reopening of the Moloka'i Ranch Lodge with community input to incorporate community culture and lifestyle.
7. Support the limited growth of permitted alternative lodging units that do not create an adverse impact on the neighborhood.
8. Support increased enforcement of Chapter 19.65, MCC, the County's Short-Term Rental Home ordinance, to address the adverse impacts short-term rentals have on neighborhoods.

9. Advocate for Moloka'i's transportation interests.
10. Encourage the State Department of Transportation's implementation of harbor improvements.
11. Encourage the State Department of Transportation to improve the airport.
12. Create regulations and procedures that will enhance and promote (not hinder) economic development appropriate to Moloka'i's rural character.
13. Support art as a business.
14. Support and encourage cottage and mini-industries, such as garment and craft production, as residential-based economic activities, provided such activities are compatible with the surrounding neighborhood.
15. Support increased education and employment in conservation and restoration to create a sustainable economy.
16. Continue support of the Kuha`o Business Center.
17. Support the restoration and utilization of Moloka'i's fishponds and the development of a fish hatchery on the East End of Moloka'i.
18. Support community initiatives to develop a management plan for mangroves in fishponds and near shore areas and convert this invasive species into farm inputs and hardwood consumer products.
19. Encourage the update and implementation of the Moloka'i Responsible Tourism Initiative: A Community-based Visitor Plan for Moloka'i.
20. Support subsistence as a sector of Moloka'i's economy.
21. Encourage State and County efforts to secure Federal funds to subsidize interisland transportation.
22. Support community-based management of the natural resources on Moloka'i.

23. Encourage the protection of the coastline, valleys, and fisheries from all commercial activities and support a process to establish community-based subsistence fishing areas.

Actions

| Table 5. 1 Economic Development Actions | | | |
|--|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 5.01 | Identify, target, and recruit new industries and businesses such as agricultural operations, aquaculture, cultural arts and trades, and information technology. | OED | MEO MEDB DOH DLNR `Aha Kiole o Moloka`i |
| 5.02 | Continue to assess potential shipping options. | OED | Ferry Operators Public Utilities Commission `Aha Kiole o Moloka`i |
| 5.03 | Continue to work with inter-island airlines to keep airfares affordable and service frequency adequate to accommodate the needs of Moloka`i's visitors, residents, and businesses. | OED | Airlines Shippers Public Utilities Commission `Aha Kiole o Moloka`i |
| 5.04 | Develop a Moloka`i Agriculture Strategic Plan for all farms. | OED | University of Hawai`i College of Tropical Agriculture and Human Resources `Aha Kiole o Moloka`i |
| 5.05 | Continue to provide business courses to farm owners and agricultural entrepreneurs that include education about State, Federal, and grant opportunities. | OED | DOA Farm Service Agency Hawai`i `Aha Kiole o Moloka`i |
| 5.06 | Encourage the development of cooperative agricultural development programs between the County and the DHHL to support diversified agricultural pursuits. | OED | DHHL `Aha Kiole o Moloka`i |

| | | | |
|------|--|--|---|
| 5.07 | Create a survey of Moloka'i's population to determine the reasons for the high rate of "discouraged workers." | OED | MEDB MEO `Aha Kiole o Moloka'i |
| 5.08 | Continue and enhance educational opportunities for Moloka'i's students in areas such as STEM education, business management, leadership, agriculture, and vocational training. | OED | MEDB MEO DOE UH `Aha Kiole o Moloka'i |
| 5.09 | Assess how environmental impacts, invasive species, feral ungulates, natural resources, and other factors will negatively or positively impact Moloka'i, present and future. | OED Mayor's Office (Environ mental Coordina tor) | DLNR EPA MEDB `Aha Kiole o Moloka'i |
| 5.10 | Develop a permanent appropriate site for the farmer's market in Kaunakakai to promote locally grown fresh produce and products. | OED | MEDB Moloka'i farmers `Aha Kiole o Moloka'i |
| 5.11 | Identify economic opportunities for the use of targeted plant and animal species for value-added products. | OED | `Aha Kiole o Moloka'i |
| 5.12 | Assess which development regulations are going to discourage investors from making improvements on Moloka'i. | OED | PD `Aha Kiole o Moloka'i |
| 5.13 | Explore the possibility of providing incentives to landowners to comply with MCC requirements for the purpose of maintaining affordable housing. | DHHC | PD `Aha Kiole o Moloka'i |
| 5.14 | Support workforce development efforts to help improve Moloka'i's economy. | OED | Hawai'i Workforce Development Dept. `Aha Kiole o Moloka'i |
| 5.15 | Develop opportunities to get more local agricultural products into local markets. | OED | DOA Market Development Branch |

| | | | |
|------|---|-----|-----------------------|
| | | | `Aha Kiole o Moloka'i |
| 5.16 | Support the traditional use of Hawaiian farming systems and the growth of traditional Hawaiian crops. | OED | `Aha Kiole o Moloka'i |
| 5.17 | Support workforce development efforts targeted at sectors poised to revive Moloka'i's economy. | OED | `Aha Kiole o Moloka'i |

6 | LAND USE AND HOUSING

Land use refers to the way in which we use and manage land, whether for agriculture, subsistence, environmental preservation, recreation, business, or housing. Land use policies and practices help to ensure an adequate and affordable supply of housing by designating where housing can be built in relation to other uses. Progressive land use and housing policies strive to ensure sustainable communities with a variety of housing opportunities proximate to jobs, services, parks, infrastructure, and transportation. The Plan sets the framework to create livable communities for Moloka'i's people while protecting agricultural lands, environmental resources, and the rural character of the island.

6.1 Land Use

Moloka'i is a rural island based on an agricultural economy. The island has three distinct geographic regions with small towns and dispersed rural settlement. The island has very limited commercial and tourism development. Moloka'i settlement patterns have been greatly influenced by the establishment of plantation agriculture and ranching, the development of irrigation systems, and the *Hawaiian Homes Commission Act of 1920, as amended*, enacted in 1921. The visitor industry began on Moloka'i in the late 1960s with the opening of Hotel Moloka'i and Pau Hana Inn in Kaunakakai, and on the West End with the Kaluako'i Hotel opening in 1977. The Pāpōhaku Ranchlands Subdivision, established in 1981 on the West End, signified the beginning of resort real estate development on Moloka'i.

