

# EXHIBIT 12

ORDINANCE NO. 4343

BILL NO. 67 (2016)  
Draft 1

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

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

SECTION 1. The Lanai Community Plan, having an effective date of December 21, 1998, as amended, is hereby repealed, and the updated Lanai Community Plan (2016), attached hereto and incorporated herein by reference as Exhibit "1," is adopted.

SECTION 2. 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:

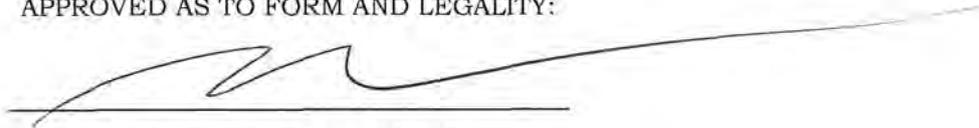
1. Hana Community Plan - Ordinance No. 2347 (1994), as amended;
2. Paia-Haiku Community Plan - Ordinance No. 2415 (1995), as amended;
3. Kahoolawe Community Plan - Ordinance No. 2413 (1995), as amended;
4. West Maui Community Plan - Ordinance No. 2476 (1996), as amended;
5. Makawao-Pukalani-Kula Community Plan - Ordinance No. 2510 (1996), as amended;
6. Kihei-Makena Community Plan - Ordinance No. 2641 (1998), as amended;
7. Lanai Community Plan [- Ordinance No. 2738 (1998), as amended] (2016);
8. Molokai Community Plan - Ordinance No. 3022 (2001), as amended; and

9. Wailuku-Kahului Community Plan - Ordinance No. 3061 (2002), as amended.”

SECTION 3. Material to be repealed is bracketed.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 4. This ordinance shall take effect upon its approval.

APPROVED AS TO FORM AND LEGALITY:



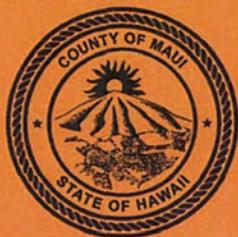
**MICHAEL J. HOPPER**  
Department of the Corporation Counsel  
County of Maui

paf:gjg:16-108d



# LĀNA`I

## COMMUNITY PLAN 2016



COUNTY OF MAUI



## **DEDICATION**

**This plan is dedicated to the loving memory of  
Kathleen Kern, Senior Planner and former  
Lāna`i Community Plan Project Lead,  
Tremaine Balberdi, Secretary to Boards and Commissions, and  
Richard (Dick) Rooney, Pilot**

**We also honor the courage of the survivors  
of the February 26, 2014 plane crash,  
James Giroux, Attorney,  
Mark King, GIS Analyst,  
Doug Miller, Senior Planner**

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Special thanks to Suzie Esmeralda and Leilani Ramoran-Quemado, Secretaries to Boards and Commissions, Department of Planning, Current Division, for their additional work to provide Lāna`i Planning Commission meeting minutes.

# ACKNOWLEDGMENTS

## CONSULTANT TEAM AND SPECIAL STUDIES

Chris Hart & Partners, Inc.

John Knox & Associates: *Lānaʻi Economic Development and Lānaʻi Housing Issue Papers*

Belt Collins Hawaiʻi Ltd., John Kirkpatrick: *Land Use Forecast*

SMS Research & Marketing Services, Inc. and Belt Collins Hawaiʻi Ltd: *Socio-Economic Forecast*

Wilson Okamoto & Associates, Inc.: *County of Maui Infrastructure Assessment Update 2003*

R. M. Towill Corporation: *Public Facilities Assessment Update County of Maui 2007*

PlanPacific: Existing land use database for *Socio-Economic Forecast*

## PHOTO CREDITS

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Pages 1 and 2 - Stan Solamillo.

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# LIST OF ACRONYMS

ALISH	Agricultural Lands of Importance to the State of Hawai'i
B&B	Bed and Breakfast
B-CT	Country Town Business
BMP	Best Management Practices
BMX	Bicycle Motocross
CCR	Castle & Cooke Resorts, LLC
CDFL	Coalition for a Drug-Free Lāna'i
CEO	Chief Executive Officer
CFL	Compact Florescent Light
CIP	Capital Improvement Project
CIZ	Change in Zoning
CPAC	Community Plan Advisory Committee
CSD	Conservation Subdivision Design
CTAHR	College of Tropical Agriculture and Human Resources (University of Hawai'i)
CWRM	Commission on Water Resource Management (DLNR, State of Hawai'i)
DAR	Division of Aquatic Resources (DLNR, State of Hawai'i)
DEA	Drug Enforcement Agency (United States Department of Justice)
DEM	Department of Environmental Management (County of Maui)
DHHC	Department of Housing and Human Concerns (County of Maui)
DHHL	Department of Hawaiian Home Lands (State of Hawai'i)
DLNR	Department of Land and Natural Resources (State of Hawai'i)
DOA	Department of Agriculture (State of Hawai'i)
DOE	Department of Education (State of Hawai'i)
DOH	Department of Health (State of Hawai'i)
DOFAW	Division of Forestry and Wildlife (DLNR, State of Hawai'i)
DPW	Department of Public Works (County of Maui)
DSA	Development Services Administration (DPW, County of Maui)
DWS	Department of Water Supply (County of Maui)
FFA	Future Farmers of America
GPD	Gallons per Day
GVW	Gross Vehicle Weight
HACBED	Hawaii Alliance for Community-Based Economic Development
HBGN	Hawai'i Board on Geographic Names
HDOT	Department of Transportation (State of Hawai'i)
HECO	Hawaiian Electric Company, Inc.
HHSC	Hawaii Health Systems Corporation
HRS	Hawaii Revised Statutes
HUD	Department of Housing and Urban Development (United States)
IAL	Important Agricultural Lands
LAC	Lāna'i Archaeological Committee
LARC	Lāna'i Animal Rescue Center
LCH	Lāna'i Community Hospital
LCHC	Lāna'i Community Health Center
LED	Light Emitting Diode
LEED	Leadership in Energy and Environmental Design

## LIST OF ACRONYMS

LFWP	Lānaʻi Forest and Watershed Partnership
LWAC	Lānaʻi Water Advisory Committee
LWC	Lānaʻi Water Company, Inc.
MSBH	Mānele Small Boat Harbor
MCC	Maui County Code
MECO	Maui Electric Company, Limited
MEO	Maui Economic Opportunity, Inc.
MG	Million Gallons
MGD	Million Gallons per Day
MMMC	Maui Memorial Medical Center
MFD	Maui Fire Department (County of Maui)
MPD	Maui Police Department (County of Maui)
MW	Megawatt
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration (United States Department of Commerce)
NRCS	Natural Resources Conservation Service (USDA)
OCS	Office of Council Services (County of Maui)
OED	Office of Economic Development
PD	Project District
PV	Photovoltaic
SMA	Special Management Area
TDR	Transfer of Development Rights
TVR	Transient Vacation Rental
UH	University of Hawaii
UHERO	University of Hawaii Economic Research Organization
UHMC	University of Hawaii Maui College
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WUDP	Lānaʻi Island Water Use & Development Plan
WWTF	Wastewater Treatment Facility

# 1 | INTRODUCTION

High above the ocean in Lāna`i City, a short walk around Dole Park will introduce you to a place that asks you to slow down and be here for a while. You will meet people who know most of the other people in town, who talk for a while about their place and living here. You will hear how they care about each other and their island. Many of them worked together in the pineapple fields that once covered over 18,000 acres of the Palawai Basin, the central flatlands of an ancient caldera. Lāna`i City sits in the center of this land – one of the last intact plantation towns in Hawai`i built in the 1920s to house immigrant workers arriving from Asia and Europe. Many of the immigrants' descendants still live in the plantation cottages that line the streets.



As pineapple production declined, housing and a lodge resort were built at the old ranch site of Kō`ele, with a beach resort down the winding road at Mānele and Hulopo`e Bays. New immigrant workers for the resorts and

new residents in resort housing developments added more diversity to the community. Today, the people, brought together from many different cultures, share common values - a love for their families, the island, and its people and rural lifestyle.



# 1 | INTRODUCTION

In 2012, a new owner acquired the major landholdings, consisting of approximately ninety-eight percent of the island, and formed a management company, Pūlama Lāna`i. The company seeks to create a sustainable community through plans to diversify the economy, establish a college, and address environmental issues. This is an important opportunity to create a future that meets both the major landowner's desires and the community's vision.

The Lāna`i Community Plan overlaps this time of major change for the island. Community meetings with the company, County personnel and community members began conversations that will shape the future. The purpose of this plan is to identify current and anticipated future conditions and needs on Lāna`i. These conditions and needs are addressed through strategic planning goals, policies, and actions to guide decision-making and implementation through 2030.



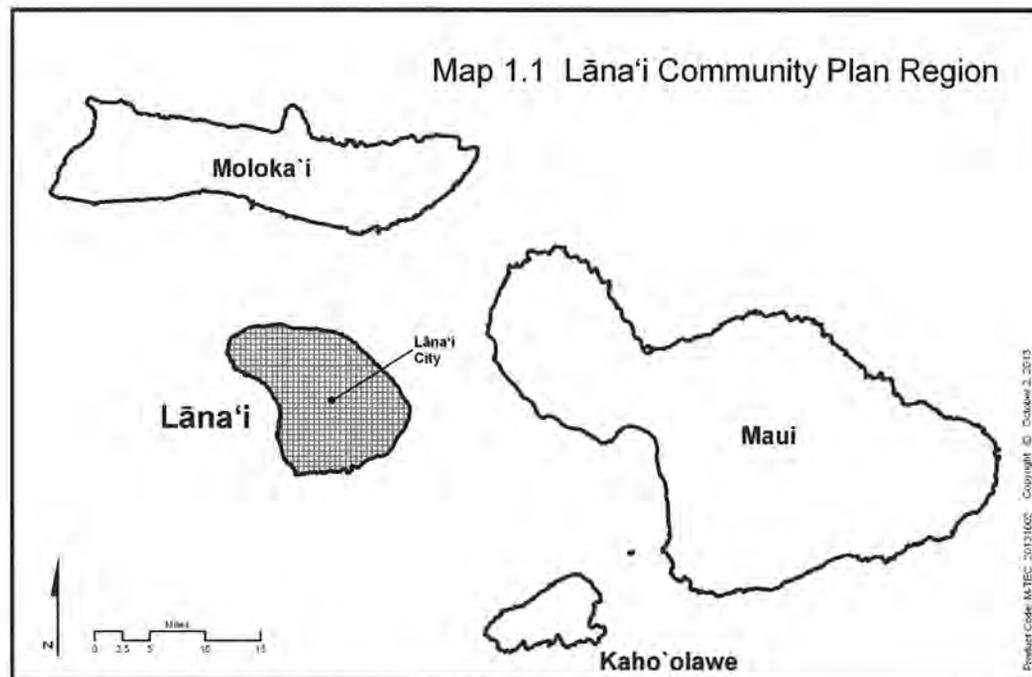
This chapter provides a general description of the planning area, guidance from the Maui County General Plan 2030 and the Hawai'i State Plan (Revised), and an overview of the community plan update process. This chapter concludes with an overview of the plan organization and chapter topics, and fast facts about Lāna`i.

# 1 | INTRODUCTION

## OVERVIEW OF LĀNA`I COMMUNITY PLAN AREA

Lāna`i is one of four islands that comprise the County of Maui (Map 1.1). Lāna`i is one of the driest of the inhabited main Hawaiian Islands, with less than 10 inches of average annual rainfall along the lowland coasts and 30-40 inches above the 2,000-foot elevation. Strong trade winds funneled between Maui and Moloka`i increase evaporation and soil erosion on the north and east sides of Lāna`i. Lāna`i developed as a broad shield volcano and has a remnant caldera, the Palawai Basin, and caldera rim that form the over three-thousand-foot high ridge line covered by the watershed forest of Lāna`ihale. A majority of the former pineapple agricultural lands are located within the Palawai Basin, while Lāna`i City and the Lodge at Kō`ele are situated on the outer slopes of the caldera.

To the northwest is the Kānepu`u Preserve, a dryland forest, and Keahiakawelo, windswept lands that contain the area called “Garden of the Gods,” a place of rich traditional significance and unique geological formations. The south coast has Mānele and Hulopo`e Bays and the Mānele Resort (opened in 1991). Just to the west is the Kealiakapu-Kaunolū traditional village and ceremonial complex, which also includes the remains of King Kamehameha I’s Lāna`i compound and fishing retreat. Today, the eastern (windward) coast is sparsely populated and contains significant cultural resources, including numerous ancient and historical sites such as Federation Camp, the remnants of the Maunalei Sugar Company developed between 1898 to 1901, and Keomuku Village, in addition to the now defunct visitor development known as Club Lāna`i at Halepalaoa (see Appendix 1.1 Lāna`i History Summary).



Map 1.1 Lāna`i Community Plan Region

# 1 | INTRODUCTION

## **GUIDANCE FROM THE COUNTY OF MAUI GENERAL PLAN AND THE HAWAI‘I STATE PLAN**

The County of Maui General Plan consists of three parts: 1) the Countywide Policy Plan, 2) the Maui Island Plan, and 3) nine community plans (Figure 1.1). The General Plan, adopted in 1980 and updated in 1990, sets forth the long-term social, economic, environmental, and land use needs of the County. The General Plan update began with the Countywide Policy Plan adoption in 2010, the Maui Island Plan adoption in 2012, and initiation of community plan updates in 2010. The General Plan supports the Hawai‘i State Plan and interrelates with the State Functional Plans, which have not been revised since the late 1990s. In 2011, the priority guidelines and principles to promote sustainability were adopted from the Hawai‘i 2050 Sustainability Plan as an amendment (Act 181) to the Hawai‘i State Plan. In 2012, climate change adaptation priority guidelines (Act 286) were adopted. The adaptation policy specifies county or state plans must address potential climate change impacts to agriculture, conservation lands, coastal and nearshore areas, natural and cultural resources, energy, the economy, and many other sectors. Chapter 2 discusses how these recent acts influence the community plan.

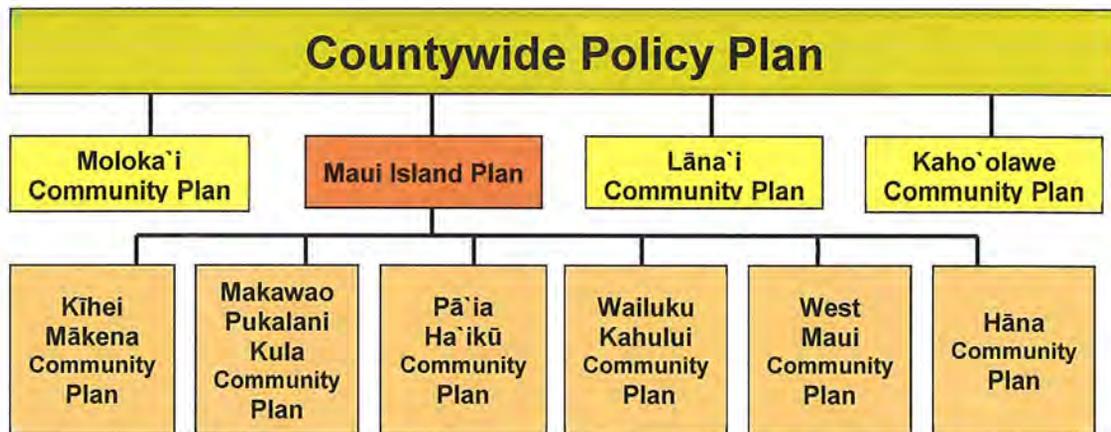


Figure 1.1 County of Maui General Plan Organization

## **THE 2015 LĀNA‘I COMMUNITY PLAN UPDATE**

The Lāna‘i Community Plan was adopted in 1983 and first updated in 1998. Chapter 2.80B, Maui County Code (MCC), sets forth the requirement of the general and community plans, and provides the specific process for updating the plans.

From 2004 to 2012, new plan requirements were created. New plan elements required by Chapter 2.80B include:

# 1 | INTRODUCTION

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

This community plan update combines the existing plan with these new requirements, in addition to components of the Maui County General Plan 2030 Countywide Policy Plan. Section 2.80B.070, MCC, sets forth the community plans shall implement the Countywide Policy Plan's vision, principles, goals, and policies, and its core themes (see Figure 1.2).



Figure 1.2 Maui County General Plan 2030 Countywide Policy Plan Core Themes

The Community Plan Advisory Committee (CPAC) is composed of 13 members appointed by the County Council and the Mayor. Over a 180-day period, the CPAC conducted meetings and workshops to encourage public participation in the community plan update process.

The CPAC's recommendations were incorporated into the Department of Planning's first draft plan to form the Lāna`i Community Plan CPAC Final Draft. After review by County agencies the Department of Planning prepared the Lāna`i Community Plan CPAC/Department Draft, based on the work of the CPAC. This revised Lāna`i Community Plan CPAC/Department Draft was forwarded to the Lāna`i Planning Commission for public hearing and review, then revised as the Lāna`i Community Plan Lāna`i Planning Commission Final Draft, and sent with Department of Planning comments to the County Council for further review and adoption by ordinance. This process is summarized graphically in Figure 1.3.