A. EXISTING CONDITIONS

Moloka'i's current land use patterns are characterized by small towns surrounded by vast agricultural lands, rural homestead settlements, resort development at Kaluako'i, and scattered rural development along the island's southeast coast. Kaunakakai is the island's population and commercial center, and the smaller towns of Kualapu'u, Maunaloa, and 'Ualapu'e are important service centers for those communities.

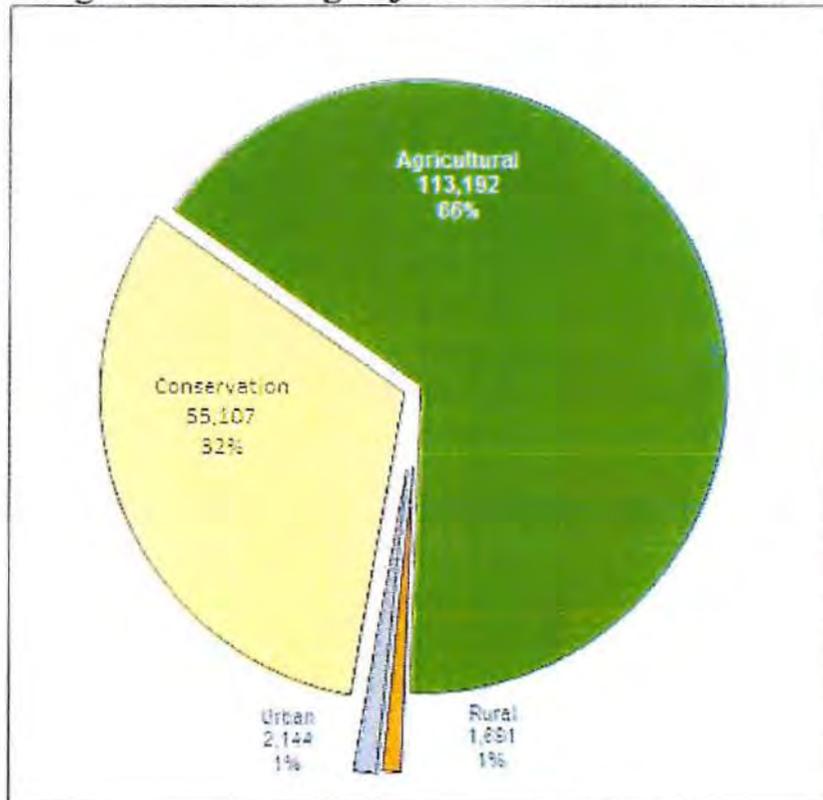
Table 6.1: Population of Moloka'i's Small Towns

| Town | 2010 Population |
|------------|-----------------|
| Kaunakakai | 3,425 |
| Kualapu'u | 2,207 |
| Maunaloa | 376 |
| Ualapu'e | 425 |

Source: U.S. Census Bureau, 2010 Census

The vast majority of Moloka'i's lands are within the State's Agricultural and Conservation Districts, with only a small percentage designated as Rural and Urban (see Figure 6.1).

Figure 6.1 Acreage by State Land Use District



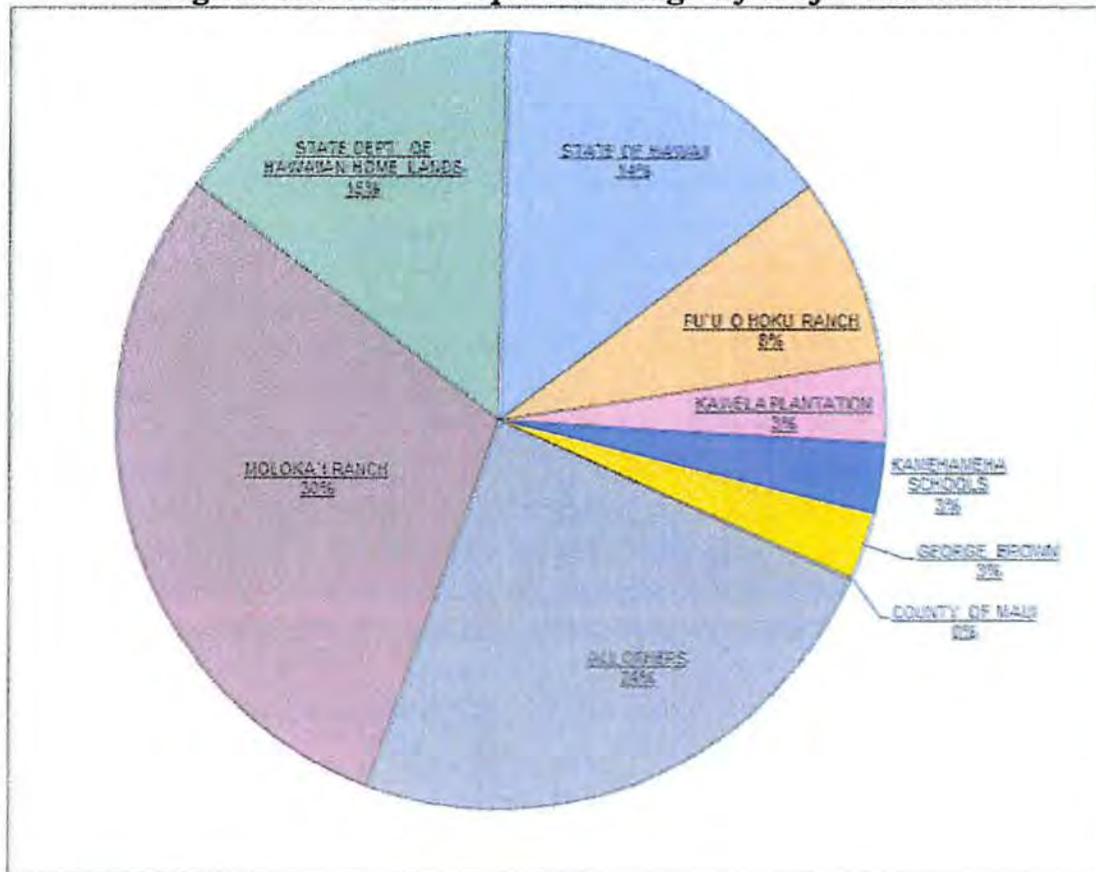
Almost all of the land on Moloka'i designated Urban by the State Land Use Commission (SLUC) is County-zoned Interim. The exceptions are those properties for which a zoning change has been granted. Interim zoning has significant consequences for landowners and businesses, including:

- Interim zoning adds considerable time and expense to the land use permitting process.
- Interim zoned property cannot be subdivided nor can conditional permits be granted.
- Existing commercial use of Interim zoned property is considered non-conforming since commercial zoning is not permitted in the Interim District.
- Interim zoning allows densities and uses that are potentially undesirable in some areas.

A majority of Moloka'i land is held by a few landowners and ownership patterns vary among the island's three regions (see Figure 6.2). West Moloka'i is almost entirely owned by Moloka'i Ranch. Central Moloka'i has large areas owned by the Department of Hawaiian Homelands (DHHL), Moloka'i Ranch, and smaller landowners. East Moloka'i is largely held by small landowners, some of which are *kuleana* grants. In the Hālawā area, Pu'uohoku Ranch has extensive property.

While developing housing, DHHL is not required to comply with the Maui County General Plan, zoning, and subdivision regulations, and County building and other ministerial permits. However, DHHL currently does require lessees to obtain building permit approval from the County Department of Public Works because DHHL does not have its own building code. This jurisdictional arrangement has caused confusion for some DHHL lessees and other community members.

Figure 6.2 Ownership Percentage by Major Landowner



Moloka'i's elongated shape embraces widely varying topographic and climatic regimes. For planning purposes, the island is divided into three regions along Tax Map Key (TMK) parcel lines – East Moloka'i, West Moloka'i, and Central Moloka'i (see Figure 6.3).

Amongst other issues, the increase in land tax has and continues to create financial hardships for ahupua'a and kuleana land owners. The ahupua'a owner is usually able to manage any increase in land taxes, whereas the kuleana owner often is not. Quiet title actions and the inability for kuleana landowners to bring together multiple, undivided interests have caused a shift in the demographics where there are more non-residents purchasing real estate on Moloka'i and driving up land and home values. This also drives up property taxes and forces out remaining families living on their lands and kuleana lands. It has also been creating a lucrative, illegal transient vacation rental scheme where people do not know who their neighbors are, and public beach accesses are blocked. Because there are numerous amounts of kuleana lands in Mana'e, these issues are magnified. This unique Mana'e issue combined with the conventional statewide problems of land tax and development, produces hurdles over which responsible land use and land tax

assessment becomes a problem. Tax burdens on kuleana land owners may be alleviated by Section 3.48.554, MCC, which establishes a real property tax exemption for kuleana land.

Figure 6.3 Molokaʻi Planning Regions



East Molokaʻi

The boundaries of East Molokaʻi by ahupuaʻa are from Mākolēlau to Hālawā on the south shore, and from Pelekunu to Hālawā on the north shore. This area boundary was chosen because the lands contained within that area match the East Molokaʻi Planning Region, are similar in actual use/ownership today, and match the community lifestyle. East Molokaʻi is the island's most remote and sparsely populated region. This region is also known as the East End, or Manaʻe, defined as "to the east – a direction."⁴⁸ East Molokaʻi rises to the summit of Kamakou at 4,970 feet. This mountainous region has been sculpted by heavy windward rainfall creating the deep verdant valleys of Pelekunu, Wailau, and Hālawā. The primary land uses are conservation and cattle ranching, with small rural settlements along the southeast coast at ʻUalapuʻe, Pūkoʻo, Pauwalu, Waialua, and Hālawā. The southeast shore is also known for its historic fishponds, some of which are currently being restored.

Central Molokaʻi

The boundaries of Central Molokaʻi by ahupuaʻa are from Kawela to Pālāʻau on the south shore, and from Kahanui to Pālāʻau on the north shore. Central Molokaʻi is a varied landscape of high verdant forested plateaus, rugged and gentle coastlines, and a dry central plain that when irrigated provides some of the most fertile agricultural lands in Hawaiʻi. Kaunakakai is the principal commercial, civic, and population center of the island with 47 percent of total

⁴⁸ Pukui, *Hawaiian Dictionary*, 1971, University of Hawaii Press.

island population. Other Central Moloka'i population centers include the former plantation town of Kualapu'u and the Hawaiian homesteads at Ho'olehua and Kalama'ula. The island's primary industrial site is in the Moloka'i Industrial Park at Pala'au and near the shore in Kaunakakai.

Central Moloka'i is also the island's bread basket. Agricultural resources include approximately 11,500 acres of Prime Agricultural Land⁴⁹, the Moloka'i Irrigation System, and the island's only State-owned agricultural park, comprising 753 acres (see Map 6.1). Moloka'i's agricultural lands support the island's existing agricultural economy, provide the opportunity for subsistence agriculture, provide future opportunities for agricultural enterprises, and significantly contribute to the island's vast open space and rural character. While Moloka'i's agricultural lands are not under the level of pressure from encroaching urbanization like other areas in the State, implementation of tools to protect these lands is a proactive step to ensure these resources are available for future generations.

West Moloka'i

West Moloka'i includes primarily the ahupua'a of Kaluako'i, and the coastal portions of Ho'olehua and 'Ioli ahupua'a on the south shore. West Moloka'i is on the hot and dry leeward side of the island. Its highest elevation, 1,381 feet, is at Pu'unana. Cattle ranching is the dominant land use in the region.

Kaluakoi Hotel closed in 2001, followed by the opening of the Lodge at Moloka'i Ranch and the Moloka'i Beach Village Tent Cabins at Kaupoa Beach in 2002. However, despite efforts to make Moloka'i Ranch profitable, all of its West Moloka'i operations were shut down in 2008. As a result, economic activity and the visitor population in West Moloka'i have declined. Some condominiums and single-family homes remain in the Kaluako'i- Pāpōhaku area, and limited services remain in Maunaloa for the town's small population. As of 2015, Moloka'i Ranch is pursuing enterprises in animal husbandry, farming, renewable energy, and hospitality.