# 1 | INTRODUCTION

## Lāna`i Community Plan Update

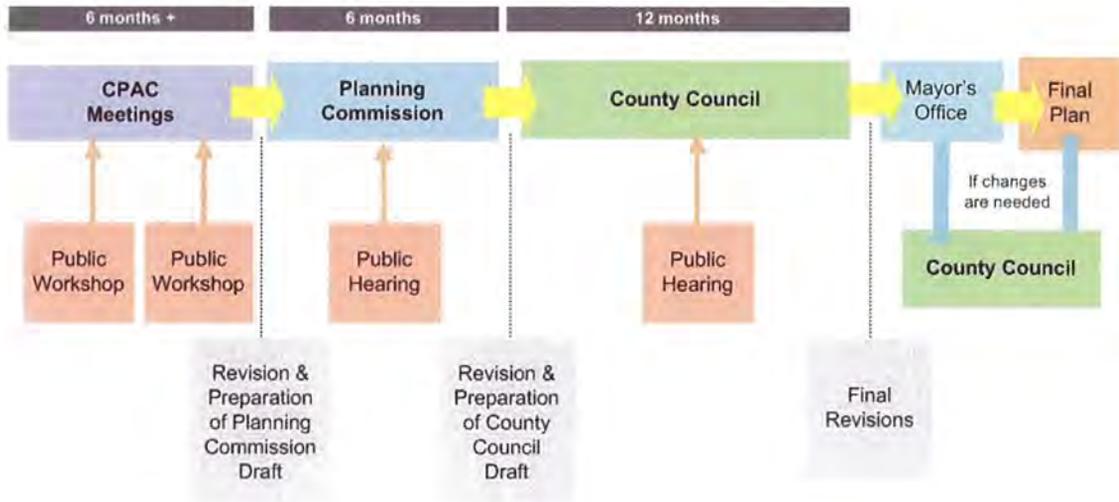


Figure 1.3 Generalized Planning Process and Schedule

To update the Lāna`i Community Plan, the Department of Planning's Long Range Planning Division worked with the Lāna`i community, stakeholders, agencies, the Lāna`i CPAC, the Lāna`i Planning Commission, and the County Council between 2010 and 2016. The Department of Planning, Lāna`i CPAC, and Lāna`i Planning Commission used several technical studies and issue papers to understand future conditions and needs. A list of the studies and papers used for the Lāna`i Community Plan is provided in Appendix 1.2.

The Long Range Planning Division conducted four community engagement events to gather ideas and concerns from Lāna`i's residents. Attendance ranged from 40-120 individuals that included residents, visitors, and Pūlama Lāna`i consultants. Details of the community engagement events are further described in Appendix 1.3.

# 1 | INTRODUCTION

## PLAN ORGANIZATION

The Lānaʻi Community Plan is organized into 13 chapters, a maps section, and an appendices section with background materials. This introduction is followed by Chapter 2 that explores Lānaʻi's future – the vision, issues, and opportunities, including sustainability and climate change adaptation. Chapter 2 concludes with what is needed to sustain the resources, quality of life, and economy, as well as what level of growth might be expected given current and projected population and demographics. Chapters 3-13 incorporate the plan elements required by Chapter 2.80B, MCC. Each chapter provides an introduction, issues and strategies, and 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 through concerted effort. Policies are not intended as regulations, but instead serve as general guidelines for attaining goals. Actions are specific tasks, procedures, programs, or techniques that implement policy. Actions may be implemented by the lead County agency or another entity, such as the State or non-governmental organizations, assisted by a County agency. This community plan is not intended to be used in the review of applications for ministerial permits. A "ministerial permit" means a permit that does not involve judgment or discretion and is issued based on established criteria or a set of adopted standards as established by law.

Chapters 3-5 discuss Lānaʻi's environment and natural resources, hazard mitigation, and cultural, historic, and scenic resources.

Chapter 6 discusses economic development, the reliance on the luxury tourism industry, and strategies to diversify the economy. This chapter is based on the Lānaʻi Economic Development Issue Paper and the first two community engagement meetings.

Chapters 7 and 8 discuss the existing and future needs for infrastructure, utilities, and public facilities and services, such as solid waste management, police, fire, recreation, and roads. Many of Lānaʻi's services are currently provided by private and State agencies.

Chapters 9-11 discuss land use, urban design, and housing policies and actions that will shape the location and form of future development. The housing chapter looks at specific housing needs to provide a variety of housing options for a diverse community.

Chapters 12 and 13 discuss governance and implementation. The governance chapter looks at the changes needed in the system and function of governance to guide the community toward a sustainable future. Chapter 13 lists and prioritizes the actions from previous chapters in an implementation table and identifies cost estimates, timelines, and the lead implementing agency. This table is intended to facilitate funding decisions during the county budget process.

## FAST FACTS ABOUT LĀNA`Ī

### PHYSICAL FEATURES

- Area - 140.5 square miles.
- Sixth largest of main Hawaiian Islands and the smallest publicly accessible inhabited island.
- Highest Elevation – Lāna`ihale at 3,366 feet.
- Kalohi Channel separates it from Moloka`i to the north.
- `Au`au Channel separates it from Maui to the east.

### POPULATION / DEMOGRAPHICS (2010 Census)

- 2010 population - 3,135 people; a decrease of 91 people from 2000.
- Population by Race – 56% Asian; 22.99% two or more races; 14.02% White; 6.61% Native Hawaiian and other Pacific native; 0.16% Black or African American; 0.16% some other race alone; 0.06% American Indian and Alaska native.
- Persons of Hispanic or Latino Origin (of any race) 254 or 8.19% of total population.
- Population by Age – 0 to 4 years: 7.58%; 5 to 17 years: 18.60%; 18 to 64 years: 58.96%; 65 years and over: 14.86%.

### FLORA AND FAUNA

- 64 plant species listed as endangered, candidate, or species of concern.
- Lāna`ihale Forest Conservation Area – 3,588 acres of wet forest.
- Kānepu`u Preserve – 590 acres of lowland olopuu/lama dryland forest.
- Endangered `ua`u (Hawaiian petrel) in fern understory of Lāna`ihale forest.
- Mānele-Hulopo`e Marine Life Conservation District with coral reef, sandy beaches, and rocky habitats.
- Hawaiian monk seals, green sea turtles, and spinner dolphins.

Figure 1.4 Fast Facts About Lāna`i

## 2 | LĀNA`I'S FUTURE

### INTRODUCTION

This chapter provides the community 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 twenty years. The components of this strategic framework are included in the following sections:

- 2.1 Vision and Guiding Principles;
- 2.2 Problems and Opportunities;
- 2.3 Population; and
- 2.4 Sustainability and Climate Change Adaptation.

Developed with the Lāna`i CPAC, the vision and guiding principles articulate the community's belief in who they are, what they want the island to become, and how to achieve that vision.

The island's major problems and opportunities provide a summary of the principal issues facing the community and key opportunities to act upon in the 20-year planning horizon.

The population forecast and discussion of population goals present a brief analysis of past and future population trends. Given the combination of the community's vision and guiding principles, the State and County's commitment to responsible growth management, and Pūlama Lāna`i's commitment to the sustainable development of the island, this section also explores the question of what is a sustainable, achievable, and desirable future population for the island.

Finally, in response to the Hawai`i State Plan amendments relating to sustainability and climate change, Section 2.4 provides a brief discussion and outline of how climate change adaptation strategies and measures to develop a more sustainable island community are woven into the policies, goals, and actions of the plan.

## 2 | LĀNA`I'S FUTURE

### 2.1 VISION AND GUIDING PRINCIPLES

We are Lāna`i – people who care. Lāna`i was and is the Pineapple Island. While the plantation is gone, the pineapple remains the symbol of hospitality and warmth. We cherish our sense of `ohana, in which people know each other, share, sacrifice, and take care of each other. We deeply value our rural lifestyle of being close to the land and a life spent outdoors. It is the history of our land and people that makes Lāna`i different from other places. “We honor and take care of our kūpuna and nurture our children in a safe and peaceful place, and we value, cherish, and protect our environment and natural resources.”<sup>1</sup> We honor our unique heritage by preserving many of our archaeological and cultural sites, and by maintaining Lāna`i City's special sense of place as the last intact plantation town in Hawai`i.

We recognize that Lāna`i faces many challenges in order to achieve a sustainable future. We must seek ways to expand our economy, provide better healthcare, improve education, become energy independent, and encourage self-sufficiency. As we strive to meet these challenges, we realize we must work to preserve some things and accept those changes that do not fundamentally alter Lāna`i's unique character.

We offer the following as guiding principles and goals for the future of the island:

- Diversify the economy to provide opportunities and resiliency.
- Provide opportunities for the island's keiki to live and work on Lāna`i.
- Diversifying the economy and creating more job opportunities require our population to grow; we commit to finding constructive ways to assimilate the growing population into the community.
- Mālama `āina: protect and restore the environment.
- Protect our water and provide efficient, effective, and environmentally sound infrastructure and services.
- Preserve the historic character of Lāna`i City and honor the Hawaiian culture through preservation of cultural sites.
- Maintain the rural lifestyle with its slower pace, open space, and connection to the natural environment.
- Ensure a healthy community that is supported by a full array of healthcare services for all members of the community.
- Expand educational opportunities to nurture children and inspire adults.

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<sup>1</sup> Castle & Cooke Hawai`i (December 2010). *Lāna`i Community Listening Workshops Report*. Prepared by Hawaii Alliance for Community-Based Economic Development.

## 2 | LĀNA`I'S FUTURE

- Provide a variety of social and recreational facilities and opportunities for all ages.
- Preserve the subsistence lifestyle through traditional access for gathering, hunting, and fishing.
- Establish trust to create a collaborative and respectful relationship between the community and Pūlama Lāna`i.
- Establish Lāna`i as a model sustainable island to be known for its bold integration of innovative green technologies into a traditional rural island community.

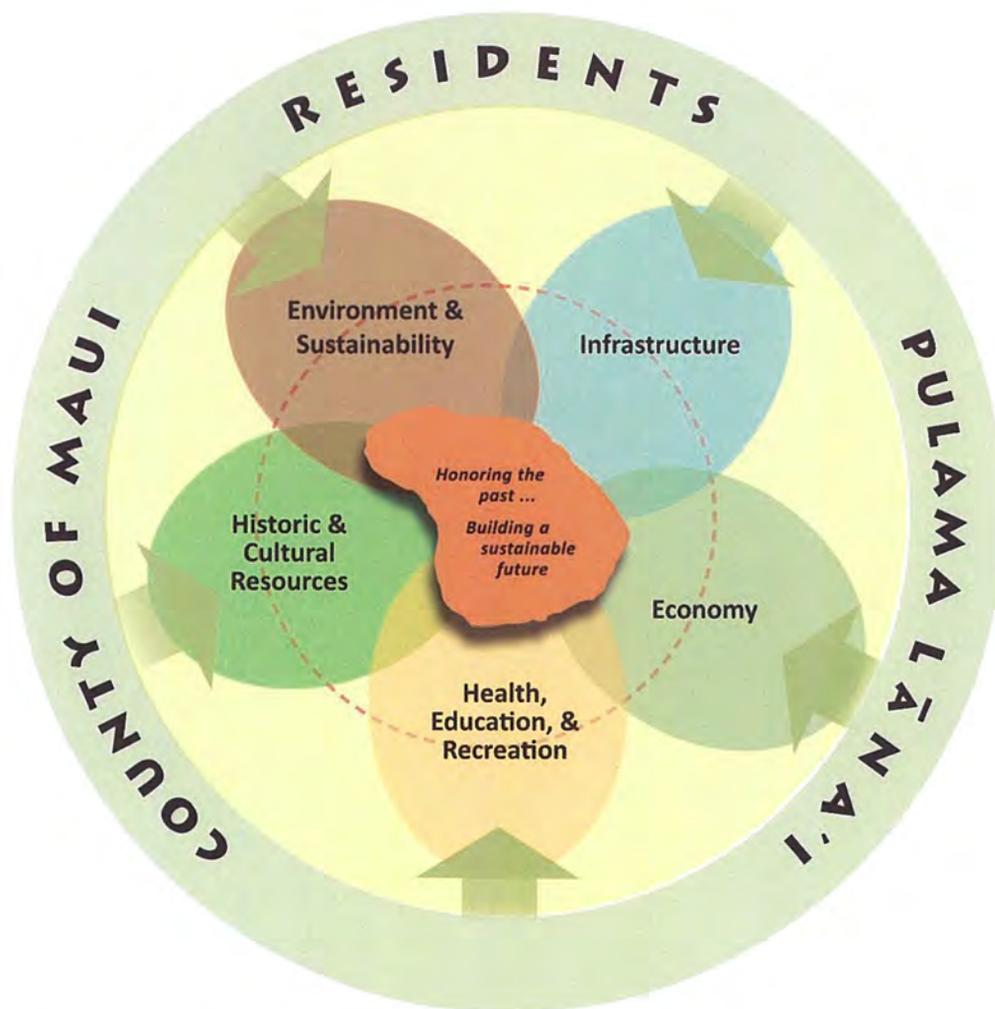


Figure 2.1 Vision for Lāna`i's Future

## 2 | LĀNA`I'S FUTURE

### 2.2 PROBLEMS AND OPPORTUNITIES

#### INTRODUCTION

The identification of major problems and opportunities is required by Chapter 2.80B, MCC. This outline of the problems and opportunities facing the island is a record of the community's top concerns and issues that need to be addressed.

#### PROBLEMS

##### A. LIMITED WATER RESOURCES

The capacity of existing water resources may be insufficient to support new growth. Projects that already have entitlements could consume most of the remaining capacity of Lāna`i's single aquifer. It may be necessary to increase the capacity of water resources for new development.

##### B. DECLINING FOREST ECOSYSTEMS

*Much of Lāna`i's forest ecosystems have been declining over the last century.* Water and other natural resources on the island are vulnerable because of historical declines in forest ecosystem functions and the anticipated effects of climate change. Lāna`i's forest systems are vitally important because the island's main aquifer relies, in part, on the "cloud forest" (clouds retained by barrier of tree tops) for water recharge. Over the past 150 years, ungulates (sheep, goats, and deer) have decimated and denuded the forests, allowing invasive species to proliferate and crowd out native species. The planting of Cook Pines in the early 20<sup>th</sup> century helped to restore the cloud forest, but the cloud forest trees on Lāna`ihale need replanting.

##### C. LIMITED RECREATION, HEALTH CARE, AND SOCIAL SERVICES

*There is a need for increased health care and social services.* There is a shortage of in-home care, hospice services, and nursing facilities. This problem will likely grow as the population increases. The Lāna`i community is greatly concerned about addressing social issues, such as alcohol and drug abuse, and domestic violence. There is limited access to organized recreational and social activities, especially for Lāna`i's teenagers (ages 11-17) and young adults (ages 18-30). In addition, support services in cultural education are needed to help new and future residents integrate into Lāna`i's community.

## 2 | LĀNA`I'S FUTURE

### D. LIMITED ECONOMIC DIVERSITY

***A narrow economic base provides limited economic opportunities for the island's residents.*** Since the end of the pineapple plantation, Lāna`i's economy has depended mainly on luxury tourism and resort home construction. This reliance on a single industry causes the island to be vulnerable to the fragility of the luxury tourism and resort housing markets. Limited employment opportunities are a constraint to the residents' ability to achieve a higher standard of living. The economic recession of 2007 – 2009 significantly increased the resorts' vacancy rates and curtailed resort home construction, resulting in lower employment and the out-migration of residents seeking employment outside of Lāna`i. The particularities of luxury resort employment and the boom-and-bust cycles of home construction provide little incentive for the youth of the community to remain on or return to the island.

### E. HISTORIC CHARACTER THREATENED

***Lāna`i's historic and cultural resources are truly unique in the State and the Nation, but many of these resources are threatened by incremental demolition and demolition by neglect.*** Lāna`i City is the State's last intact plantation town, filled with houses and other structures that are part of the personal histories of many families. These structures represent a significant chapter in Hawai`i's social history. Demolition of buildings and structures that contribute to the island's history are eroding the town's historic integrity. Furthermore, the island's cultural resources and landscapes, such as Keahiakawelo (Garden of the Gods) at the north end of the island, could be significantly altered and transformed by development.

### F. LIMITED HOUSING OPTIONS

***The availability and variety of housing types on the island are limited.*** While housing demand on Lāna`i eased somewhat during the economic recession of 2007 – 2009, recent increases in economic activity have increased the demand for affordable housing. The lack of new housing developments and the limited variety of existing housing prevent working families and short-term contract workers from fulfilling their housing needs. New housing choices are needed for singles, the elderly, renters, and first-time home buyers. However, there is concern that new development may be inappropriate or insensitive, and could negatively alter Lāna`i's unique rural character.

### G. TRANSPORTATION LIMITATIONS AND COST

***The island suffers from an extremely limited number of options for freight shipments and personal transportation.*** As one of the smallest and least populated islands in the most isolated island chain in the world, Lāna`i suffers from expensive transportation costs for freight, goods, and people. Limited sea barge and air freight transportation to the island contributes to higher costs for groceries, fuel, and other goods when compared to Maui or other Hawaiian Islands. Limited airline seats and flights restrict opportunities for tourists to

## 2 | LĀNA`I'S FUTURE

visit the island and for residents to travel off island. Improving transportation services is essential for economic development.

### H. AGING INFRASTRUCTURE

***Many of Lāna`i's infrastructure systems are old, inadequate, and require extensive renovation or redevelopment to meet existing and future needs.*** As Lāna`i City nears the centennial since its founding in 1922, many of its infrastructure systems are in need of repair, replacement, or expansion. For example, the water transmission system has leakage rates above industry standards and the landfill is projected to reach capacity by 2020. A new landfill site is needed or the island will have to start shipping solid waste off island. A drainage master plan was prepared for Lāna`i City and the Kō`ele Project District (PD) in 2006 but has not been fully implemented. Electric power is more expensive on Lāna`i than on other Hawaiian Islands and the facility is outdated and vulnerable due to dependence on petroleum supplies.

### I. RELATIONSHIP WITH MAJOR LANDOWNERS

***The relationship between previous major landowners and the community was historically difficult.*** Issues identified through workshops and interviews were the poor working relationship, strained communications, and an eroded sense of trust between residents and the company. This may be caused by the unusual nature of Lāna`i being a plantation or company town, with one individual owning approximately 98 percent of the land and the majority of job opportunities being within a single industry. However, with a new landowner and management company there is an opportunity to establish a more positive relationship.

### J. GOVERNANCE ON OTHER ISLANDS

***Access to many government services and functions is difficult for Lāna`i residents because most government agencies are based on Maui and O`ahu.*** It is also difficult for residents to participate in meetings and hearings on issues that directly affect Lāna`i when they are held on Maui. Recent improvements in telecommunications do allow web-based testimony by residents.

## 2 | LĀNA`I'S FUTURE

### OPPORTUNITIES

#### A. MĀLAMA `ĀINA: COMMUNITY ENVIRONMENTAL RESTORATION

*There are ongoing programs to restore Lāna`i's watershed, which is essential to maintaining the island's water supply and natural resources.* All residents and visitors may share in the common goal of restoring the environment by preserving and protecting Lāna`i's natural resources. The community recognizes and values the benefits provided by conserving and restoring the forest ecosystem. Residents, the company, State agencies, and nonprofit groups have begun forest restoration projects and are continuing these efforts. Engaging more groups, such as youth, hunters, fishermen, and eco-tourists to expand community stewardship of forest resources will accelerate environmental restoration and build collaboration between different groups in the community.

#### B. WATER USE AND DEVELOPMENT PLAN

*The County's Water Use and Development Plan provides a guide to improving the island's water system.* Water conservation actions identified in the Lāna`i Island Water Use & Development Plan (WUDP)<sup>2</sup> provide specific measures that individual citizens, the company, other landowners, and government agencies can use to reduce water consumption and overpumping of the aquifer, prevent pollution, and reduce operational costs.

#### C. DESALINATION AND WATER CONSERVATION

*The new landowner is exploring the option of developing desalination plants that would create potable water out of saltwater.* Producing potable water through desalination would greatly decrease the potential of overpumping the aquifer. Increased production of potable water for human consumption means there could be adequate water supply for the re-introduction of agricultural operations. Potable water can be saved by using brackish and treated water for the irrigation of the golf courses and resort landscaping.

#### D. INTACT HISTORIC CHARACTER OF LĀNA`I CITY AND THE ISLAND

*The historic character of Lāna`i City and the island is relatively intact and provides a solid foundation for the future.* The intact historic character of Lāna`i City is an asset for both residents and visitors. The town's unique character can be enhanced by additional restoration and adaptive reuse of historic buildings and careful integration of new development. The urban design of Lāna`i City centralizes housing and commercial services and can be easily replicated and adapted to include additional forms of housing. Lāna`i City's rural character and sense of place can be maintained through the implementation of design guidelines. Historic resources and landscapes in other parts of the island, such as Keomuku, Keahiakawelo, and Maunalei, are also assets that add to the special character and sense of place that is unique to Lāna`i.

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<sup>2</sup> Ordinance 3885 (2011).

## 2 | LĀNA`I'S FUTURE

### E. SMALL-TOWN LIFESTYLE AND `OHANA

***Lāna`i City is an idyllic small town in a beautiful setting that is a safe, calm, and friendly place to live.*** The small-town lifestyle and sense of `ohana draw former residents and visitors back to Lāna`i time and again. The `ohana lifestyle creates a supportive network of neighbors, families, and friends who help sustain a healthier and happier community. This not only makes Lāna`i a very desirable place to live, work, and raise a family, but also fosters a more resilient community.

### F. NEW MAJOR LANDOWNER

***Having a new landowner provides new opportunities to create a stronger relationship between the community and the company, and to initiate a clear program for economic development.*** In 2012, Larry Ellison purchased David Murdock's holdings on the island. Ellison created a new management entity, Pūlama Lāna`i, that is pursuing new projects, enterprises, and investments on the island. Pūlama Lāna`i managers have expressed their vision to the community and are interested in involving the community in these changes, while working to protect the island's historic, cultural, and natural resources. This is a timely opportunity that could help to diversify the island's economy and implement a new vision for the future of Lāna`i.

### G. HUNTING

***Subsistence hunting by residents and hunting tourism are important economic and environmental activities on the island.*** Hunters come to the island to hunt axis deer and mouflon (European big horn) sheep. Hunting can be part of the game management strategy to control the feral ungulates on the island. Hunting is an economic engine for the island as hunters bring money into the economy and provide the livelihood for numerous residents and businesses. The Hunting Advisory Council, composed of local operators, believes hunting tourism could grow if there were more accommodations available to serve the needs of hunter-tourists.

## 2 | LĀNA`I'S FUTURE

### 2.3 POPULATION

#### A. POPULATION FORECAST

The 2010 Census counted 3,135 residents living on Lāna`i. According to the County's Land Use Forecast produced in December 2012, an additional 885 residents are forecast to live on the island by the year 2030, for a total population of 4,020. However, the forecast was completed prior to Pūlama Lāna`i's future growth estimate and future development plans that are described in Chapter 9. Pūlama Lāna`i estimates the island's resident population could reach approximately 6,000 if its development plans are realized.

In 2010, Lāna`i's average visitor census was estimated at 673 visitors per day. The Maui County Socio-Economic Forecast projects the average visitor census for Lāna`i will reach 912 visitors per day by the end of 2035.<sup>3</sup>

#### B. WHAT IS A SUSTAINABLE POPULATION SIZE FOR LĀNA`I?

Lāna`i's population is expected to grow beyond the estimates suggested by census data because of increased economic activity from Pūlama Lāna`i's development plans. However, Pūlama Lāna`i has committed to ensuring over the next 20 years, the island's population does not expand beyond the estimate of 6,000 people.

Given the community's vision and goal of maintaining its rural, small town sense of community and `ohana, the anticipated growth provides an opportunity to evaluate what population size is desirable for the island. In addition, the community must continuously ask how many people the island can support without adversely affecting its ecosystems, natural resources, and water resources. Evaluating these questions will require consistent dialogue between the community, the County, and Pūlama Lāna`i while future growth occurs.

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<sup>3</sup> County of Maui (September 2014). *Socio-Economic Forecast Report: Final Draft 9/15/2014*.

## 2 | LĀNA`I'S FUTURE

### 2.4 SUSTAINABILITY AND CLIMATE CHANGE ADAPTATION

#### A. INTRODUCTION

One intent of this community plan update is to help establish a sustainable and resilient future for Lāna`i. This section provides an introduction and brief guide to how sustainability and climate change adaptation are incorporated into the policies and actions of this plan.

#### B. SUSTAINABILITY

Over the past decade, sustainability has become a fundamental concept of comprehensive community planning. It refers to the ability to address the needs of the present without compromising the ability to meet future needs. It requires consideration of the long-term environmental, social, cultural, and economic costs of present-day actions. Sustainability is a process, rather than an end-state, whereby a community acknowledges that environmental, economic, and social systems are linked and must be balanced.

Sustainability is important in a region as fragile and remote as the Hawaiian Islands. In 2011, the Hawai`i State Legislature adopted Act 181, establishing sustainability as a priority of the State by incorporating definitions, guiding principles, and goals of the Hawai`i 2050 Sustainability Plan into the Hawai`i State Planning Act, Chapter 226, Hawai`i Revised Statutes (HRS). Updates to the County's general plan will integrate these sustainability guidelines and principles (see Appendix 2.1 Definition of Sustainability in Hawai`i and Appendix 2.2 Guiding Principles of Sustainability).

#### C. CLIMATE CHANGE ADAPTATION

In July 2012, the Hawai`i State Legislature adopted Act 286, amending the Hawai`i State Planning Act by adding climate change adaptation priority guidelines (see Appendix 2.3 – Climate Change Adaptation Priority Guidelines).

Climate change will become increasingly serious before the middle of the 21st century and will have profound impacts upon societies all over the world, especially to island communities such as the Hawaiian Islands.

Climate change will profoundly affect not only Hawai`i's natural environment, but also its communities. The anticipated effects of climate change on Hawai`i include: 1) warmer temperatures; 2) increased heat-related deaths and illnesses; 3) sea-level rise with resultant flooding, beach erosion, and damage to coastal property; 4) warmer sea-surface temperatures and ocean acidification with negative impacts to coastal and marine ecosystems; 5) increased frequency and severity of storms with increased vulnerability to storm damage; and 6) increased drought with variable effects on aquifer recharge, stream flows, and freshwater resources. These

## 2 | LĀNA`I'S FUTURE

effects will adversely impact communities and sectors throughout Hawai`i, including the economy (agriculture, tourism, fisheries, and trade), the built environment, historic and cultural resources, infrastructure systems, ecosystems, and natural resources.<sup>4</sup> Climate change mitigation measures, such as lessening our dependence on fossil fuels, reducing emissions, and changing the way we design and build communities, are needed to help lessen the impacts of human activity on the climate.

Climate change adaptation seeks to reduce the vulnerability of biological systems to climate change effects, such as sea-level rise, increased severity of storms, increased drought conditions, and flooding. Climate change adaptation requires strategies and actions to reduce the adverse consequences of climate change while harnessing any beneficial opportunities. While the precise timing cannot be predicted, it is clear that significant climate change adaptation and mitigation measures will be needed by mid-century. Taking action now will help to mitigate the impacts of climate change and reduce potential damage in the future.

### D. WORKING TOGETHER TOWARDS A SUSTAINABLE AND RESILIENT LĀNA`I

For Lāna`i, this is a pivotal time when the ambitions and visions of its community, the island's major landowner, the County, and the State are considerably aligned to face the intertwined challenges of sustainability and climate change. In recognizing the links between society, the environment, and the economy, sustainability acknowledges the ecological limits of natural systems and affirms the well-being of humanity is fundamentally dependent on the health of our environment. Lāna`i can become resilient and ready for change by strengthening its society and natural and built environments, and diversifying its economy. The elements needed to achieve this are identified in the individual chapters of this community plan. How these elements work together is described below.

**SOCIETY – LĀNA`I'S PEOPLE AND CULTURE:** Caring for the people is a key component of ensuring a sustainable and resilient Lāna`i. This involves providing educational opportunities and a full spectrum of social services for residents of all ages. Critical actions include expanding primary emergency services, in-home care, hospice facilities and services for families in crisis, and improving the quality of schools and the availability of college-level education. It is also important to foster participation and collaboration between the community, government, Pūlama Lāna`i, nonprofit groups, and private businesses in the stewardship of natural, historical, and cultural resources to build collaboration. Lāna`i's culture and sense of place can be honored by protecting Lāna`i City's historic plantation-town character and all of its archaeological and cultural sites.

Ensuring a resilient and sustainable society also requires a variety of housing types that are affordable to residents of all ages and increasing food security. Expanding community gardens and local food production, and introducing the youth to agriculture through programs, such as Future Farmers of America and 4-H, support food security. Climate change adaptation will be

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<sup>4</sup> Hawaii State Legislature (2012). *Climate Change Adaptation Priority Guidelines* (Act 286).

## 2 | LĀNA`I'S FUTURE

necessary for the health and safety of people and the environment. It calls for new ways of designing communities and infrastructure by building upon existing hazard mitigation principles, such as relocating critical infrastructure out of tsunami inundation zones, incremental adaptation of harbors, increasing water conservation and reuse, and managing aquifer recharge areas.

**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 society and culture. A well-designed community is characterized by a compact and pedestrian-oriented mix of land uses, multi-modal transportation networks, diversity of housing, strong sense of place and culture, and preservation of open space, agricultural land, and natural resources. Lāna`i can create a sustainable community by building upon its historic development patterns, integrating land use and transportation planning, and making development decisions predictable, fair, and cost-effective.

Natural landscape features and environment, such as dryland and cloud forests, gulches, wetlands, and coral reefs, will be protected and restored. Feral ungulates and invasive species will be managed and principles of native Hawaiian land management, including ahupua`a, will be integrated to help guide resource management. Green technology, building practices, and infrastructure solutions will also be used.

**THE ECONOMY:** Fostering a robust and diversified economy is the third component to working toward a sustainable and resilient Lāna`i. This requires diversifying the tourism industry, supporting agriculture, encouraging new industries, expanding education and support services for small businesses, and providing necessary infrastructure, land, and affordable sea and air transportation options. Lowering energy costs by reducing dependence on fossil fuels and increasing renewable energy is also key to providing stronger economic opportunities and becoming more sustainable. This will be achieved by increasing the generation and use of renewable energy sources, promoting the use of electric vehicles, and exploring options for biofuels, biodiesel, and waste-to-energy technology. Water resources will be used in a sustainable and economic manner by recycling one hundred percent of wastewater for irrigation and exploring options for reuse of household graywater for lawn and garden irrigation.

## 3 | ENVIRONMENT AND NATURAL RESOURCES

### A. INTRODUCTION

The clearing and degradation of once extensive wet and dryland areas have significantly changed Lāna`i's native ecosystems. Damage to forest understory and tree roots by hoofed animals, initially free-range and later feral, has led to the destruction of large forest areas. Bare forest lands enabled invasive plants to become established, resulting in increased erosion, the loss of native species, and reduced aquifer recharge. Invasive plants, animals, and insects have decimated native species, such as forest birds, and weakened the biodiversity and resiliency of the forest ecosystem.

Protecting and restoring Lāna`i's forest ecosystems help to reduce erosion, surface water runoff, flooding, and siltation of the reefs and ocean waters, and ensures a sustainable water supply. The forest ecosystem benefits natural and cultural resources, recreation, agriculture, tourism, infrastructure, and economic viability. Recent studies have calculated financial values for services provided by forest ecosystems<sup>5</sup> (see Appendix 3.1).

A University of Hawai`i (UH) study examined the various services provided by O`ahu's Ko`olau 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.<sup>6</sup>

### Background

Feral ungulates had caused notable damage to Lāna`i's forests by the mid-1800s. In the early 1900s, State agencies, conservationists, and agricultural lobbyists called for the eradication of feral goats to protect the wet forest and Lāna`i's limited water supply. Goats were eventually eradicated, but axis deer and mouflon sheep were introduced for hunting in the 1920s and mid-1950s, respectively.

Lāna`i is one of the driest of the inhabited main Hawaiian Islands. The island relies on the native wet forest and the thick fern understory to capture fog drip, or moisture from passing clouds, to recharge the aquifer. In 1995, the State Commission on Water Resource Management (CWRM) modeled Lāna`i's groundwater system and predicted the loss of forest cover would drastically affect groundwater levels. The model indicated that fog drip generates approximately fifty percent of the fresh water found in the central aquifer region.<sup>7</sup> These findings are supported by recent studies by the County Department of Water Supply (DWS) and others.<sup>8</sup>

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<sup>5</sup> State of Hawai`i, Department of Land and Natural Resources (2011). *The Rain Follows the Forest*.

<sup>6</sup> *Ibid*, p. 4.

<sup>7</sup> Stokes, Darrell (2000). *Final Environmental Assessment for the State of Hawai`i Forest Stewardship Program Lāna`ihale Forest Stewardship Plan* (prepared for Lāna`i Company Inc.).

<sup>8</sup> WUDP, *Ordinance 3885 (2011)*.

### 3 | ENVIRONMENT AND NATURAL RESOURCES

#### Existing Conditions

Two forest conservation areas protect the Lāna`ihale cloud forest (wet forest) and the Kānepu`u dryland forest. Most vegetation outside of these areas is non-native. A healthy native forest is beneficial in providing habitat for the survival of endangered and endemic native plant and animal species. Lāna`i's forests are currently home to 64 native plant species that are listed as endangered, candidate, or species of concern. The forests have lost seventy native plant species, in addition to seven of eight native forest bird species.<sup>9</sup>

The Lāna`ihale conservation area covers 3,588 acres, with 2,300 acres fenced. Attracted to Lāna`i's dark night sky, Hawai`i's second largest colony of `ua`u (Hawaiian petrel) nest in the fern understory of Lāna`ihale. Since 2006, efforts to protect Lāna`i's `ua`u colony, including controlling invasive predators and strawberry guava, have been underway. The highly invasive strawberry guava plant displaces the `ua`u nesting grounds and also impacts watershed and aquifer health by disrupting the native forest ecosystem. Forest health is further compromised by axis deer and mouflon sheep that denude land within the conservation area. Soil erosion from the denuded land around Lāna`ihale is estimated at upwards of 2,200 tons of soil loss per year.<sup>10</sup>

The Kānepu`u Preserve, a Pūlama Lāna`i, State Department of Land and Natural Resources (DLNR), and Nature Conservancy natural area partnership, consists of 590 acres of dryland forest that contains 48 rare native plant species, including culturally important tree species such as olopuia and lama. Early fencing in 1911 saved this forest from destruction by goats. Recently, the Nature Conservancy replaced the preserve's fencing and developed a management plan for its native plant species. Many of these plants are being outplanted to establish new restoration areas. Pūlama Lāna`i oversees 20,000 acres of lowland mesic (moderate) and dry communities, including the Kānepu`u Preserve and the Lāna`ihale conservation area. Preservation plans call for additional fencing, feral animal removal, and native plant restoration, as well as continuing conservation actions through the support of programs and volunteer groups. The Lāna`i Native Species Recovery Program performs invasive weed control and fence upgrading and maintenance.

The entire island is within the Hawaiian Islands Humpback Whale National Marine Sanctuary. Created by Congress in 1992, the sanctuary protects humpback whales and their habitat. The National Oceanic and Atmospheric Administration (NOAA) and the DLNR jointly manage the sanctuary, which constitutes one of the world's most important humpback whale habitats.

In 1976, the Mānele-Hulopo`e Marine Life Conservation District was established on Lāna`i's south shore to protect 1) species associated with shallow coral reef, sandy beach, and rocky habitats; and 2) Hawaiian monk seals, green sea turtles, spinner dolphins, and other marine mammals. The DLNR's Division of Aquatic Resources (DAR) manages this three hundred nine-acre protection area, which is affected by excessive sediment and other water quality pollutants, recreational

<sup>9</sup> Stokes, *supra* note 8.

<sup>10</sup> *Ibid.*

### 3 | ENVIRONMENT AND NATURAL RESOURCES

overuse, and overfishing. To address over-fishing, the Mānele Harbor Fishery Management Area sets limits on fish harvests and defines the fishing season and fishing areas.