B. Relationship of Community Plan Designations and County Zoning

Under Section 8-8.5(5), Revised Charter of the County of Maui (1983), as amended, "community plans created and revised by the citizen advisory committees shall set forth, in detail, land uses within the community plan regions of the county." Historically, land use designations in the various

⁴⁹ State Department of Agriculture, November 1977. Agricultural Lands of Importance to the State of Hawaii Revised.

County community plans have been described generally and have not included a detailed list of permitted uses, standards, and regulations to implement the designations. The zoning code by law is enacted consistent with the community plans of the County. Zoning districts within the code are described specifically and include permitted uses and standards necessary to regulate and maintain the character of the zoning districts. The zoning districts have statements of purpose and intent that align with the descriptions of land use designations in the community plans of the County. For each community plan land use designation, there may be one or more zoning districts that establish uses consistent with those envisioned by the community plan. If a land use designation does not have a typical, matching or corresponding zoning district, a new zoning district(s) will be established in the Maui County Code.

In lieu of repeating in detail the allowable land uses within the Moloka'i Island Community Plan area, Appendix 6.1, Comparison of Moloka'i Island Community Plan Designations and Typical County Zoning Districts, sets forth each community plan land use designation applicable on Moloka'i and identifies the zoning district or districts that would typically allow the uses envisioned by the community plan.

The Moloka'i Island Community Plan land use map (collectively, Maps 6.2 through 6.4) has been prepared in compliance with the requirements of Sections 2.80B.070(A) and (E)(14), MCC. For site-specific determinations of community plan land use designations and zoning, please contact the Department of Planning, Zoning Administration and Enforcement Division.

C. FUTURE CONDITIONS

The *Land Use Forecast Island of Moloka'i Maui County General Plan Technical Resource Study*⁵⁰ concludes that sufficient developable lands currently exist on Moloka'i to meet future demand for housing units, visitor units, and commercial and industrial space through the year 2035. This supply of land is in areas identified on the 2001 Moloka'i Community Plan Map for urban type uses. See Appendices 6.1 and 6.2 for descriptions of Community Plan Designations and relationship to State Land Use Districts and County Zoning. The majority of the identified vacant residential land supply is in Kaluako'i and is designated in the Plan as single family and multi-family residential. Kaunakakai contains a lesser amount of vacant residential land located

⁵⁰ County of Maui Department of Planning. (October 2013). *Land Use Forecast Island of Moloka'i Maui County General Plan Technical Resource Study*.

primarily *mauka* of the existing town. Infill opportunities exist within Kaunakakai town and in `Ualapu'e, Kawela, Kualapu`u, Ho`olehua, Kalae, and Maunaloa.

The potential future impacts from sea level rise to existing coastal development are important factors to consider for Moloka'i. Some of the island's existing development and vacant land supply along the south shore, East End, and in Kaluako'i may be impacted by future sea level rise, increased coastal flooding, and expensive flood hazard insurance rates. The Moloka'i community acknowledges that over time sea level rise will likely necessitate transitioning the island's commercial and population center from Kaunakakai to an area away from the threat of sea level rise and other coastal hazards. The Plan identifies approximately 98 acres mauka of Kaunakakai as a project district for this purpose. The Plan also puts forth land use planning principles and standards and supporting policies and actions to direct growth to areas not vulnerable to sea level rise and coastal hazards and conducive to providing housing for residents proximate to employment and services. The purpose is to ensure Moloka'i will grow in a balanced and sustainable manner that respects cultural and natural resources compatible with Moloka'i's rural lifestyle.

Maunaloa Project District

The objective of the project district at Maunaloa is to provide a mixture of single family and multi-family and park uses for low-and moderate-income residents. Variations in housing unit types, lot sizes, and other development standards should be considered to provide planning flexibility and encourage affordable housing.

Kaunakakai Project District

The objective of the project district at Kaunakakai is to provide an area for the town to move mauka overtime as sea level rise begins to impact existing development and land use. Uses will include single family, park, public/quasi-public, and commercial.

Land Use Planning Principles and Standards

- 1. Protect ecological diversity, natural resources, culturally sensitive lands, and agricultural lands, and avoid hazard-prone lands when identifying future growth areas.** Moloka'i's ecology, natural and cultural resources, and agricultural lands are important for both current and future generations.
- 2. Protect open space and scenic landscapes.** Open space should be preserved to retain Moloka'i's rural character and to separate and define distinct edges of communities. Scenic landscapes, viewsheds, and view corridors are integral to place identity and should be retained.
- 3. Strengthen existing communities through infill and redevelopment.** Support revitalization of existing communities and infill development on underutilized infill lots, where appropriate, outside of hazard-prone areas.
- 4. Promote equitable and livable communities with compatible land use designations.** Moloka'i's small towns should provide a mix of housing types and affordability, compact and pedestrian-oriented development, access to parks and open space, and a mix of compatible and complementary land uses. Future growth areas will be contiguous or proximate to existing employment and/or housing, and located where infrastructure and public facilities can be provided in a cost-effective manner.

D. ISSUES

- Issue 1: There is no comprehensive zoning map for Moloka`i and the existing zoning code and Interim zoned lands present significant obstacles due to inconsistencies with the community plan.
- Issue 2: The Special Management Area boundary does not protect some areas of the near-shore environment and coastal resources and extends inland in areas that are not likely to have coastal impacts.
- Issue 3: There are potential future impacts from SLR to existing coastal development that are not adequately addressed.

E: GOAL, POLICIES, AND ACTIONS

Goal Moloka`i's land use pattern will protect agricultural lands, open space, and natural and cultural resources, and support livable small towns and rural communities.

Policies

1. Ensure all lands are zoned for specific land uses and zoning standards consistent with Plan policies.
2. Support the revitalization of Maunaloa Town and Kaluako`i resort area.
3. Direct growth to vacant and underutilized infill lots outside of hazard prone areas and proposed expansion areas as shown on the Moloka`i Island Community Plan Land Use maps (see Maps 6.2 – 6.4) and as described in Section B, Future Conditions.
4. Limit urban zoning to areas designated for urban use on the Moloka`i Island Community Plan Land Use maps (see Maps 6.2 – 6.4).

5. Where possible, site community facilities such as schools, parks, libraries, and community centers within walking and biking distance of residential areas.
6. Facilitate the provision of infrastructure and public facilities and services prior to, or concurrent with development, including provision for on-going maintenance through district funding or other funding mechanisms.
7. Work with DHHL and other large landowners to coordinate land use, infrastructure, and public facility planning when feasible.
8. Establish a predictable and timely review process to facilitate the approval of projects that meet planning and regulatory requirements.
9. Discourage developing or subdividing agricultural lands for residential uses where the residence will be the primary use and agricultural activities will be secondary uses.
10. Encourage green belts, open space buffers, and riparian zones to minimize conflicts between agriculture, residential, and industrial uses.
11. Support expansion of the Moloka'i Agricultural Park as demand warrants.
12. Regulate land use in a manner that reaffirms and respects customary and traditional rights of Native Hawaiians as mandated by Article 12, Section 7, Constitution of the State of Hawai'i.
13. Support the expansion of the State Conservation District boundary, where warranted, for environmental preservation and habitat enhancement.
14. Discourage hotel and multi-family development on the East End.
15. Support and recognize community created subarea descriptions.

16. Evaluate the impact public utility facilities development and land use changes will have on natural and cultural resources, cultural practices, and Native Hawaiian burials.
17. Consult with and solicit input from community members, including community members with generational knowledge, early and often about how to minimize the impact of proposed changes to the use of land on cultural practices, cultural sites, and culturally significant areas, including burials.
18. Support the development of a climate change policy and adaptation plan to address rising sea levels and beachfront housing and development on Moloka'i.
19. Identify and protect Mana`e's numerous cultural and natural resources through adoption of a "Traditional Land Use" Overlay Designation. The boundaries of the Overlay should be from Makolelau to Halawa on the south shore. Adoption of this TLU Overlay means that any proposed development in Mana`e should be aligned with the data and community recommendations from the Mana`e GIS Mapping Project (COM, 2008) and the Traditional and Cultural Practices Report for Mana`e (OHA, 2016). In addition, this area should allow for traditional Hawaiian structures to allow people to live in these sensitive areas to take care of them.

Actions

| Table 6.2 Land Use Actions | | | |
|-----------------------------------|---|---------------------------|-----------------------|
| No. | Action | Lead County Agency | Partners |
| 6.1.01 | Adopt a comprehensive zoning map for Moloka'i. Conduct a comprehensive review of interim zoned lands to identify and adopt zoning that is consistent with the Plan. | PD | `Aha Kiole o Moloka'i |
| 6.1.02 | Amend the zoning code to facilitate the development of mixed-use, pedestrian-oriented communities. | PD | `Aha Kiole o Moloka'i |
| 6.1.03 | Implement County responsibilities under Part III, Chapter 205, HRS to designate and establish IAL and the incentives therein. | PD | `Aha Kiole o Moloka'i |
| 6.1.04 | Review the SMA boundary and make changes as necessary to comply with the objectives and policies defined Section 205A-2, HRS, and incorporate best available information on Climate Change and SLR. | PD | `Aha Kiole o Moloka'i |

| Table 6.2 Land Use Actions | | | |
|-----------------------------------|--|---------------------------|---|
| No. | Action | Lead County Agency | Partners |
| 6.1.05 | Research and review poor or highly sloped agricultural lands for conversion to different designations. | PD | `Aha Kiole o Moloka'i |
| 6.1.06 | Study viable options for transitioning Moloka'i's commercial and population center away from the threat of SLR and coastal inundation. | PD | `Aha Kiole o Moloka'i |
| 6.1.07 | Identify important subsistence use, lands, and resources. | OED | `Aha Kiole o Moloka'i |
| 6.1.08 | Research and develop a climate change policy and adaptation plan to address rising sea levels and beachfront housing and development. | PD | `Aha Kiole o Moloka'i Moloka'i Community |

| Table 6.2 Land Use Actions | | | |
|-----------------------------------|--|---------------------------|---|
| No. | Action | Lead County Agency | Partners |
| 6.1.09 | Adopt a "Traditional Land Use" (TLU) Overlay into the Community Plan Designations. The County PD should look at existing Community Plan Designations and County Zoning in Mana'e and recommend zoning adjustments based on current land use suitability analysis methods, as well as on the community recommendations included in the Mana'e GIS Mapping Project (COM, 2008) and the Traditional and Cultural Practices Report for Mana'e (OHA, 2016). | PD | 'Aha Kiole o Moloka'i Moloka'i Community |
| 6.1.10 | Research and conduct viable options to alleviate tax burdens on kuleana land owners, potentially by basing assessments on actual use rather than potential use value. Also, review Section 3.48.554, MCC, for possible amendments. | PD | 'Aha Kiole o Moloka'i Moloka'i Community |

6.2 Housing

Housing affordability is a significant issue throughout the County of Maui, and Moloka'i is no exception. Shortages of reasonably priced housing can contribute to high rates of crowding, lower ownership rates, and impact the overall quality of life within a community. Additionally, investment or second home purchases may increase housing prices if the properties are used as tourism rentals rather than owner-occupied or long-term rental homes.

Housing affordability can improve when residences are built near employment, services, and existing infrastructure, and outside of flood hazard areas. Mixed-use communities allow residents to live near their workplace and services reducing transportation costs. The ability of residents to purchase or rent can also improve when there is an accessory 'ohana unit to provide rental income or to house family members. Housing development plans must address factors affecting affordability, community character, and special needs populations, such as disabled residents and the frail elderly.

It is also important for new development to provide a variety of lot sizes, housing types, tenures and price points that accommodate a range of household types, life stages (e.g. single, married, with children, multigenerational, etc.) and income levels. Ensuring housing variety on Moloka'i will increase residents' ability to remain on the island when family or economic circumstances change.