#### B. ISSUES AND STRATEGIES

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**Issue 1:**            **Increasing numbers of invasive animal and plant species are contributing to erosion, loss of native species, and declines in the forest ecosystems.**

Strategy 1A:        Increase public understanding of the importance of forest ecosystems to the environment and the economy. Support increased collaboration and stewardship among community groups, schools, and individuals by building upon existing stewardship efforts and programs.

Strategy 1B:        Increase efforts to prevent, control, and eradicate invasive species. Evaluate existing prevention policies to close loopholes. Build support for adequate funding of inspectors, research, and control or eradication programs by increasing public outreach.

**Issue 2:**            **Erosion impacts water quality by causing excessive sediment to enter surface and ocean waters. In addition, discharges of chemicals and fertilizers from golf courses, households, businesses, and farms may increase the amount of pollutants found in the soil and water.**

Strategy 2:         Conduct community workshops to educate landowners and businesses on best management practices (BMPs) for intercepting and reducing sediment and other pollutants from entering surface and ocean waters. Develop a toolbox of BMPs that includes green infrastructure and other techniques utilizing natural or constructed soil, rock, and plant-based systems to manage surface water.

### 3 | ENVIRONMENT AND NATURAL RESOURCES

#### C. GOAL, POLICIES, AND ACTIONS

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**GOAL** Lāna`i's environment and natural resources will be protected, restored, and preserved for future generations.

##### **Policies**

1. Protect, preserve, restore, and enhance Lāna`i's native forest ecosystems, including the Lāna`ihale cloud forest, Maunalei Gulch, and Kānepu`u Preserve.
2. Protect fog drip, aquifer recharge areas, and water quality.
3. Protect and restore biodiversity, native habitats, and native plant and animal species through conservation, land management, education, and control of invasive species.
4. Recognize and support agricultural, forestry, and game BMPs as key elements to maintain, preserve and protect Lāna`i's land, water, and marine resources.
5. Protect and restore, where appropriate, Lāna`i's coastal resources and water quality by implementing BMPs for surface water and sediment management, including the use of green infrastructure.
6. Support the Mānele-Hulopo`e Marine Life Conservation District.
7. Recognize the existing boundaries of the Kānepu`u Preserve and support expansion of those boundaries.
8. Support the use of adaptable protection areas, such as a system of floating preserves, as a means of managing nearshore coastal resources.
9. Support the protection and expansion of native plants by encouraging the use of appropriate practices and techniques for native plant propagation, planting, and distribution.
10. Native plant species which are found on Lāna`i shall be utilized for landscape purposes wherever feasible and appropriate.
11. Encourage and support public stewardship of natural resources.
12. Encourage the State to adequately fund quarantine and inspection programs.
13. Protect and enhance the island's native plant and animal species by prohibiting the importation of alien species.

### 3 | ENVIRONMENT AND NATURAL RESOURCES

#### Actions

No.	Action	Policy No.	Lead County Agency	Partners
3.01	Compile data to create maps of primary water recharge areas requiring the highest protection and restoration efforts, and maps of secondary water recharge areas that may be susceptible to pollutant infiltration.	2	Department of Planning	CWRM Pūlama Lāna`i* United States Geological Survey (USGS)
3.02	<p>Assist in the protection and restoration of wet and dryland forests.</p> <ul style="list-style-type: none"> <li>• Develop specific actions, baseline survey maps, and key messages.</li> <li>• Increase implementation capacity and ongoing stewardship.</li> <li>• Continue efforts to control feral animals.</li> <li>• Conduct or coordinate public education and involvement events to increase community stewardship.</li> <li>• Install interpretive signage.</li> <li>• Educate shipping companies on invasive species.</li> <li>• Develop a native tree planting program and establish a nursery.</li> <li>• Re-establish a Forest and Watershed Partnership.</li> <li>• Explore permaculture methods.</li> </ul>	1, 3	Mayor's Office (Environmental Coordinator)	DLNR Pūlama Lāna`i Office of Economic Development (OED) Maui Nui Seabird Recovery Project Lāna`i Native Species Recovery Program Non-governmental organizations (NGOs) State Department of Education (DOE) Lāna`i Forest and Watershed Partnership (LFWP) Community groups
3.03	Develop a toolbox of BMPs to mitigate sediment and pollutant runoff, such as the use of green infrastructure.	5	Department of Public Works (DPW)	Department of Planning NGOs State Greenway Program
* Hereafter, references to Pūlama Lāna`i in the Action tables will include Lāna`i Resorts, LLC, assigns or relevant successors.				

### 3 | ENVIRONMENT AND NATURAL RESOURCES

No.	Action	Policy No.	Lead County Agency	Partners
3.04	Assist State agencies in developing a toolbox of BMPs for use by citizens and businesses to improve ecosystems and water quality in urban areas. Assist in providing public education, through workshops or other means, on water quality, pollution prevention, and BMPs to encourage changes in business and household practices.	3, 4, 5	Mayor's Office (Environmental Coordinator)	State Department of Health (DOH) (Clean Water Branch) DPW Department of Planning DLNR Lānaʻi Water Advisory Committee (LWAC)** Lānaʻi Water Company, Inc. (LWC)
3.05	In consultation with landowners, use the existing system of roads and trails as firebreaks and construct small water storage reservoirs for fire suppression.	1, 3	Maui Fire Department (MFD)	Pūlama Lānaʻi DLNR
3.06	Hold educational forums on the protection of coastal waters to discuss current activities, programs, or issues, such as Hawaiian Islands Humpback Whale National Marine Sanctuary, water quality, or fish farms issues.	6, 8	Mayor's Office (Environmental Coordinator)	DAR NGOs NOAA
3.07	Reduce sediment and nutrient loads from entering coastal waters by assisting landowners, upon request, to construct small-scale water retention, or bioretention, projects that control surface flows and increase aquifer recharge.	2, 5	DPW	Pūlama Lānaʻi DLNR NGOs Natural Resources Conservation Service (NRCS) USGS
** For an explanation of the authority and scope of LWAC, see Chapter 7, Section 7.1 Water, Subsection B - Lānaʻi Water Advisory Committee.				

### 3 | ENVIRONMENT AND NATURAL RESOURCES

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
3.08	Assist in conducting outreach to agricultural, ranching, and development interests on implementing BMPs to reduce herbicides and pesticides.	4, 5	OED	Mayor's Office (Environmental Coordinator) DOH (Clean Water Branch) Pūlama Lāna`i UH College of Tropical Agriculture and Human Resources (CTAHR) NRCS
3.09	Review the Special Management Area (SMA) boundary and make changes as necessary to comply with the objectives and policies defined in Section 205A-2, HRS.	3	Department of Planning	Pūlama Lāna`i Lāna`i Planning Commission
3.10	Work with federal, state, and county agencies to initiate a program that provides education and community involvement in the stewardship of coastal areas, including conducting baseline studies on coastal water quality.	6, 8	Mayor's Office (Environmental Coordinator)	DLNR DOH (Clean Water Branch)
3.11	Work with the State to develop a quarantine and inspection process for imported plant species.	1, 3, 4	Mayor's Office (Environmental Coordinator)	State Department of Agriculture (DOA) Pūlama Lāna`i
3.12	Work with Pūlama Lāna`i to establish a feral animal control program.	1, 3, 4, 7	Mayor's Office (Environmental Coordinator)	DLNR Pūlama Lāna`i Lāna`i Hunting Advisory Group

## 4 | HAZARD MITIGATION

### A. INTRODUCTION

Hazards from natural forces have been measured in Hawai'i since the early 1800s. Yet, preparation for the different types of hazards and knowledge of their associated risks is limited within the community. In 2002, the USGS published the Atlas of Natural Hazards in the Hawaiian Coastal Zone that compiled the historical trends and natural factors that influence whether a site is vulnerable to hazards. The USGS report cautions that:

...given the small size of Hawai'i State, an area that does not have a prerecorded history of a natural hazard occurrence does not preclude it from being affected in the future.<sup>11</sup>

In the USGS report, historical records provide an estimated recurrence cycle of every 23 years for a damaging tsunami reaching Moloka'i and Lāna'i. However, prior to the recent tsunamis generated by earthquakes in Chile (2010) and Japan (2011), it had been over 50 years since the last damaging tsunami hit Moloka'i in 1957. No human lives were lost from the last two tsunamis, but damage to the docks at Mānele Bay were estimated to cost between \$1.5 million to \$2 million.

Across the nation, disaster recovery workers are facing the challenge of how to build resiliency into communities. The first step to building resiliency is for people to recognize the inherent risks associated with where and how they choose to live. The community must then adopt "approaches that eliminate, reduce, mitigate, or transfer those risks in ways that make them more manageable over the long haul."<sup>12</sup>

Recent resiliency studies have found that:

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.<sup>13</sup>

Hazard mitigation plans seek to reduce the risk of natural and human created hazards on people and property. The County of Maui Multi-Hazard Mitigation Plan 2010 covers the natural hazards identified in the USGS report in addition to other hazards, including dam failure, drought, wildfire, and hazardous substances.<sup>14</sup>

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<sup>11</sup> Fletcher, Charles H., et al. (2002). *Atlas of Natural Hazards in the Hawaiian Coastal Zone* (United States Geological Survey).

<sup>12</sup> Coastal Recovery Commission of Alabama (2010). *A Roadmap to Resilience: Towards a Healthier Environment, Society and Economy for South Alabama*.

<sup>13</sup> *Ibid.*

<sup>14</sup> Martin & Chock, Inc., (2010). *County of Maui Multi-Hazard Mitigation Plan 2010* (prepared for County of Maui, Civil Defense Agency).

## 4 | HAZARD MITIGATION

### Existing Conditions

Hazardous conditions that have increased significantly over time are erosion, drought, and the risk of sea-level rise with climate change. These hazards are influenced by human activities. With Lāna`i City located at a high elevation, most of the community lives in an area relatively safe from coastal flooding and tsunami dangers. However, recreational activities take residents and visitors to the low-lying coastal areas that are susceptible to coastal flooding, coastal inundation from tsunamis and sea-level rise, and storm surge. The resort area at Mānele and the entire campground at Hulopoe are located in these inundation zones. There are two sirens on island, each with a half-mile radius for disaster warnings; one is located in Lāna`i City and the other is located above Mānele Resort. Helicopters are used to provide disaster warnings in the remote coastal areas.

As one of the most arid of the inhabited Hawaiian islands, Lāna`i is susceptible to drought conditions and wildfires. Nine out of ten wildfires are caused by people and threaten life, property, and natural resources. Lāna`i has been fortunate to experience only two wildfires in the past 27 years, but these two fires alone burned over 3,500 acres. Currently, Lāna`i City contains the island's only fire station, which is staffed with a five-person crew. There is no fire station at Mānele and only one paved access road to the area.

### B. ISSUES AND STRATEGIES

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**Issue 1:** Public awareness of disaster preparation, response, and post-disaster recovery planning is poor.

**Strategy 1:** Increasing disaster preparedness and interagency coordination will improve the community's resiliency to disasters. Improve the distribution of information on disaster preparation and response to residents and visitors.

**Issue 2:** The entire island is at high risk of wildfires.

**Strategy 2A:** The State Division of Forestry and Wildlife (DOFAW) and County Fire and Police Departments need to coordinate the community's wildfire response and evacuation plan. Distribute public information on fire prevention and evacuation routes to residents and resort employees.

**Strategy 2B:** Prepare wildfire response by maintaining fire breaks and evaluating the adequacy of the water supply for fire emergencies.

## 4 | HAZARD MITIGATION

**Issue 3:** Kaumālapa`u Harbor and Mānele Bay Resort are located in the tsunami zone.

**Strategy 3:** Prepare for disaster response by planning for the phased relocation of critical structures and long-term strategic retreat of buildings.

**Issue 4:** Sea-level rise will increase the risk of storm surge inundation affecting developments in coastal areas.

**Strategy 4:** Coordinate with State agencies to obtain information and maps on sea-level rise. Plan for a phased relocation of critical structures, long-term strategic retreat of buildings, and adequate setback for new development.

### C. GOAL, POLICIES, ACTIONS

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**GOAL** Lāna`i will be prepared for natural disasters.

#### Policies

1. Promote public education on the risks and impacts of hazards to increase community awareness and preparation.
2. Adopt approaches to risk management that eliminate, reduce, mitigate, or transfer hazard risks.
3. Encourage economic diversity, environmental health, infrastructure maintenance, and hazard preparedness to improve the community's resiliency.
4. Locate critical infrastructure outside of areas projected to become evacuation and inundation zones as sea levels continue to rise.
5. Encourage the construction of buildings capable of withstanding Category 4 hurricanes and serving as temporary emergency shelters.
6. Support the provision of adequate resources to meet the community's post-disaster needs.
7. Require shoreline developments to analyze shoreline hazards, including sea-level rise, during the entitlement and permitting process.

## 4 | HAZARD MITIGATION

### Actions

<b>Table 4.1 Hazard Mitigation Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
4.01	Establish a Lānaʻi-based community coordinator for County emergency operations. Develop a network of community volunteers to assist emergency responders. Improve disaster preparation, response time, and coordination among emergency-response agencies and the community.	1	Civil Defense Agency	American Red Cross Civil Air Patrol Department of Police (MPD)
4.02	Implement the County of Maui Multi-Hazard Mitigation Plan 2010 and subsequent updates when consistent with the community plan.	1, 2	Civil Defense Agency	MPD
4.03	Seek information on and investigate sites that could contain hazardous waste and remediate when needed.	2	Department of Environmental Management (DEM)	DOH Mayor's Office (Environmental Coordinator) Pūlama Lānaʻi
4.04	Distribute information on hazard mitigation including: <ul style="list-style-type: none"> <li>• Disaster planning, evacuation routes, formalized evacuation plans, and shelter location;</li> <li>• Steps for homeowners or businesses to strengthen and harden their buildings against disasters;</li> <li>• Fire prevention; and</li> <li>• Household and small business BMPs for the disposal of toxic and hazardous waste, including pharmaceuticals and heavy metals.</li> </ul>	1	Civil Defense Agency	MFD Mayor's Office (Environmental Coordinator)
4.05	Evaluate the need for additional shelter space capable of withstanding hurricane force winds or other natural hazards, and identify potential shelter locations. Provide sufficient back-up resources to ensure communication and emergency services are available during power outages. Evaluate the coverage of existing sirens.	3	Civil Defense Agency	

## 4 | HAZARD MITIGATION

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
4.06	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to coastal hazards, such as sea-level rise. Develop a coordinated emergency response system that includes well-defined and mapped evacuation routes. Distribute emergency response information at camping sites and through school programs.	1, 2, 4	Civil Defense Agency	Pūlama Lāna`i Four Seasons Resort DLNR DOE
4.07	Identify critical infrastructure, lifelines, roads, and structures that are vulnerable to wildfires. Develop a coordinated emergency response system that includes well-defined and mapped evacuation routes. Provide training to develop volunteer emergency response and firefighting crews. Formalize current practices on the use of heavy equipment during fires.	2	MFD	DOFAW State-trained Volunteer Fire Crew Pūlama Lāna`i Four Seasons Resort
4.08	Develop a post-disaster recovery and reconstruction plan to increase resilience.	6	Civil Defense Agency	Community Pūlama Lāna`i American Red Cross
4.09	Provide information on opportunities to participate in discussions on the impacts that climate change may have on the community. Conduct a Community Self-Assessment.	1	Civil Defense Agency	Department of Planning
4.10	Develop detailed mapping of the hazard risks and vulnerabilities assessment in the County of Maui Multi-Hazard Mitigation Plan 2010.	1	Civil Defense Agency	Department of Planning
4.11	Improve emergency notification procedures along Lāna`i's eastern coast.	3	Civil Defense Agency	MPD DLNR

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

### A. INTRODUCTION

Most of the cultural or historic resources of Lāna`i's early Hawaiian settlements and plantation era (1922-1992) remain in good to excellent condition. There may still be undiscovered Hawaiian artifacts or structures as vast areas of the island are undeveloped.

Lāna`i City symbolizes an important part of the island's history when immigrants from Asia and Europe arrived to work on the pineapple plantation. The town's plantation cottages and buildings were constructed in the 1920s along an orderly grid of streets with a central town park and shops (see Map 5.1). During World War II, two plantation era buildings, the jail and the courthouse, served as temporary internment sites.

Early archaeological surveys conducted by Kenneth Emory and the Bishop Museum in the 1920s and 1970s have partially documented the cultural artifacts and structures found throughout the island. Some of the sites documented in the surveys include massive heiau complexes at Ka`enaiki, Lōpā, Kāhe`a, and Kaunolū; sites associated with major ali`i, such as Kalani`ōpu`u at the fortified ridge of Ho`oki`o, and Kamehameha I at Kaunolū; as well as numerous small settlements including Hulopo`e, Kapiha`ā, and Kalamanui. There is also an abundance of petroglyph sites, such as Luahiwa, Kāhe`a, and Kaunolū. Luahiwa is one of Hawai`i's most important petroglyph sites with over 1,000 ancient stone carvings. The Maui County Cultural Resources Survey<sup>15</sup> revisited about half of the sites noted in the previous surveys, and found many of the sites remain in good to excellent condition.

Lāna`i's eastern coast, stretching from Maunalei to Halepalaoa along the island's windward side, is known to have significant archaeological resources and historic sites from Lāna`i's pre-western contact and sugar plantation periods. Early native Hawaiians constructed lo`i kalo (taro pond terraces) along the island's only perennial stream in Maunalei Valley, which still exist today. They also constructed loko i`a (fishponds) within sheltered coves along the coast. Lāna`i's first plantation, Maunalei Sugar Company, developed a narrow gauge railroad between Keomuku Village and Halepalaoa, and constructed a wharf at Halepalaoa. Remains of the plantation include the wharf foundation stones and Buddhist cemetery at Halepalaoa, segments of the railroad beds, remnants of the sugar mill, a church and associated cemetery at Keomuku, and numerous buried structural foundations in the former village.