A. EXISTING CONDITIONS

The majority of the housing units on Moloka'i were built before 2010. Of these, more than half were built in the 1970s or earlier. Only 10 percent of units were built on Moloka'i between 2000 and 2010. Central Moloka'i's home construction peaked in the 1970s, while West Moloka'i's construction peaked in the 1980s.⁵¹

Moloka'i's housing stock is predominantly single-family units, which limits housing options and can present challenges when residents experience family or economic changes. The existing housing stock includes 2,623 single family units and 879 multi-family units, for a total of 3,502 units.⁵² The 2010 vacancy rate was 28 percent, slightly higher than on Maui Island (23 percent and Lāna'i 25 percent). Moloka'i's household size is 2.92 persons per dwelling unit.⁵³ The 2008 great recession and shut down of Moloka'i Ranch operations likely had an impact on the high vacancy rate.

⁵¹ County of Maui, Department of Planning. (October 2013). *Land Use Forecast Island of Molokai*.

⁵² Ibid.

⁵³ U.S. Census Bureau, 2010.

Affordable housing is defined by the U.S. Department of Housing and Urban Development (HUD) as housing for which the occupants are paying no more than 30 percent of their income for gross housing costs, including utilities. By this standard, more than half of Moloka'i renters and homeowners pay affordable rents or monthly ownership costs, indicating that housing is more affordable on Moloka'i compared to the rest of Maui County.

Figure 6.4 shows that from 2007 to 2011, 49 percent of Moloka'i renters paid more than 30 percent of their household income for housing costs versus 53 percent of Maui County renters and 56 percent of renters statewide.⁵⁴