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<sup>15</sup> Pacific Legacy (October 2009). *Maui County Cultural Resources Survey*.

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

### Existing Conditions

The Lānaʻi community is actively involved in protecting and restoring its cultural and historic resources. Appendix 5.1 provides a partial record of the cultural and historic sites and protection actions that were identified during the 1998 community plan process.

The Lānaʻi Culture & Heritage Center, which serves as the home for many artifacts collected on Lānaʻi, and other nonprofit organizations are active in preserving, documenting, studying, and organizing programs for cultural and historical resources. Lānaʻi Culture & Heritage Center has recently conducted an ethnographic study, traditional cultural properties study, and limited archaeological reconnaissance survey for the Kaʻā ahupuaʻa in the northwest region of the island.<sup>16</sup> Most of the sites documented were not previously described, indicating a full archaeological survey of the area is needed to adequately document sites and assess the full cultural significance of the region. Current stewardship programs are focused on preserving sites on the eastern coast and the last plantation pineapple-harvesting machine in the Palawai Basin. Recently, construction was completed that stabilized and restored the Ka Lanakila o Ka Malamalama Church at Keomuku Village on the eastern coast.

In Lānaʻi City, Dole Park remains the center of most commercial and community activities and is an important resource for residents, visitors, and Pūlama Lānaʻi. While design guidelines currently exist for the Country Town Business (B-CT) District, there is no clear strategy to protect the town's numerous historic structures. A number of historic structures, including the old firehouse and old post office, have been demolished. In 2014, a National Park Service study on World War II internment sites recognized the Lānaʻi City jail and courthouse as potentially eligible for listing as a secondary site in the National Register of Historic Places. "Secondary sites are those that were used as prisons for fewer prisoners, usually for shorter periods of time."<sup>17</sup>

Past meetings between the Lānaʻi community and Castle & Cooke Resorts, LLC (CCR) were held in an effort to support the goal of preserving the historic character of Lānaʻi City. Preservation methods that were discussed include utilizing the B-CT zoning ordinance and B-CT design guidelines, and nominating the area for designation on the National Register of Historic Places.

### Scenic Sites and Resources

Scenic views and scenic view corridors are abundant and diverse on Lānaʻi. Scenic views combine land, sky, sea, and historic structures at a variety of scales and locations, including urban, rural, agricultural, and open natural settings. Views of nature, such as the ocean, hill slopes, valleys, ridgelines, and coastlines, are abundant from the roadways that cross the island or follow the coast. The Maui County General Plan 2030 Scenic Resources Inventory and Mapping Methodology

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<sup>16</sup> Maly, Kepā and Maly, Onaona (May 2011). "Hanohano Lānaʻi - Lānaʻi is Distinguished" An Ethnography of Kaʻā Ahupuaʻa and the Island of Lānaʻi (prepared for Lānaʻi Culture & Heritage Center).

<sup>17</sup> United States Department of Interior, National Park Service (July 2014). *Honouliuli Gulch and Associated Sites Draft Special Resource Study and Environmental Assessment*.

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

provides guidance on visual quality ratings based on eleven factors.<sup>18</sup> A partial photo inventory of Lāna`i's scenic resources was conducted, and resources were mapped but not rated for resource value.

Section 2.80B.070(E)(9), MCC, requires the community plan to contain "...a list of scenic sites and resources." This chapter contains policies and actions that focus efforts to complete the inventory and rating of Lāna`i's scenic resources.

### B. ISSUES AND STRATEGIES

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**Issue 1: Lāna`i City's historic buildings are being lost to demolition or neglect.**

**Strategy 1:** Protect Lāna`i's unique small-town character and plantation heritage by supporting collaborative efforts to develop a vision and master plan for the preservation of historic resources in Lāna`i City. Explore various methods of preservation, including use of the B-CT zoning ordinance and design guidelines, or nominations to National or State historic registers, particularly for the jail and courthouse for their significance to World War II internment history.

**Issue 2: Cultural and archaeological sites are vulnerable to destruction, theft, and environmental degradation.**

**Strategy 2:** Prioritize areas for protection, preservation, and restoration based on new and completed inventories, studies, and mapping that identify areas of high concentration of cultural significance or historical structures.

**Issue 3: Cultural and environmental degradation affects the ability of contemporary practitioners of Hawaiian culture to exercise their traditional practices, including subsistence gathering.**

**Strategy 3:** Revive traditional resource management practices and local stewardship to protect or restore cultural and natural resources that are essential to traditional Hawaiian cultural practices. Community place-based traditional resource management, such as ahupua`a, can be combined with other resource management practices and regulations to build community stewardship and ensure the continuation of traditional and subsistence practices.

**Issue 4: Scenic resources are vulnerable when not identified.**

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<sup>18</sup> Chris Hart & Partners, Inc. (June 2006). *Maui County General Plan 2030 Scenic Resources Inventory & Mapping Methodology* (prepared for County of Maui, Department of Planning, Long-Range Planning Division).

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

Strategy 4: Integrate scenic resources into mapping and protection efforts for historic and cultural resources. The community can identify viewsheds that are vulnerable to impacts from development.

### C. GOAL, POLICIES, AND ACTIONS

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**GOAL** Lāna`i's diverse cultural, archaeological, and historic resources and practices, and scenic resources will be protected for future generations.

#### **Policies**

1. Protect Lāna`i City's historically significant buildings, plantation era design, and plantation cultural resources.
2. Protect all of Lāna`i's significant archaeological sites, and historic and cultural resources.
3. Support the current list, and the addition of sites, of significant historic properties on the State and National Register of Historic Places, particularly for the jail and courthouse.
4. Support all Lāna`i-based organizations' cultural and historic education, restoration, and stewardship events, and ongoing maintenance of sites.
5. Support the protection and preservation of Lāna`i's historic and cultural resources through controlled, informed, and guided access to historic, archaeological, and culturally important sites.
6. Support and maintain the Lāna`i Archaeological Committee (LAC).
7. Support access for subsistence hunting, fishing, and gathering.
8. Support the protection of native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with Article XII, Section 7, Hawai`i State Constitution, and Hawai`i law.
9. Require developments to mitigate their impacts on historic, cultural, natural, and scenic resources.
10. Protect scenic roadway views and significant view corridors and viewsheds. Protect significant views of ridgelines and hill-slopes to maintain open space scenic character.
11. Increase community awareness, appreciation, and stewardship of Lāna`i's historic and cultural resources.

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

12. Support the development of a comprehensive archaeological survey for the Ka`ā ahupua`a.

### Actions

No.	Action	Policy No.	Lead County Agency	Partners
5.01	Facilitate community meetings to determine the best methods for protecting and preserving the historic character of Lāna`i. <ul style="list-style-type: none"> <li>Educate and assist property owners on the benefits of and process for historic designation.</li> <li>Evaluate use of the B-CT zoning ordinance and design guidelines.</li> </ul>	1, 3, 9, 11	Department of Planning	LAC Lāna`i Culture & Heritage Center Pūlama Lāna`i
5.02	Develop a comprehensive cultural resource protection plan for Lāna`i.	1, 2, 4, 5, 8, 9	Department of Planning	LAC NGOs Lāna`i Culture & Heritage Center Pūlama Lāna`i Cultural Resources Commission Maui Lāna`i Islands Burial Council
5.03	Assist with developing of a comprehensive cultural resource protection plan for the eastern coast. Conduct a feasibility study for the restoration of the Federation Camp and fisherman shacks. Conduct study for Maunalei Gulch.	2, 4, 5, 8, 9	Department of Planning	Pūlama Lāna`i NGOs Lāna`i Culture & Heritage Center Cultural Resources Commission Maui Lāna`i Islands Burial Council
5.04	Identify and inventory old plantation camps.	1, 2, 3	Department of Planning	NGOs Lāna`i Culture & Heritage Center
5.05	Provide assistance to landowner to restore and preserve the Brown House (Social Hall) for continued community use.	1, 3	Department of Planning	NGOs Lāna`i Culture & Heritage Center Pūlama Lāna`i

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
5.06	Provide educational materials, websites, events, and visitor brochures to educate and involve the community and visitors with Lānaʻi's history, cultural resources, and cultural practices. Support cultural and historical festivals at Dole Park.	1, 2, 3, 4, 5, 9, 11	OED	Lānaʻi Culture & Heritage Center Uhane Pohaku Na Moku O Hawaiʻi, Inc. Lānaʻi Community Association Lānaʻi Chamber of Commerce NGOs LAC Pūlama Lānaʻi Four Seasons Resort Department of Planning
5.07	Promote and include visitors and community members in public involvement events and restoration projects.	4, 11	OED	LAC NGOs Lānaʻi Culture & Heritage Center Pūlama Lānaʻi Four Seasons Resort
5.08	Increase support of all Lānaʻi-based nonprofit organizations seeking additional funding sources for community stewardship.	4	OED	LAC NGOs Lānaʻi Culture & Heritage Center Pūlama Lānaʻi Department of Planning
5.09	Investigate and encourage the nomination of historic sites and structures to the State and National Register of Historic Places.	1, 3, 4	Department of Planning	Lānaʻi Culture & Heritage Center LAC Pūlama Lānaʻi Cultural Resources Commission Maui Lānaʻi Islands Burial Council
5.10	Provide assistance to landowners, upon request, to nominate the jail, courthouse, or other structures to the National Register of Historic Places.	3	Department of Planning	Lānaʻi Culture & Heritage Center LAC Pūlama Lānaʻi

## 5 | CULTURAL, HISTORIC, AND SCENIC RESOURCES

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
5.11	Collaborate with State and community groups to implement an ahupua`a/moku-based natural and cultural resources management system to protect sensitive cultural sites, trails, and landscapes.	2, 4, 5, 6, 7, 8, 9, 11	Mayor's Office (Environmental Coordinator)	DLNR (Nā Ala Hele Trail and Access System) NGOs LAC Lāna`i Culture & Heritage Center Pūlama Lāna`i Cultural Resources Commission Maui Lāna`i Islands Burial Council
5.12	Provide assistance to landowner to protect all petroglyphs from human disturbance and hillside erosion.	2, 4, 5, 12	Department of Planning	LAC NGOs Lāna`i Culture & Heritage Center Pūlama Lāna`i
5.13	Complete a visual inventory and analysis of key scenic corridors and viewsheds. Develop BMPs for development to protect identified priority view corridors or viewsheds. Provide education on Lāna`i scenic BMPs.	9, 10	Department of Planning	NGOs Lāna`i Culture & Heritage Center

## 6 | ECONOMIC DEVELOPMENT

### A. INTRODUCTION

Lāna`i faces a number of unique challenges that require thoughtful collaboration between the County, the major landowner, the community, and the State. The island's greatest economic challenge is developing a sustainable economic strategy that supports the island's population while also preserving its close-knit sense of community and natural, cultural, and historic resources.

#### Background

In 1922, James Dole's Hawaiian Pineapple Company purchased the island of Lāna`i and developed thousands of agricultural acres into what would at the time become the world's largest pineapple plantation. The plantation supported a vast majority of the island's workforce for over 50 years. However, in the 1980s and 1990s, stiff competition from producers in Latin America and the Philippines brought declining profitability to the pineapple industry.

David Murdock purchased 98 percent of the island in 1985 and shifted the economic model to luxury tourism and real estate sales with the opening of the Lodge at Kō`ele in 1990 and the Mānele Bay Hotel one year later. By the last pineapple harvest in 1992, many of Lāna`i's workers had transitioned from plantation to visitor-industry employment. Some were unable to make the transition and moved off island.

In 2012, Murdock sold most of his holdings on Lāna`i to Larry Ellison, Oracle Corporation founder and Chief Executive Officer (CEO). After the purchase, Ellison established a new management company, Pūlama Lāna`i.

#### Existing Conditions

The State of Hawai`i faces a unique set of economic challenges, including:

- Limited local market capacity and competition from its small, isolated population.
- Higher costs and limited product transportation options creating barriers to market entry.
- Heavy dependence on the tourism industry, resulting in a high concentration of low-wage jobs and vulnerability to economic cycles.
- Over-reliance on fossil-fuel based imports for transportation of people, food, and materials, as well as electricity generation.

The economic challenges on Lāna`i are exacerbated by a heavy dependence on luxury resort tourism, a very limited water supply, higher energy and transportation costs, and a very small population.

Lāna`i has few options for low-cost visitor accommodations. The choices are between the eleven-room Hotel Lāna`i and a small number of bed and breakfast (B&B) homes. In addition,

## 6 | ECONOMIC DEVELOPMENT

because most of the island's real estate is controlled by a single entity, residents and entrepreneurs have limited opportunities to purchase their own residential, commercial, or industrial property.

The island's two luxury resort hotels and associated real estate ventures have not achieved their anticipated occupancy and sales volume. The development of the Kō`ele and Mānele PDs is incomplete, only having been built to half of their original size, with only 10 percent of the entitled resort housing units sold. The recession of 2007 to 2009 hit Lāna`i's economy hard. The island's largest employers, Castle & Cooke Resorts, LLC, and resort management firm, Four Seasons Resort, laid off a substantial number of workers. The significant loss of jobs forced many Lāna`i residents to leave the island in search of other employment options.

Limited airline service to Lāna`i makes ferry transport far more important than on other islands. Flight delays and cancellations have become recurring problems, and airline fares have consistently been among the highest in the state. Many of these problems stem from the limited capacity of the Lāna`i Airport to accommodate larger planes. Larry Ellison's purchase of Island Air and proposed purchase of go! Airlines in 2013 were efforts to improve the island's air travel and transport service.

Since the 2012 change in ownership of the island, the new owner has presented preliminary plans to address economic diversification through strategic infrastructure investments such as airport enhancements, harbor improvements, and expansion of support facilities. Pūlama Lāna`i plans to develop water desalination facilities to improve water management and increase available daily fresh water from the current four million gallons (MG) to ten MG. The company also intends to develop additional solar power generation capacity and implement smart grid technology to enhance the electrical grid's efficiency.

Pūlama Lāna`i also plans to enhance the offerings at its resort properties. In June 2013, it requested County approval of a \$27 million makeover of its Mānele Bay resort. The company is also considering building a third resort at Halepalaoa. Pūlama Lāna`i would like to foster the growth of small businesses by providing support in key areas, such as marketing and human resources, and by expanding the amount of commercial and industrial space available for lease and for sale. In 2013, the company pledged to match the County's Small Business Revitalization Grant Program, which supports local companies with fewer than 10 employees. In addition, the company has proposed creating a robust education sector by building a world-class research institute to study sustainability, and by improving K-12 education.

## 6 | ECONOMIC DEVELOPMENT

### B. ISSUES AND STRATEGIES

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- Issue 1:** Lāna`i's economy is too reliant on one industry - luxury tourism.
- Strategy 1A: Diversify Lāna`i's economy by attracting and developing new industries, providing appropriate infrastructure, and increasing the supply of commercial and industrial spaces.
- Strategy 1B: Support business management, financial literacy, and community economic development education for prospective entrepreneurs and small business owners.
- Strategy 1C: Promote the identification of untapped agricultural niche markets and value-added products to support the growth of small-scale agriculture.
- Issue 2:** Tourism accommodations and activities are primarily targeted towards the luxury market.
- Strategy 2: Encourage the development of a greater variety of accommodations, activities, and marketing efforts aimed at a broad range of tourist markets to increase visitor options and foster small business expansion and development.
- Issue 3:** Limited and expensive transportation options contribute to the high cost of goods and services and the low number of visitors to the island.
- Strategy 3: Advocate for improved passenger and cargo service to and from Lāna`i via airline and ferry.
- Issue 4:** Limited pool of qualified and trained workers on Lāna`i limits local employment potential and makes recruitment of new businesses more challenging.
- Strategy 4: Support workforce training and educational programs in order to develop an ample pool of well qualified workers.

## 6 | ECONOMIC DEVELOPMENT

### C. GOAL, POLICIES, ACTIONS

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**GOAL** A stable, sustainable, and diverse economy that is consistent and compatible with Lāna`i's rural island lifestyle.

#### **Policies**

1. Support diversification of Lāna`i's economy.
2. Support improvements in education and training programs at all levels to ensure a well-educated and well-trained workforce.
3. Support the development of scalable sustainable agriculture and value-added products.
4. Support small business assistance and training programs.
5. Support the growth of kama`āina tourism, cultural tourism, eco-tourism, agri-tourism, sports tourism, hunting tourism, and other alternative tourism ventures.
6. Support the growth of permitted B&Bs, small inns, guest houses, and other alternative lodging units.
7. Advocate for Lāna`i's interests with shippers, airlines, and regulators.
8. Encourage and support lease and fee simple land ownership options for residential, commercial, and industrial properties.
9. Support community education and business development by developing state-of-the-art information and communication technology infrastructure.