Figure 6.4 Gross Rent as a Percentage of Household Income

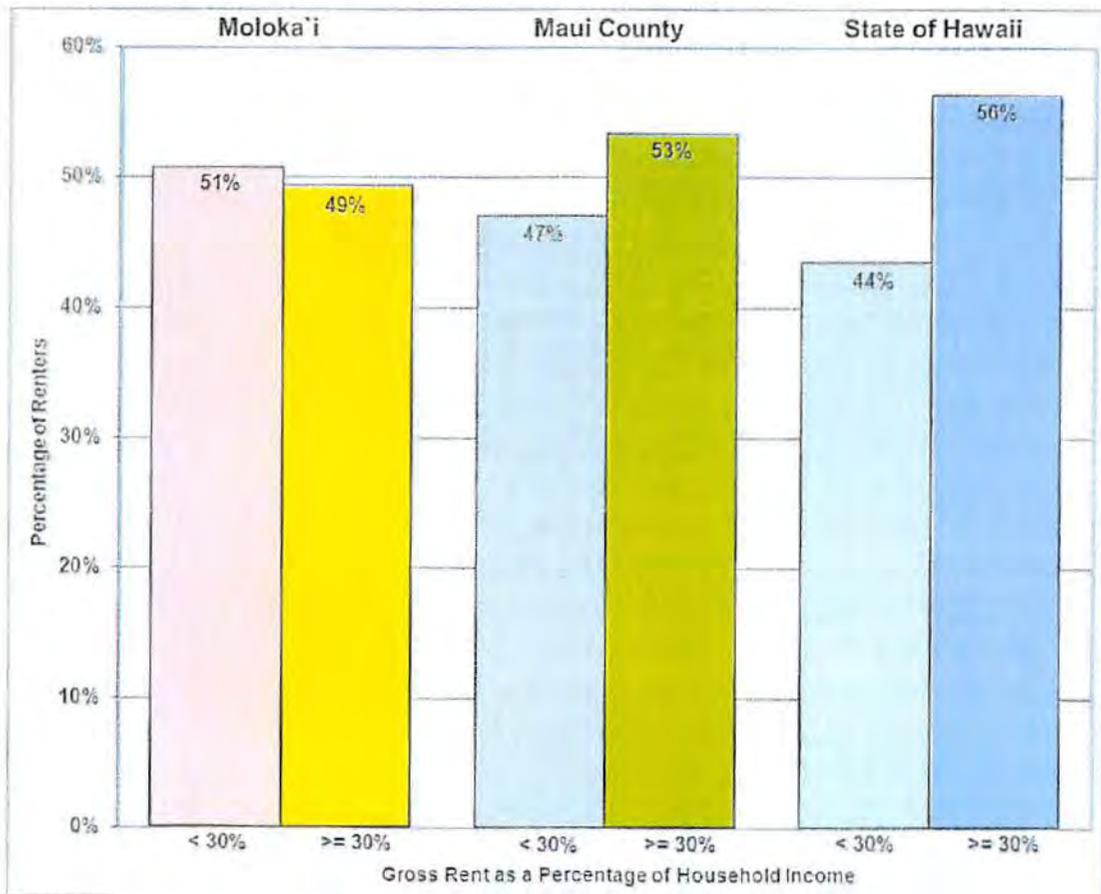


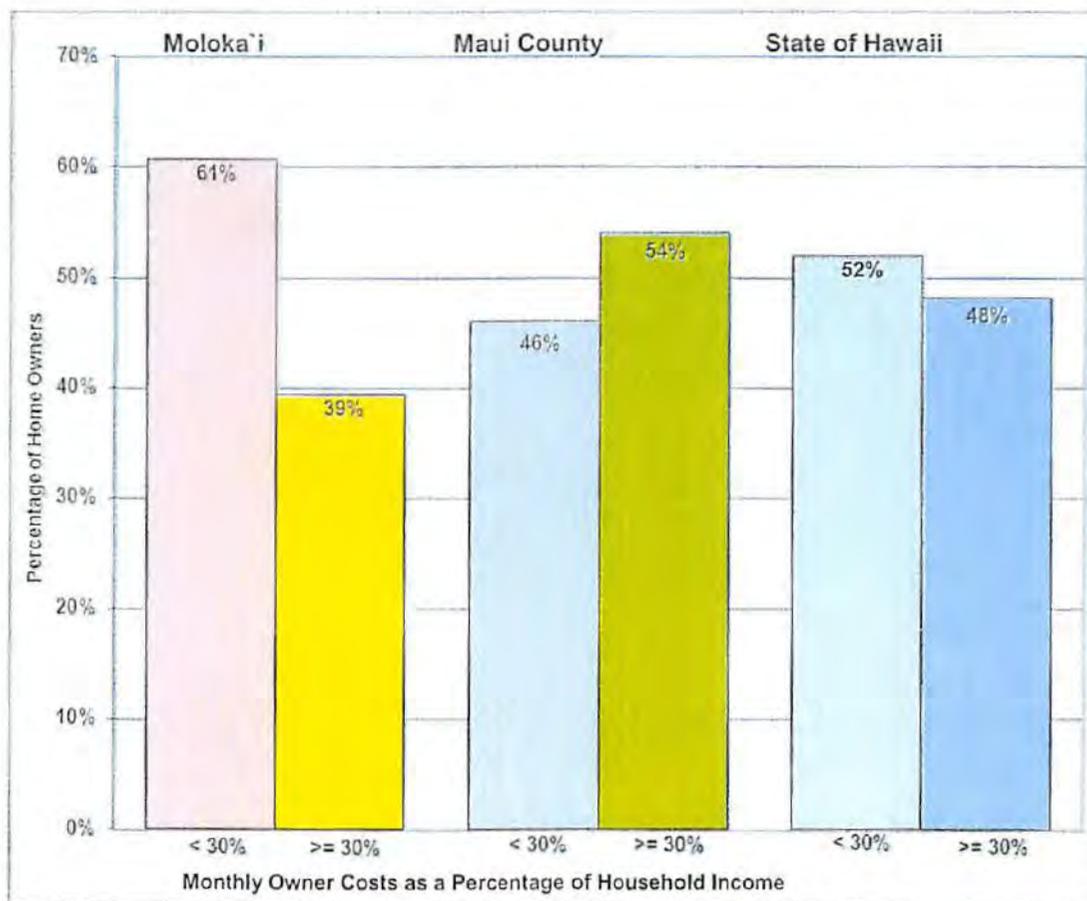
Figure 6.5 shows that from 2007 to 2011, 39 percent of Moloka'i home owners with mortgages paid more than 30 percent of their household income for housing

⁵⁴ U.S. Census Bureau, *2009-2013 American Community Survey 5-Year Estimates*.

ownership costs versus 54 percent of Maui County homeowners and 48 percent of owners statewide.⁵⁵

There are several factors inhibiting the development of a long-term supply of affordable housing on the island including the weak economic base, high construction costs, few vacant lots with infrastructure in place, lack of available financing, and the presence of numerous undocumented or poorly documented wetlands and archaeological sites on residential lots of record.

Figure 6. 5 Monthly Owner Costs as a Percentage of Household Income



Currently two agencies are working to make more affordable housing available on Moloka'i: (a) the DHHL, and (b) Moloka'i Habitat for Humanity. DHHL's planned total housing unit build out to 2025 for new lots is as follows: 422 new residential homestead lots and 350 new agricultural lots, located in Na'iwa, 'Ualapu'e, Kamiloloa, Kapa'akea, Makakupa'ia, Kalamaula, and Ho'olehua.⁵⁶ Additionally, the County of Maui's workforce housing ordinance, Section 2.96, MCC, requires

⁵⁵ Ibid.

⁵⁶ Group 70 International. (June 2005). *Department of Hawaiian Homelands Molokai Island Plan*.

developers proposing new development to provide a certain percentage of affordable housing.

Moloka'i has an aging population that requires supportive services and senior housing options, and this need is projected to increase in the future. Moloka'i has one senior housing facility with approximately 85 units for low and moderate-income seniors; however, there is no long-term residential care facility on the island. Moloka'i General Hospital can provide skilled nursing care and intermediate care, but it is neither equipped nor staffed to be a long-term residential care facility.

B. ISSUES

- Issue 1: There is a need for more affordable housing and affordable residential building sites.
- Issue 2: There is a lack of housing choices, including ownership and rental, at different price levels and housing sizes.
- Issue 3: There is an increasing need for housing and services for special needs populations.

C: GOAL, POLICIES, AND ACTIONS

Goal **A diverse supply of housing for Moloka'i residents that is affordable, safe, and environmentally and culturally compatible.**

Policies

1. Support regulations to maintain an adequate supply of affordable housing.
2. Require that County mandated affordable housing include a buy-back provision, so these units will remain in the affordable housing stock.
3. Maintain a supply of government subsidized affordable rental housing.

4. Encourage development of a range of lot sizes and housing types (e.g. single family, `ohana units, duplexes, multi-family, and live-work units) to expand housing choices and price points.
5. Encourage new housing to be developed in locations conducive to affordability, for example, proximate to jobs, services, infrastructure, and public facilities, and outside of flood hazard areas.
6. Support the establishment of long-term residential care facilities and a diversity of appropriate housing opportunities for residents with special needs.
7. Explore the establishment of a community land trust to improve access to affordable land and housing.
8. Develop strategies to manage the transient homeless issue on Moloka'i.
9. Encourage DHHL to establish a building code that protects public health and safety and benefits DHHL beneficiaries.
10. Address senior services and increase diversified economic development.

Actions

| Table 6.3 Housing Actions | | | |
|----------------------------------|--|---------------------------|--|
| No. | Action | Lead County Agency | Partners |
| 6.2.01 | Establish partnerships to continue to implement a comprehensive affordable housing plan for Moloka'i that addresses both ownership and rental affordability. | DHHC | NGOs Community Groups |
| 6.2.02 | Establish partnerships and support a housing rehabilitation program, including loans, grants, technical assistance, and community outreach. | DHHC | DHHL |
| 6.2.03 | Amend the zoning code to allow a greater variety of housing types to address affordability, including mixed-use, mixed housing types, co-housing, prefabricated homes, and small lots. | PD | DHHC DHHL NGOs |
| 6.2.04 | Work with developers to support their efforts to secure/leverage grants, new home buyer tax credits, low income housing tax credits, and other resources that support affordable housing, such as housing models that can be built affordably. | DHHC | |
| 6.2.05 | Investigate whether a community land trust would consider operating on Moloka'i. | DHHC | PD |
| 6.2.06 | Establish a cap on Transient Vacation Rentals and Short-Term Rental Homes. | PD | County Council Moloka'i Planning Commission |

7 | COMMUNITY DESIGN

Some of the most distinctive aspects of Moloka'i are its wide-open spaces, small towns, varied landscapes, and architecture, which reflects both Hawaiian tradition and the island's plantation history. They collectively create an identity unique to Hawai'i, perhaps best expressed in a sign commonly seen on the island – "Keep Moloka'i, Moloka'i."

During several community plan workshops, many residents on Moloka'i voiced a desire to maintain and enhance Moloka'i's rural character and natural beauty. New growth will require special attention to ensure that the rural, historic character of Moloka'i's small towns is retained. Creating County historic districts in selected locations could help address the loss of historic structures.

A. Existing Conditions

Moloka'i's rural character is reflected in its settlement patterns, housing, streetscapes, roadways, public spaces, and the design of public institutions. Remnants of this era are found in Maunaloa, Kualapu'u, Ho'olehua, Kaunakakai, and parts of the East End. While Kaunakakai is compact and still retains its country town character, it could benefit from some careful design to enhance the natural beauty and improve walkability. Improving sidewalks and creating bike paths will also accommodate our aging population who do not drive but are able to get around on motorized wheelchairs. Unfortunately, the historic character of the streetscapes and buildings has been compromised by some demolitions and unpermitted construction.

One of the most important tools the County has to address this incremental loss of architectural history is the Country Town Business District Design Guidelines. These guidelines, which are outdated and need to be updated, cover the small towns of Kaunakakai, Maunaloa, and Kualapu'u along with the East End. Although the current version is over 20 years old, it is the only planning document that defines appropriate site design, street design, and architectural design standards.

Despite slow growth over the past 30 years, many of Moloka'i's historic buildings have been significantly modified. As an example, the plantation-town character of Maunaloa was substantially altered when many of its plantation era homes were demolished. In addition, there is little commercial activity in the town, resulting in several vacant commercial buildings.

Design Principles

Preserve and maintain the traditional features of the built and natural landscape that reflect Moloka'i's history and give the island its distinctive character.

Some of the character-defining features include the wide-open spaces between communities, unobstructed views of the ocean, access to the shoreline, and simple, understated buildings.

Encourage a mix of land uses in Moloka'i's small towns. Encourage a mix of commercial, residential, and service uses to strengthen the island's small towns, reduce the need for travel, and make efficient use of infrastructure.

Preserve and enhance the historic character of Moloka'i. Renovate historic structures as a way of maintaining Moloka'i's history. Design new buildings and other improvements to complement and enhance the town's historic character.

Develop a circulation system and facilities to accommodate a variety of travel modes - bicycles, pedestrians, buses, and vehicles. Create a comprehensive network of travel options, with an emphasis on the pedestrian experience. Even as more areas are developed, they should be part of an island-wide transportation system that encourages and accommodates a variety of travel modes to serve both residents and visitors.

Maintain a pedestrian orientation in Moloka'i's small towns. Preserve and enhance sidewalks, parks, and other open spaces in small towns and other community areas to provide connectivity between land uses and offer a safe, inviting, and comfortable pedestrian experience.

B. ISSUES

Issue 1: The character of Moloka'i and its small towns is an essential part of the island's identity that could be compromised by new development that is out of scale and is visually incompatible.

C. GOAL, POLICIES, AND ACTIONS

Goal **The rural character of Moloka'i's small towns and the island's open spaces will be maintained and enhanced.**

Policies

1. Support the use of updated Business Country Town Design (BCT) Guidelines to ensure that the island's historic and rural character is maintained.
2. Use the cultural significance of Malama Park for a design concept that connects Kaunakakai with the ocean.
3. Encourage the preservation of buildings, structures, and sites of historic and cultural significance.
4. Maintain Kaunakakai's business development and historical character.
5. Promote and support projects that create a pedestrian-friendly environment with street trees, benches, and other features in Moloka'i's country towns.
6. Maintain and enhance the rural character of the Kaluako'i area through low-impact site design and development practices.
7. Encourage creative innovative approaches to site design, subdivision layout, and architecture to maintain the island's rural character and to protect coastal areas, natural resources, and cultural/historic resources.
8. Concentrate future growth in and around existing development that maintains County rural standards and is located outside of the flood inundation zone.
9. Promote the use of sustainable building and development practices, such as those presented in the Leadership in Energy and Environmental Design (LEED) standards.

10. Encourage the use of the *Maui County Planting Plan Third Edition*. Encourage the use of Hawaiian plants (Indigenous and Polynesian-introduced plants) by State, County, and private landowners in order to support a Hawaiian sense of place, to ensure that our cultural heritage is reflected in landscaping, and to help reverse the displacement and decline of Hawaiian plants.

| Table 7.1 Community Design Actions | | | |
|------------------------------------|--|--------------------|--|
| No. | Action | Lead County Agency | Partners |
| 7.01 | Amend the 1993 <i>Design Guidelines For Country Town Business Districts Molokai-Hawai'i</i> | PD | Moloka'i business and design professionals and community |
| 7.02 | Develop sub-area development plans for Kaunakakai, Maunaloa, Kaluako'i Kualapu'u / Ho'olehua, and the East End of Moloka'i. | PD | Community Groups |
| 7.03 | Develop a pedestrian linkage between Malama Park and Kaunakakai through streetscape improvements. | PD | DPR DLNR |
| 7.04 | Develop and adopt small town street design standards that are appropriate for Moloka'i and within Department of Public Works' standards. | DPW | PD |
| 7.05 | Create a funding source or mechanism for small business owners to renovate businesses in the island's small towns. | OED | PD |
| 7.06 | Develop incentives to promote the use of sustainable green building and development practices. | DPW | OED or Energy Coordinator |
| 7.07 | Develop practicable incentives for Moloka'i businesses and property owners to implement sub-area development plan projects designed to preserve, maintain, and enhance buildings, structures, sites, viewpoints, pedestrian ways, and streets. | PD | PR DPW |

| Table 7.1 Community Design Actions | | | |
|---|---|---------------------------|-------------------|
| No. | Action | Lead County Agency | Partners |
| 7.08 | Conduct a study to improve walkability in Kaunakakai. | PD | PR DPW NGOs |
| 7.09 | Review and update Chapter 16.26B, MCC, relating to indigenous architecture, as appropriate. | PD | |
| 7.10 | Investigate options to share the cost of BCT guideline requirements for infrastructure upgrades among all Kaunakakai businesses, such as an Assessment District, so that renovations are economically feasible. | PD | |