## 6 | ECONOMIC DEVELOPMENT

### Actions

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
6.01	Create an economic development position, specializing in rural communities, to address Lāna`i's economic development challenges and opportunities.	1, 2, 3, 4, 5, 7	OED	Lāna`i Changes Maui Economic Opportunity, Inc. (MEO)
6.02	Identify, target, and recruit new industries and businesses, such as TV and film production and post-production, agricultural operations, aquaculture, and information technology.	1,3,4, 8	OED	MEO Pūlama Lāna`i
6.03	Cultivate entrepreneurship through small business training and loan programs; partner with MEO's Small Business Development Program to provide workforce development and business education workshops on Lāna`i.	1, 2, 4	OED	UH Hawaii Maui College (UHMC) Pūlama Lāna`i MEO
6.04	Develop a tourism strategic plan to guide the diversification of Lāna`i's tourism sector.	1, 5, 6	OED	Maui Visitors Bureau (Lāna`i Chapter) Pūlama Lāna`i
6.05	Assess alternative shipping options, including utilizing the ferry as a small cargo carrier between Maui and Lāna`i.	5, 7	OED	Expeditions and other future ferry operators.
6.06	Work with inter-island airlines to keep airfares affordable and service frequency adequate to accommodate the needs of Lāna`i visitors, residents, and businesses.	7	OED	Island Air Hawaiian Air Mokulele Air Cargo carriers
6.07	Work with inter-island shippers and the Public Utilities Commission to keep shipping costs affordable and service frequency adequate.	7	OED	Public Utilities Commission Expeditions Young Brothers
6.08	Work with the State Department of Transportation (HDOT) to implement improvements at Kaumālapa`u Harbor and Mānele Small Boat Harbor (MSBH).	1, 7	OED	HDOT DLNR
6.09	Work with the HDOT to expedite enhancement and improvement of the airport.	7	OED	HDOT Pūlama Lāna`i

## 6 | ECONOMIC DEVELOPMENT

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
6.10	Develop an agriculture strategic plan for Lānaʻi, focusing on both larger agri-businesses and small farms.	1, 3, 4	OED	CTAHR
6.11	Provide business courses to farm owners and agricultural entrepreneurs; educate them about state and federal loan and grant opportunities.	3, 4	OED	DOA United States Department of Agricultural (USDA) (Farm Service Agency)
6.12	Establish agricultural education and vocational programs at the community college and high school.	2, 3, 4	OED	UHMC DOE Hawaiʻi Future Farmers of America Foundation (FFA) 4-H
6.13	Identify funding sources for Lānaʻi's community-development organizations.	1, 4	OED	Lānaʻi Changes MEO

## 7 | INFRASTRUCTURE AND UTILITIES

### A. INTRODUCTION

The infrastructure and public services on the island are a mixture of publicly and privately owned facilities. The major landowner owns and operates the island's water utility company, Lāna`i Water Company, Inc. (LWC), a wastewater treatment facility and pump stations at Mānele, and a tertiary wastewater treatment facility in Lāna`i City. The County operates the Lāna`i City Wastewater Treatment Facility (WWTF) and provides public services such as police, fire protection, and parks and recreation. Maui Electric Company, Limited (MECO), owns and operates the major electric power plant. Pūlama Lāna`i owns and operates the solar photovoltaic (PV) farm. Most major paved roads on the island are under either County or State jurisdiction. The Airports Division of HDOT operates the Lāna`i Airport, while the Harbors Division operates Kaumālapa`u Harbor. The DLNR's Division of Boating and Ocean Recreation (DOBOR) operates the MSBH (see Table 7.1).

Even though these infrastructure systems are owned and operated by a mix of public and private entities, it is important to understand human habitation and settlement on the island depends on all these facilities functioning together. Creating a more sustainable future for the island requires some systems to be reconsidered; that is, it will be necessary to think about how to create green infrastructure, how to make some systems perform double duties, and how to use and restore natural systems where possible.

## 7 | INFRASTRUCTURE AND UTILITIES

<b>Table 7.1 Infrastructure and Ownership</b>		
<b>System / Service</b>	<b>Facilities</b>	<b>Ownership</b>
Water	Water system (wells, pumps, transmission, etc.)	LWC
Wastewater	Lāna`i City WWTF Lāna`i City Auxiliary WWTF Mānele WWTF	DEM LWC LWC
Solid waste	County landfill Solid waste hauling	DEM DEM and private haulers
Recycling	Miki Basin	Maui Disposal
Energy	Power plant Lā Ola Solar Farm	MECO Pūlama Lāna`i
Transportation – Air	Lāna`i Airport	HDOT (Airports)
Transportation – Sea	Kaumālapa`u Harbor MSBH	HDOT (Harbors) DLNR (DOBOR)
Transportation – Highways	Kaumālapa`u Highway Mānele Road	HDOT (Highways) HDOT (Highways)
Transportation – Streets	Lāna`i City	DPW Pūlama Lāna`i
Transportation – Dirt roads and trails		Pūlama Lāna`i
Stormwater drainage	Mānele Kō`ele Lāna`i City	Pūlama Lāna`i Pūlama Lāna`i DPW
Telecommunications	Telephone and cellular phone Cable Internet	Multiple providers Multiple providers Multiple providers

# 7 | INFRASTRUCTURE AND UTILITIES

## 7.1 WATER

### A. EXISTING CONDITIONS

Lānaʻi has only one aquifer that is divided into two sub-aquifers: Leeward and Windward. Each has a sustainable yield of three million gallons per day (MGD), for a total island sustainable yield of six MGD. As of 2013, metered pumpage totaled approximately 1.8 MGD. Although the 1.8 MGD represents approximately 30 percent of the total sustainable yield, most of the 1.8 MG comes from the Leeward sub-aquifer. Hydrologists have cautioned against this practice and instead recommend increased redundancy by spreading the pumpage throughout both sub-aquifers. The Mānele PD uses approximately 1.0 MGD, or about 66 percent, of the total water used.<sup>19</sup>

The Lānaʻi CPAC predicated their decisions on the availability of significant additional water sources for future development proposals.

### B. LĀNAʻI WATER ADVISORY COMMITTEE.

The Lānaʻi Water Advisory Committee (LWAC) was established pursuant to Resolution No. 05 (1999) of the County of Maui Board of Water Supply (BWS) with the purpose and intent “to provide public input and involvement during the development of the Lānaʻi Water Use and Development Plan (WUDP) and to monitor the Lānaʻi WUDP implementation.” The WUDP was adopted by Ordinance 3885 (2011). Under the BWS resolution, LWAC was to “remain in existence until otherwise determined by the Board by subsequent resolution.” As a result of a Charter amendment in 2002, the County Council has authority to determine the existence, duties, and authority of LWAC. To date, the County Council has not acted to replace, supersede, or modify the BWS resolution. In 2012, a bill to reestablish the LWAC as advisory to the Lānaʻi Planning Commission was considered by the County Council, but recommitted to the Water Resources Committee, where it remains pending.

### B. ISSUES AND STRATEGIES

- 
- Issue 1:**            **Degradation of the Lānaʻihale forest ecosystem is likely to adversely affect groundwater recharge and decrease the sustainable yield of the aquifer.**
- Issue 2:**            **Overpumping of any well can alter the quality and production of the well. In addition, water quality can be negatively affected by nonpoint source pollutants that infiltrate the aquifer through the ground.**

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<sup>19</sup> *Lānaʻi Island Water Use & Development Plan, Ordinance 3885 (2011).*

## 7 | INFRASTRUCTURE AND UTILITIES

Strategies 1 and 2: Protect the Lāna`ihale watershed, groundwater, and aquifers through: 1) programmatic measures, 2) Federal, State, and County regulatory requirements and 3) community involvement and education. Clearly identify recharge areas that are highly susceptible to pollution.

**Issue 3: Much of the original water infrastructure from the 1920s – 1950s has not been significantly improved, resulting in water loss that is higher than industry-accepted standards.**

Strategy 3: Although the water purveyor has decreased leakage over the past few years, continued leak detection and remediation are essential to conserving water resources. Continue the LWC's leak detection program and identify areas of needed repair and program improvement.

**Issue 4: Lāna`i's water resources will be insufficient as development in Kō`ele and Mānele and the expansion of Lāna`i City increase the island's water demands.**

Strategy 4: Continued conservation and water efficiency measures are needed to address water demand.

**Issue 5: Based on the WUDP, build-out of the island requires existing groundwater source to be supplemented by alternative sources that are not from the Lāna`i high-level aquifer system.**

Strategy 5: Continue the development of alternative water sources, such as desalination. Continue planning and design to direct the development of an alternative water source that will be used to supplement the existing high-level aquifer water source.

## 7 | INFRASTRUCTURE AND UTILITIES

### C. GOAL, ISSUES, STRATEGIES

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**Goal** Lāna`i will have a sufficient supply of potable and non-potable water provided in an environmentally sustainable and cost-effective manner.

#### **Policies**

1. Improve the long-term efficiency, reliability, and capacity of the island's water infrastructure.
2. Work with CWRM, landowner(s), and LWAC or a committee of Lāna`i residents sanctioned by the County, to ensure that water resource management is based on BMPs.
3. Support the implementation and monitoring of the WUDP by LWAC, or a committee of Lāna`i residents sanctioned by the County, in collaboration with the water purveyor and regulatory agencies that have responsibility over Lāna`i's water.
4. Support the provisions under "Land Use Entitlements" of the WUDP by deferring additional or incremental discretionary entitlements pending careful consideration of the adequacy of long-term water supply sources and infrastructure.
5. Protect the long-term health of the Lāna`ihale watershed for groundwater recharge.
6. Encourage and improve data exchange and coordination among Federal, State, County, LWAC or a committee of Lāna`i residents sanctioned by the County, and private land use planning and water resource management agencies.
7. Ensure the repair, replacement, or removal of aging, damaged, and leaking water infrastructure occurs in an efficient and timely manner.
8. Encourage water conservation through demand-side management measures by using education, incentives, and regulations.
9. Support the planning, design, and development of an alternative water source that will supplement the existing high-level aquifer while protecting the integrity of the high-level aquifer.
10. Support the use of recycled water for irrigation and prohibit the use of potable water for golf course irrigation.
11. Support the development, adoption, and implementation of a wellhead protection strategy and ordinance for potable water distribution systems.
12. Discourage the removal of plant material necessary for water recharge. Plant material necessary for water recharge should not be used as a source of landscape planting materials.

# 7 | INFRASTRUCTURE AND UTILITIES

## Actions

<b>Table 7.2 Infrastructure – Water Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead Entity</b>	<b>Partners</b>
7.01	Update the WUDP demand analysis to account for new growth areas. Monitor and implement the updated WUDP.	3, 4	Pūlama Lāna`i*	CWRM LWC LWAC DLNR NGOs
7.02	Develop and implement a comprehensive watershed protection plan that would plant more trees and foliage on Lāna`ihale and other areas to maximize fog drip and recharge the aquifer.	3, 5	Pūlama Lāna`i	CWRM DLNR NOAA USFWS LFWP LWAC NGOs
7.03	Develop and continue to support public and quasi-public partnerships to protect and restore the island's watershed and maximize aquifer recharge.	2, 5, 6	Pūlama Lāna`i	CWRM LWC LFWP LWAC DLNR NGOs
7.04	Evaluate the status of available water resources on the island, if CWRM identifies major flaws in the monthly water status reports.	1, 3	Pūlama Lāna`i	CWRM LWC LWAC NGOs
7.05	Develop and implement a water rate structure that encourages conservation.	1, 8	Pūlama Lāna`i	CWRM LWC
7.06	Continue to improve landscape planting and irrigation guidelines that encourage drought-tolerant plants and water-conserving irrigation systems.	1, 8, 10	Pūlama Lāna`i	LWC LWAC NGOs
7.07	Continue to implement leak detection and repair programs.	1, 7	Pūlama Lāna`i	LWC
*Hereafter, references to Pūlama Lāna`i in the Action tables will include Lāna`i Resorts, LLC, and its relevant successors and assigns.				

## 7 | INFRASTRUCTURE AND UTILITIES

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead Agency</b>	<b>Partners</b>
7.08	Cover the 15 MG brackish reservoir to reduce evaporation by the end of June 2017.	1, 3, 7	Pūlama Lāna`i	LWC
7.09	Implement demand-side water conservation management through education, initiatives, and regulations.	8	Pūlama Lāna`i	LWC LWAC NGOs
7.10	Continue planning, exploring, testing, and developing alternative water resources, such as a desalination plant.	9	Pūlama Lāna`i	LWC LWAC NGOs
7.11	Prohibit the use of high-level aquifer water for golf course irrigation purposes, consistent with the Water Use and Development Plan for Lāna`i and as provided for by law.	10	Pūlama Lāna`i	LWC LWAC NGOs

## 7 | INFRASTRUCTURE AND UTILITIES

### 7.2 WASTEWATER

#### A. EXISTING CONDITIONS

Wastewater collection and treatment is managed on Lānaʻi by both the DEM's Wastewater Reclamation Division, and Pūlama Lānaʻi. The majority of wastewater generated in Lānaʻi City and the Kōʻele PD is conveyed through gravity pipelines to the County-owned and operated WWTF. There are, however, a few subdivisions in Lānaʻi City that require a small pump station. These pump stations are owned and operated by Pūlama Lānaʻi. The treated effluent from the County WWTF then flows to the Pūlama Lānaʻi Auxiliary WWTF where the wastewater is further treated (recycled) to meet the R-1 water standard. Recycled water is stored in a 10 MG reservoir and eventually pumped to the Experience at Kōʻele golf course and used for irrigation purposes.

The County WWTF has a design capacity of 500,000 gallons per day (GPD). In 2012, the facility processed approximately 302,000 GPD of wastewater, or 60 percent of capacity. In 2009, the County performed an inspection of the high capacity sewer pipes with higher failure potential. The inspection revealed that the sewer collection system was mostly in satisfactory condition. The Pūlama Lānaʻi Auxiliary WWTF in Lānaʻi City has a design capacity of 400,000 GPD and current wastewater flow is approximately 245,000 GPD, or 61 percent of capacity.

Pūlama Lānaʻi owns and operates the Mānele WWTF that services the Four Seasons Resort at Mānele Bay, the MSBH, and the Mānele PD. This treatment facility has a design capacity of 140,000 GPD and current flow is 77,281 GPD, or 55 percent of capacity. Wastewater is processed into R-1 water and used to irrigate the Challenge at Mānele golf course.

There are no major injection wells on Lānaʻi. Some properties in Lānaʻi City, above Hotel Lānaʻi and below the new houses at Kōʻele, are served by individual wastewater systems.

# 7 | INFRASTRUCTURE AND UTILITIES

## B. ISSUES AND STRATEGIES

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**Issue 1:** If actual growth exceeds 2030 projections, the Lānaʻi City WWTF will have insufficient wastewater treatment capacity in the near future.

**Strategy 1:** Monitor growth on the island and prepare a facilities plan when seventy-five percent of capacity of the WWTFs is reached, pursuant to DOH guidelines. Relocate the WWTFs, if necessary.

**Issue 2:** Wastewater treatment plants are expensive to build and expand.

**Strategy 2:** Explore options for wastewater treatment system technologies that will minimize cost and energy use, while limiting odor generation. Maximize recycled water by treating all wastewater to the R-1 water standard.

**Issue 3:** Lānaʻi's limited resource of potable water is being used for purposes that do not require potable water, such as flushing toilets and home garden irrigation.

**Strategy 3A:** Explore options for permitting use of non-potable water (brackish water or household graywater) for flushing household toilets and home garden irrigation, provided any system meets County and State safety standards.

**Strategy 3B:** Promote the conservation of potable water by residents, hotels, and golf courses.

## C. GOAL, POLICIES, ACTIONS

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**GOAL** An efficient, effective, and environmentally sound wastewater system that meets the population's needs.

### **Policies**

1. Provide a sustainable and sufficient level of wastewater service that complies with environmental regulations.
2. Improve and upgrade Lānaʻi's existing wastewater collection, treatment, and reuse facilities when warranted, consistent with current and future plans, and the County's capital improvement projects schedule.

## 7 | INFRASTRUCTURE AND UTILITIES

3. Encourage a water conservation ethic that supports wastewater reclamation, utilization of alternative resources, conservation, and reuse technologies. Wastewater treatment to the R-1 water standard will continue to be used regardless of the addition of water resources from desalination.

### Actions

<b>Table 7.3 Infrastructure – Wastewater Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
7.12	Coordinate with the landowner to develop a comprehensive wastewater functional plan for Lāna`i that addresses the long-term goals for maintenance and upgrading of facilities.	1	DEM	Lāna`i Utilities Pūlama Lāna`i
7.13	Maintain an ongoing sewer inspection program for public and private multi-user systems to identify potential problems and forecast each system's residual life.	1	DEM	Lāna`i Utilities Pūlama Lāna`i
7.14	Coordinate with the landowner to regularly update and implement the County's wastewater reuse plans.	1	DEM	Lāna`i Utilities Pūlama Lāna`i
7.15	Work with the State to develop code and regulation changes to allow graywater reuse systems for home garden irrigation and toilet flushing as long as the system meets County and State safety standards. Provide educational materials to encourage residential use.	1, 2, 3	DPW (Development Services Administration (DSA)) DEM	DOH
7.16	Study options for using biological sanitation treatment systems.	1	DEM	Lāna`i Utilities Pūlama Lāna`i
7.17	Relocate the Lāna`i City WWTF if necessary because of the Lāna`i City Expansion.	2	DEM	Lāna`i Utilities Pūlama Lāna`i

# 7 | INFRASTRUCTURE AND UTILITIES

## 7.3 SOLID WASTE

### A. EXISTING CONDITIONS<sup>20</sup>

The existing County landfill occupies about 20 acres of a 36-acre parcel and is located four miles south of Lānaʻi City, between Kaumālapaʻu Highway and the Kalamaikei Gulch at an elevation of about 850-1,020 feet. The landfill has been operating since 1969. As a small landfill in an arid area, it was developed without a liner and leachate collection and removal. County employees divert both inert material and green waste from the materials brought to the landfill. The green waste is collected in a dedicated area where its volume is reduced before it is used for slope stabilization.

The landfill receives about 14 tons of solid waste per day and is forecasted to reach capacity by 2029. The DEM updated its Integrated Solid Waste Management Plan in 2007-2009 which assessed options for expanding the landfill or shipping solid waste off island in containers.

Private haulers bring 64 percent, County crews 19 percent, and self-haulers 17 percent of the waste to the landfill. County crews collect waste from 640 homes, out of the 1,300 homes on the island. For the past four years, the Community Work Day Program and DEM's Abandoned Vehicles Office have held three to four collection events each year for scrap metal, white goods (refrigerators, stoves, freezers, washing machines, etc.), tires, and batteries at the Lānaʻi recycling center.

The pilot recycling center, located behind Pūlama Lānaʻi's central services offices in Lānaʻi City, will be moving to Miki Basin at a future date.

### B. ISSUES AND STRATEGIES

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**Issue 1:** Too much solid waste is being sent to the landfill.

Strategy 1A: Improve solid waste diversion by encouraging increased recycling, reuse, and reduction.

Strategy 1B: Expand recycling facilities and programs.

**Issue 2:** The landfill is nearing capacity; the estimated lifespan is now fourteen years from 2016 to 2029.

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<sup>20</sup> Information in this section is from the County's *Integrated Solid Waste Management Plan, February 17, 2009*.

## 7 | INFRASTRUCTURE AND UTILITIES

**Strategy 2:** Implement the recommendations of the County's Integrated Solid Waste Management Plan, including assessing options to either expand the landfill utilizing alternative technologies that would extend its life, or shipping solid waste off island.

**Issue 3:** **There are no facilities for scrapping vehicles, machinery, metal, household hazardous waste, white goods, and bulky goods.**

**Strategy 3:** Continue to develop periodic events for the collection of specialty waste materials and provide pick up by appointment for bulky waste and white goods, with storage until collection event.

### C. GOAL, POLICIES, AND ACTIONS

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**GOAL**      **Efficient, environmentally sound, and comprehensive solid waste management that aids residents and businesses on Lāna`i to effectively reduce, reuse, and recycle as much as possible.**

#### **Policies**

1. Reduce the amount of solid waste that is sent to the landfill through effective waste reduction and recycling programs.
2. Support cost effective, environmentally sustainable solutions to the landfill, which is reaching its capacity.
3. Support implementation of the County's Integrated Solid Waste Management Plan.
4. Support increased recycling by commercial and residential customers, including bulky, hazardous, and metal waste materials.
5. Support the development of an efficient and cost effective mechanism to deal with obsolete and abandoned vehicles, machinery, and appliances.
6. Explore options for creating energy from waste.
7. Ensure that all solid waste and recycling facilities are landscaped and well maintained.
8. Ensure that leachate from landfill sites, either expanded or new, does not degrade soil or pollute ground, surface, or coastal waters.

## 7 | INFRASTRUCTURE AND UTILITIES

### Actions

Table 7.4 Infrastructure – Solid Waste Actions				
No.	Action	Policy No.	Lead County Agency	Partners
7.18	Provide information on what can be recycled, where facilities are located, and when facilities are operated (hours and days). Develop and distribute educational materials to residents and businesses to encourage reduction, reuse, and recycling efforts. Expand recycling options.	1	DEM	Pūlama Lāna`i
7.19	Develop a cost-effective, environmentally sustainable solution to the landfill, which is nearing capacity.	2, 3, 4	DEM	Pūlama Lāna`i
7.20	Conduct an educational program to discourage residents and tourists from dumping garbage, cars, and machinery in remote locations and locations other than the landfill or appropriate recycling sites.	4, 5	DEM	Pūlama Lāna`i
7.21	Develop regular programs for collection of hazardous, bulky, and metal waste, including vehicles, machinery, and appliances.	4, 5	DEM	Pūlama Lāna`i
7.22	Study options for waste-to-energy through different technologies, such as small, ultra-high temperature incinerators.	6	DEM	Pūlama Lāna`i
7.23	Provide funding to DEM's Solid Waste Division for the proper landscaping and maintenance of solid waste facilities and surrounding environment, including leachate management.	7	Department of Finance DEM	Pūlama Lāna`i

## 7 | INFRASTRUCTURE AND UTILITIES

### 7.4 ENERGY

#### A. EXISTING CONDITIONS

According to Hawaiian Electric Company, Inc. (HECO), the cost to produce power in Hawai'i is higher than on the U.S. mainland for the following reasons: 1) Hawai'i's power systems are designed to include back-up emergency infrastructure facilities needed to address emergency situations; 2) there are no economies of scale in Hawai'i's market due to the relatively small population base; 3) the use of imported crude oil needed to fuel the power generators makes Hawai'i vulnerable to global crude oil price fluctuations; and 4) being an island state, other raw materials that might be used to power the plants are unavailable. In 2013, the average residential rate was 46.61 cents per kilowatt hour on Lāna`i, 46.13 cents per kilowatt hour on Moloka`i, and 38.71 cents per kilowatt hour on Maui. Business rates were also highest on Lāna`i, except that the small power user rate was highest on Moloka`i.

The power plant and associated power distribution components on Lāna`i are owned and operated by MECO, a subsidiary of HECO. The majority of the electrical loads are attributed to the large resorts (the Lodge at Kō`ele and Mānele Bay), the water well pumps, and Lāna`i City. Power production capacity on Lāna`i is approximately 10.4 megawatts (MW), with two 2.2 MW diesel generators that typically run in a master-slave configuration, and six 1.0 MW diesel powered generators that operate during peak power demand times. In 2008, the former majority landowner installed a 1.2 MW solar PV farm. The PV facility was purchased by Pūlama Lāna`i as part of the island purchase agreement. The average daily electrical load on Lāna`i is approximately 4.5 MW; with an average peak load of approximately 5.4 MW and a minimum load of 2.1 MW.

Since 2008, the State has supported the Hawai`i Clean Energy Initiative, which calls for 70 percent clean energy by 2030, with 40 percent coming from renewable energy and 30 percent coming from energy efficiency. This support, along with Pūlama Lāna`i's stated goal to develop Lāna`i as a model of island sustainability, will require changes in how electricity is generated and distributed on the island, while creating the impetus for conservation and improvements in efficiency, and decreasing the reliance on petroleum-to-fuel vehicles. New technologies, such as smart grid and smart meter systems, should be explored along with additional sources of renewable energy generation.

# 7 | INFRASTRUCTURE AND UTILITIES

## B. ISSUES AND STRATEGIES

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**Issue 1:** Lāna`i has the highest electricity rates in the state.

Strategy 1A: Work with MECO and PUC Consumer Advocate to find ways to reduce electricity rates for Lāna`i.

Strategy 1B: Promote conservation and reduction of power usage by residential, commercial, and resort consumers.

Strategy 1C: Explore technologies, and the integration of information technologies and mechanisms, that would improve the efficiency and reliability of the electrical grid.

**Issue 2:** Ninety percent of Lāna`i's electricity is produced by petroleum.

Strategy 2A: Work with MECO and the major landowner to develop appropriate electrical generation from renewable sources.

Strategy 2B: Encourage homeowners to install solar hot water and solar PV panels.

**Issue 3:** Fuel for vehicles is expensive and requires importation to the Island.

Strategy 3A: Increase the use of electric vehicles on the island.

Strategy 3B: Provide charging stations, fed by renewable power sources, in multiple locations around the island.

## C. GOAL, POLICIES, AND ACTIONS

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**GOAL** Increase the proportion of electricity that is generated from renewable sources to reduce electricity costs and Lāna`i's dependence on fossil fuels.

### Policies

1. Support the increased use of renewable energy sources.

## 7 | INFRASTRUCTURE AND UTILITIES

2. Maintain and support consumer incentives to promote the installation of renewable energy systems.
3. Promote energy conservation and awareness programs, including the use of compact fluorescent lights (CFL), solar hot water, and conservation behaviors.
4. Promote the use of electric vehicles charged via renewable energy.
5. Support research and investigation into alternative sources of fuel that could be grown or produced on the island, such as biofuels or biomass.
6. Ensure main utility transmission lines are robust and resilient enough to withstand hurricane force winds.
7. Promote the placement of utilities underground in new areas of development and in existing areas, where possible.

### Actions

No.	Action	Policy No.	Lead County Agency	Partners
7.24	Create a smart grid that would allow for integration of additional renewable energy sources.	1, 2	OED (Energy Commissioner)	Pūlama Lānaʻi MECO
7.25	Install charging stations powered by renewable energy to support the use of electric vehicles on the island.	2, 4	OED (Energy Commissioner)	Pūlama Lānaʻi MECO
7.26	Install steel poles for primary utility transmission lines during new or replacement projects.	6	Department of Planning Mayor's Office	Pūlama Lānaʻi MECO
7.27	Explore options for growing, manufacturing, and producing biodiesel, biomass, and other biofuel sources.	5	OED (Energy Commissioner)	Pūlama Lānaʻi MECO

## 7 | INFRASTRUCTURE AND UTILITIES

### 7.5 TRANSPORTATION

#### A. INTRODUCTION

As a small island, Lāna`i relies heavily on its transportation systems – air and sea – to deliver people, goods, and services to the island. Most of Lāna`i's consumable goods are transported to the island via barge, making the cost of most items more expensive than on Maui or on O`ahu. Tourism, Lāna`i's major industry, relies on stable and consistent plane and ferry service to ensure a sufficient flow of tourists.

#### Existing Conditions

##### *Sea*

Young Brothers' barge service between O`ahu and Lāna`i occurs once a week on Wednesday. Expeditions' passenger ferry offers five daily round trips between Lahaina and MSBH. Fuel oil (diesel for the power plant and gasoline for vehicles) is now transported to the island on the barge using "pods," or small cylindrical tanks that can be moved by truck. Previously, fuel oil was transported to the island using a less expensive, double-hulled fuel barge.

##### *Air*

The number of flights serving Lāna`i increased as economic conditions improved in 2012 - 2013. Island Air was purchased by Larry Ellison in 2013 and provides service to Lāna`i Airport with flights to and from Honolulu and Kahului. `Ohana by Hawaiian has been servicing Lāna`i since March 2014. FedEx and Kamaka Air, Inc. provide air freight service. In April 2015, Island Air reduced daily frequency on its Lāna`i routes by more than one half.

The Lāna`i airport's runway may require lengthening in order to bring it into FAA compliance. Fully loaded and fueled planes have had difficulty in the past taking off given the length of the runway and its direction with respect to Lāna`ihale. Newer planes have greater lift and can operate fully loaded on shorter runways than in the past. As of 2014, Pūlama Lāna`i is working with HDOT Airports Division to determine the requirements for extending the runway to accommodate newer planes.

##### *Land*

Most roads on Lāna`i are publicly owned and managed; the County controls local roads and the State is responsible for Kaumālapa`u Highway (Route 440) and Mānele Road. While there is no public transit system on the island, Four Seasons Resort runs a shuttle service for hotel guests from MSBH and Mānele Resort to Lāna`i City, the Lodge at Kō`ele, and the airport. MEO operates a shuttle service for youth, elderly, and the disabled. Commercial taxi and shuttle services are also available.

## 7 | INFRASTRUCTURE AND UTILITIES

Given the small size of Lānaʻi City, walking is one of the primary modes of transportation. Lānaʻi City's layout with a compact street grid is extremely conducive to walking. However, not all streets in Lānaʻi City have facilities for pedestrians. "Complete Streets" is a relatively new approach to street and transportation design which aims to accommodate all users of roadways and rights of way. In 2009, the Hawaiʻi State Legislature amended state law to require the HDOT and the counties' transportation (or public works) departments to adopt complete street policies that accommodate all users of roadways, including pedestrians, bicyclists, transit users, motorists, and persons of all ages and abilities. Because Maui County is currently working on developing a complete streets policy, consideration and policy should be developed for Lānaʻi's rural streets.

The many trails that are on the island – historic trails, as well as hunting access and hiking trails – are an important and vital part of Lānaʻi's culture and rural lifestyle.

### **Future Multi-Modal Transportation System**

#### ***Vision***

Lānaʻi will have a multi-modal land transportation system that:

- Consists of streets, roads, and highways that accommodate multiple users including freight, trucks, cars, transit, bicycles, pedestrians, and other non-motorized vehicles;
- Maintains Lānaʻi City as a walkable, pedestrian-oriented, compact community; and
- Provides clear and uncomplicated connections to air and sea transportation at the transportation hubs at MSBH, Kaumālapaʻu Harbor, and the Lānaʻi Airport.

#### ***Roadway Extensions and New Roads***

- Within the Lānaʻi City Expansion areas as shown on Map 9.3, Lānaʻi City Land Use Detail, the grid street layout is to be continued and connections to existing streets will be made where possible.
- Roadway extensions and new roads are illustrated on Map 7.2, Transportation: Existing and Proposed, and are as follows:

##### Lānaʻi City Expansion

- Western extension of 5<sup>th</sup> Street and 9<sup>th</sup> Street, into the Lānaʻi City Expansion area.
- Northern extension of Mānele Road, from intersection with Kaumālapaʻu Highway, into the Lānaʻi City Expansion area.
- Lānaʻi City Bypass Road will connect Kaumālapaʻu Highway to the southern terminus of Keomuku Road at Lānaʻi Avenue, along the western edge of the Lānaʻi City Expansion area.

## 7 | INFRASTRUCTURE AND UTILITIES

### Outside of Lāna`i City

- Mānele West Road to be developed as a secondary access road, west of the Mānele Resort and residential areas.
- Keomuku Beach Road will need to be realigned mauka if development at Halepalaoa occurs.

### **Transit**

- When demand warrants, a public transit system (i.e. bus) will provide regular service for residents and visitors between the island's population centers and transportation hubs to supplement or replace the existing private shuttle service provided by the Four Seasons Resort.
- Future roadways, and to the extent possible, existing roadways will accommodate the public transit system with pull-outs, shelters, and turn-around areas.

### **Bicycle facilities, lanes, and trails**

- Lāna`i City: Bicycles will continue to be accommodated by sharing the roadway with vehicles.
- Lāna`i City Expansion: Bicycle lanes should be considered on arterial and collector roads and shared facilities on local streets.
- Mānele Road / Mānele West: Provide wide shoulder or bicycle lane.

### **Pedestrian Facilities**

- Lāna`i City: Lāna`i City's central business area surrounding Dole Park will have a complete network of pedestrian facilities such as concrete sidewalks. Major streets, such as Fraser Avenue, Lāna`i Avenue, 6<sup>th</sup> Street, 7<sup>th</sup> Street, 8<sup>th</sup> Street, 9<sup>th</sup> Street, and wider local streets, such as `Ilima Avenue, should provide pedestrian facilities in the form of concrete or asphalt walkways. On local streets, currently pedestrian facilities are on the shoulder or shared with vehicles. Where there are opportunities, pedestrian facilities should be provided.
- Lāna`i City Expansion: The Lāna`i City Expansion will be a walkable, pedestrian-oriented community. The network of pedestrian facilities (sidewalks or walkways) along collector roads (5<sup>th</sup> Street and 9<sup>th</sup> Street) should be extended. Pedestrian facilities will be provided throughout the expansion area.
- Mānele Mauka: Mānele Mauka will be a new compact development area with primarily residential uses, a central community park, and commercial area. Pedestrian facilities should provide for connections between the residential areas, commercial areas, and parks.
- Kaumālapa`u Harbor Residential: The Kaumālapa`u Harbor Residential area will be a small settlement of rural, low-density housing. Pedestrian facilities appropriate for rural areas should be provided.

## 7 | INFRASTRUCTURE AND UTILITIES

### B. ISSUES AND STRATEGIES

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**Issue 1:** Current barge service to Lāna`i from O`ahu is only once per week. During winter storms or rough sea conditions, barges are unable to enter the harbor.

Strategy 1A: Explore options for transporting freight goods on the ferry or airplanes, or adding an additional barge as population grows.

Strategy 1B: Advocate for expanded ferry service as the population increases and economic development warrants.

**Issue 2:** High cost of commuter transportation from Lāna`i City to Mānele for workers, as well as for residents who need transportation.

Strategy 2: Assess feasibility of providing shuttle transportation for resort workers.

**Issue 3:** The current airport runway is unable to accommodate larger planes.

Strategy 3: Work with Pūlama Lāna`i, HDOT Airports Division, and the community to assess options to accommodate some larger airplanes via airport runway expansion.

**Issue 4:** There are very limited direct flights between Lāna`i and other Maui County airports.

Strategy 4: Work with airlines to improve air transportation between the islands of Maui County.

**Issue 5:** Lāna`i customers must pay for both legs of shipping freight to the island from other outer islands (e.g. from Kaua`i to O`ahu, then O`ahu to Lāna`i). Lāna`i is the only island with this extra charge. This also pertains to passenger air transportation routes.

Strategy 5: Work with the shipping companies and PUC Consumer Advocate to find a better rate structure in order to reduce the premium on shipping and passenger flights to Lāna`i.

**Issue 6:** The cost of shipping fuel to the island from O`ahu is made more expensive by the use of fuel tanks, or pods, rather than a fuel barge.

Strategy 6: Explore options for shipping fuel to the island that would reduce costs.

## 7 | INFRASTRUCTURE AND UTILITIES

**Issue 7:** There is only one paved public road between Mānele and the rest of the island.

**Strategy 7:** Explore options to provide alternative access in and out of Mānele during emergencies, including utilizing the construction access road.

**Issue 8:** Many Lāna`i City streets do not have sidewalks, and some people are concerned about pedestrian safety.

**Strategy 8:** Develop a complete streets approach to street design for Lāna`i City and the island, and create an improvement strategy for pedestrians in Lāna`i City.

**Issue 9:** Some roads and trails within Federal, State, and County mapping databases may have different historical names, spelling, or locations. Additionally, the historical use and legal status of some trails and the ownership of some roads are unknown.

**Strategy 9:** Coordinate with the Hawai`i Board on Geographic Names (HBGN), Pūlama Lāna`i, and the Lāna`i community to identify and formally correct road and trail names, location, historical use, and legal status. Determine road ownership, if unknown.

### C. GOAL, POLICIES, ACTIONS

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**GOAL** A complete, integrated, safe, and reliable system of transportation networks that serves the needs of Lāna`i's businesses, residents, and visitors.

#### Policies

1. Advocate for adequate, reliable, and reasonably priced barge service.
2. Advocate for continued, reliable, and frequent passenger ferry services between Maui and Lāna`i.
3. Advocate for a more connected, complete, and safe network of lanes, streets, roads, and highways.
4. Advocate for expanded air service between Lāna`i and other islands.
5. Maintain a connected network of public access trails for hunters, hikers, and coastal access.

## 7 | INFRASTRUCTURE AND UTILITIES

6. Encourage affordable transportation options for resort employees and residents.
7. Encourage commercial concession and lease opportunities for local residents at State harbor and airport facilities.
8. Support the improvement of the airport, including enhancement of the existing runway and possible addition of a second runway. Prohibit the extension of Lāna`i Airport's runway in the direction of Lāna`i City. Prohibit aircraft flight patterns over Lāna`i City as a means of noise mitigation. Identify and implement other aircraft noise mitigation measures such as the prohibition of late-night aircraft operations.
9. Encourage the continuance of regularly scheduled direct flights between Maui and Lāna`i.
10. Encourage competitive pricing for inter-island airfares to provide increased opportunity for inter-island mobility.
11. Support direct ocean freight transport between Maui and Lāna`i.
12. Street and roadway design standards should maintain and enhance Lāna`i's rural character, provide handicap accessibility at the airport and harbor, and include space for private transportation vendors.
13. Maintain a pedestrian orientation for the Lāna`i City core area and in new development areas.
14. Encourage the development of a safe network of pedestrian pathways, connecting key recreational and educational facilities in Lāna`i City and in newly developed areas.
15. Encourage Pūlama Lāna`i to maintain a secondary and emergency access road between Mānele and Lāna`i City.
16. Provide accurate and well-documented names, locations, and historic and legal status, including ownership, of mapped roads and trails.

## 7 | INFRASTRUCTURE AND UTILITIES

### Actions

Table 7.6 Infrastructure – Transportation Actions				
No.	Action	Policy No.	Lead County Agency	Partners
7.28	Advocate for increased barge service to and from Lānaʻi if the population significantly increases and economic development warrants.	1, 11	OED	Pūlama Lānaʻi
7.29	Advocate for increased ferry service if the population significantly increases and economic development warrants.	2	OED	Pūlama Lānaʻi
7.30	Develop a long-range land transportation master plan for Lānaʻi, which utilizes a complete streets approach to roadway design, establishes specific roadway standards, and includes a pedestrian plan for Lānaʻi City.	3, 13, 14, 15	DPW Department of Planning	Pūlama Lānaʻi HDOT
7.31	Establish who has jurisdiction/ownership and responsibility over Old Government Road.	16	DPW Department of Planning	Pūlama Lānaʻi HDOT
7.32	Develop and implement a trails, greenways, and open space access plan using, when appropriate, former agriculture roads. The project should work in concert with stormwater, sedimentation, and environmental protection plans to close down unnecessary or unused agricultural roads.	5	Department of Planning DEM	Pūlama Lānaʻi
7.33	Develop restrictions for commercial trucks and buses exceeding 6,000 pounds Gross Vehicle Weight (GVW) to established routes through Lānaʻi City pending the construction of a bypass road.	13	DPW	Pūlama Lānaʻi

## 7 | INFRASTRUCTURE AND UTILITIES

<b>Table 7.6 Infrastructure – Transportation Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
7.34	Study and evaluate options for shipping fuel to the island in order to reduce costs.	1, 11	OED	Pūlama Lāna`i
7.35	Work with the HBGN and the Lāna`i community to formally reconcile road and trail naming, location, historical use and legal status, and ownership data. Update map databases.	16	Department of Planning	HBGN Pūlama Lāna`i NGOs USFWS USGS

## 7 | INFRASTRUCTURE AND UTILITIES

### 7.6 STORMWATER DRAINAGE

#### A. EXISTING CONDITIONS

The mean annual rainfall of approximately 28.3 inches for Lāna`i City (15.6 inches at the Lāna`i Airport)<sup>21</sup> most often drains into the soils or intermittently through the gulches. In general, a combination of increased impervious surfaces (such as roads, rooftops, and parking areas) and occasional heavy rainstorms contributes to surface water drainage issues within Lāna`i City and the two PDs of Kō`ele and Mānele. These drainage issues include shallow ponding and are generally of short duration.

In general, Lāna`i City is well positioned on a high plateau with a relatively good drainage pattern that has reduced flooding conditions during heavy rainfall events. The roadways drain by the natural slope of land in most areas. To the northeast of town, there is a natural depression that directs flow away from town into the gulches. Within town, there are drain lines installed along Lāna`i Avenue and in a few locations along Fraser Avenue.<sup>22</sup> Lāna`i City experiences localized flooding due to apparent blockage of existing stormwater drains and channels. Blockage may be caused by grass overgrowing the drains or buildup of sediment and grass in the channels so that the original grass swale no longer functions properly. Further investigation of why overflow occurs is needed.

Storm runoff from the Lodge at Kō`ele is captured within the PD and redirected east into Kaiholena Gulch, and southeast of Lāna`i City into Kāpano Gulch, which is deep enough to carry the increased runoff from the golf course. The Mānele area's average annual rainfall is 15 inches and flooding is rare. During extreme storms, Mānele PD's sheet-flow runoff drains naturally through six major gulches and drainageways<sup>23</sup> before discharging into the adjacent bays of Mānele and Hulopo`e.

The Kō`ele Project District Infrastructure Master Plan (July 30, 1993) showed proposed drainage improvements of numerous drain lines within the resort. The new drain lines will redirect flow to an existing golf course lake, while other new lines will direct flow to retention basins and existing drain lines for discharge into Kaiholena Gulch. In 2006, two drainage master plans were developed for the Kō`ele PD and Lāna`i City. These plans include recommendations and a phasing plan which have not yet been implemented.

In 2002, a series of heavy storms resulted in heavy flooding, sedimentation in Hulopo`e Bay, and erosion within the watershed. Community meetings and consultant planning and design addressed

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<sup>21</sup> Rainfall data from the National Climate Data Center.

<sup>22</sup> Wilson Okamoto & Associates, Inc. (May 2003). *County of Maui Infrastructure Assessment Update* (prepared for County of Maui, Department of Planning).

<sup>23</sup> County of Maui, Maui Planning Commission. *Director's Report*, October 31, 1990 (p. 3).

## 7 | INFRASTRUCTURE AND UTILITIES

flow and filtration issues. In addition to a revised layout of roadways and drainage facilities, the drainage plan recommended native plants, or native grass with stone edges, to create natural filtration areas.<sup>24</sup> A drainage master plan for the Mānele PD was completed in March 2004 to protect property and the ocean environment. At the time, the stormwater drainage system at the Mānele project site consisted of sheet flow (water flowing across land, not in a channel) and percolation (water flowing into soil), with no filtering of pollutants or siltation during storm events. By redirecting runoff into drain inlets and silt basins, improvements at MSBH decreased sediment entering the harbor.

### B. ISSUES AND STRATEGIES

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**Issue 1:** Stormwater flows down dirt roads into gulches and the ocean.

**Strategy 1:** Develop a comprehensive plan to address areas of high flow runoff from dirt roads. Design a toolbox of road runoff diversion methods that can be easily implemented.

**Issue 2:** Localized minor flooding causes repeated areas of water ponding or mud in Lāna`i City.

**Strategy 2:** Implement drainage master plans for Kō`ele PD and Lāna`i City. Develop a comprehensive drainage plan for stormwater runoff through Lāna`i City and the surrounding area. Evaluate older swales and drains for current functioning and restore them, if needed. Add natural drainage storage and filtration to supplement the existing system and clear all blockages.

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<sup>24</sup> R.M. Towill Corporation (2004). *Working Together – The Lāna`i Community Joins Planners and Engineers to Solve Mānele Drainage Problems* (In Motion, Vol. 2, Issue 1).

# 7 | INFRASTRUCTURE AND UTILITIES

## C. GOAL, POLICIES, ACTIONS

**GOAL**            **Surface water runoff is managed to prevent flooding and to improve quality of both fresh and coastal waters.**

### Policies

1. Provide surface water management for roadways and developed areas.
2. Manage surface water using natural system drainage, retention, and filtration to reduce flooding and siltation of ocean waters.
3. Encourage the Department of Hawaiian Home Lands (DHHL) to comply with County regulations on drainage.

### Actions

<b>Table 7.7            Infrastructure – Stormwater Drainage Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
7.36	Develop a comprehensive stormwater management plan. Emphasize natural systems drainage where possible.	1, 2	DPW Department of Planning	Pūlama Lāna`i DHHL
7.37	Build dispersion and retention methods to address runoff from dirt roads.	2	DPW	Pūlama Lāna`i DHHL
7.38	Implement Kō`ele PD and Lāna`i City Master Drainage Plans.	2	DPW	Pūlama Lāna`i DHHL
7.39	Inspect and, if necessary, repair stormwater drainage swales and culverts in Lāna`i City and remove blockages from drains and channels.	2	DPW	Pūlama Lāna`i DHHL

## 7 | INFRASTRUCTURE AND UTILITIES

### 7.7 TELECOMMUNICATIONS

#### A. EXISTING CONDITIONS

For a small, relatively isolated island such as Lānaʻi, digital and electronic telecommunications systems are important because they link the island to the rest of the County, State and world. Landlines, cellular telephone service, and high-speed internet service enable communication for residents, businesses, and students and make working at home or telecommuting off island possible. Hawaiian Telcom provides telephone and internet service for most residents on the island. Sandwich Isles Communications, Inc. provides service in the DHHL subdivision. Oceanic Cable provides cable television and cable internet services.

#### B. ISSUES AND STRATEGIES

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**Issue:** There are dead spots on the island for cellular telephone service.

**Strategy 1:** Increase the strength and array of cell phone signals.

**Issue 2:** Limited access to high-speed internet and telecommunications services limits the ability to provide high-quality education, health care, social services, and business environments.

**Strategy 2:** Ensure all institutions and businesses on the island have access to a full array of high-speed internet and telecommunication services.

#### C. GOAL, OBJECTIVES, POLICIES, ACTIONS

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**GOAL** Lānaʻi will have a current, comprehensive, and reliable telecommunications network.

#### **Policies**

1. Improve existing telecommunications services on Lānaʻi using fiber optic communication technologies to provide high-capacity, high-speed internet, and telephone services to residents and businesses as well as educational, social, and health care facilities.

## 7 | INFRASTRUCTURE AND UTILITIES

2. Expand the fiber optic telecommunications network to service new areas of development as they are built.

### Actions

Table 7.8 Infrastructure – Telecommunications Actions				
No.	Action	Policy No.	Lead Entity	Partners
7.40	Provide high-speed internet throughout the island.	2	Hawaiian Telcom Sandwich Isles	Pūlama Lāna`i
7.41	Provide cell phone service all around the island for complete coverage.	1	Hawaiian Telcom Sandwich Isles	Pūlama Lāna`i
7.42	Provide more wireless "hot spots" in Lāna`i City and Mānele PD.	2	Hawaiian Telcom Sandwich Isles	Pūlama Lāna`i

## **8 | PUBLIC FACILITIES AND SERVICES**

### **INTRODUCTION**

This chapter covers parks and recreation, police, fire and public safety, education, health care, and social services. Public facilities and services on the island of Lānaʻi are provided by the County, State, and private providers. Pūlama Lānaʻi owns and manages many of the island's park and recreation facilities – a remnant of the island's plantation history. The County provides significant public services such as police and fire protection as well as some parks and recreational facilities. Lānaʻi High and Elementary School is a DOE facility. Health and social services are provided by government agencies as well as private providers, such as Lānaʻi Community Hospital (LCH), which is part of the Hawaiʻi Health Systems Corporation (HHSC).

### **8.1 PARKS AND RECREATION**

#### **A. EXISTING CONDITIONS**

Currently, Lānaʻi's public parks total 26.5 acres. Many of the island's largest and important parks and public spaces are owned and managed by Pūlama Lānaʻi, including Dole Park, Cavendish Golf Course, the community swimming pool, and Hulopoʻe Beach Park and Campground. The County owns or leases a number of parks and facilities in Lānaʻi City, including the gymnasium, the community center in Dole Park, the baseball and softball fields, and tennis courts in the Lānaʻi Community Center Complex. The major landowner also owns and manages much of the island's open space, conservation areas, and hunting areas. DLNR manages approximately 30,000 acres for hunting at the north end of the island.

## 8 | PUBLIC FACILITIES AND SERVICES

### B. ISSUES AND STRATEGIES

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**Issue 1:** There is an insufficient distribution of parks and programs to meet the community's existing and future needs.

**Strategy 1:** In conjunction with the major landowner, prepare an overall parks and recreation master plan to identify needs for the island's parks, facilities, and programs.

**Issue 2:** Land was set aside for park space in the Lālākoa developments, however, those park areas were not constructed.

**Strategy 2:** Ensure there are funds to design and construct parks when land is dedicated to the County for parks and recreation as part of a development agreement.

**Issue 3:** Certain sub-areas of Lāna`i City have a park deficit.

**Strategy 3:** Ensure each sub-area of Lāna`i City, as well as any new development, meets county subdivision standards or benchmarks for the amount of park space per housing unit.

### C. GOAL, POLICIES, ACTIONS

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**GOAL** A comprehensive system of parks, recreational facilities, and programs that meet resident and visitor needs.

#### **Policies**

1. Encourage the development and support of leisure activities for all segments of the population.
2. Ensure Dole Park's long-term value as a social and recreational gathering place.
3. Where appropriate, collaborate with Pūlama Lāna`i on the provision of parks, facilities, and programs.
4. Ensure all new areas of development include adequate park space based on a determined ratio of park space per thousand residents.
5. Ensure, through ongoing funding, public restroom facilities are available and open during daylight hours in Dole Park, or within another central public facility or park.
6. Ensure any new active park includes public restroom facilities, to the extent practicable.
7. Ensure the quality and availability of the Cavendish Golf Course is maintained in perpetuity for Lāna`i residents.

## 8 | PUBLIC FACILITIES AND SERVICES

8. Preserve the social hall for community and social use when available.

### Actions

<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
8.01	Develop a master plan for the island's parks, recreational facilities, and programs. Survey residents to identify their recreational needs.	1, 2, 3, 4	Department of Parks and Recreation	Department of Planning Pūlama Lāna`i Community
8.02	Assist with the preparation of a Dole Park master plan that improves and preserves the park's recreational, urban design, and social functions.	2	Department of Parks and Recreation	Department of Planning Pūlama Lāna`i Community
8.03	Develop an action sport facility such as a skateboard park, roller derby facility, or bicycle-motocross (BMX) track.	1, 3	Department of Parks and Recreation	Department of Planning Pūlama Lāna`i Community

# 8 | PUBLIC FACILITIES AND SERVICES

## 8.2 POLICE

### A. EXISTING CONDITIONS

As of 2012, ten full-time police officers, including a School Resource Officer, and a part-time Animal Control Officer, were employed on Lāna`i. They work out of an 8,000-square-foot facility that includes three jail cells, a juvenile cell, and office space. The facility opened in 2004 at a cost of \$4.1 million. Maui Police Department (MPD) District II has two motorized beats, each patrolled by one officer. The number of officers slightly exceeds the estimate of need in the Public Facilities Assessment Update published in 2007. This level of staffing is necessary, however, because of the many remote places on the island. According to the assessment, "expansion of existing service within the study period (to 2030) is not required." However, it is now likely the population increase will be greater than previously forecasted because Pūlama Lāna`i plans to expand Lāna`i City and create new residential areas at Mānele Mauka, above Kaumālapa`u Harbor. If the island's population increases from about 3,100 to 6,000, an increase in police services would be warranted.

Animal control is aided by the Maui Humane Society (MHS) and the Lāna`i Animal Rescue Center (LARC), a nonprofit community services organization that provides shelter, spay and neuter services, adoptions, sustenance, and education. LARC operates the Kitty Paradise cat sanctuary.

While the police station is a relatively new and well-appointed facility, the island lacks an impound yard and on-call or full-time public tow truck services. There are numerous abandoned vehicles at the airport and at the MSBH. However, since these are State-operated facilities, jurisdiction and responsibility for these vehicles is unclear.

### B. ISSUES AND STRATEGIES

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**Issue 1:**            **There is a shortage of adequate and affordable housing for future police staff.**

Strategy 1:        Ensure affordable workforce housing is provided for any expansion of police staff.

**Issue 2:**            **Substance abuse is a continuing problem on the island.**

Strategy 2:        Maximize the island's police resources to include canine officers to properly enforce substance abuse laws.

**Issue 3:**            **Turnover of police personnel.**

## 8 | PUBLIC FACILITIES AND SERVICES

**Strategy 3:** Encourage officers, especially the senior officer, to stay on the island longer than their current rotation of one year, by identifying and addressing barriers to remaining on the island. Provide incentives for longer tours of duty.

**Issue 4:** **Animal control services and facilities are not adequate for anticipated increases in pet and feral animal populations.**

**Strategy 4A:** Explore options for shelter facilities for stray and abused or neglected animals.

**Strategy 4B:** Explore options for expansion of animal control services and facilities; coordinate with the MHS, Pūlama Lāna`i, and LARC.

### C. GOAL, POLICIES, ACTIONS

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**GOAL**            **An effective and efficient police force to help make a safe and peaceful community.**

#### **Policies**

1. Ensure staffing of the police office on Lāna`i is increased appropriately as the population of the island increases.
2. Support the development and provision of workforce housing for police personnel.
3. Support additional animal control services when animal population warrants.
4. Support the Lāna`i police force as the lead agency in civil defense related issues.
5. Support policing strategies to deal with substance abuse.
6. Encourage longer tours of duty on Lāna`i for police personnel.
7. Maintain a position on the Police Commission for a Lāna`i representative.

## 8 | PUBLIC FACILITIES AND SERVICES

### Actions

<b>Table 8.2 Public Facilities and Services – Police Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
8.04	Coordinate with community organizations in their prevention and treatment efforts to reduce substance use and abuse. Continue working cooperatively with the Prosecutor's Office and the Drug Enforcement Agency (DEA) to enforce substance abuse laws.	5	MPD	Coalition for a Drug-Free Lāna`i (CDFL) Lāna`i Community Health Center (LCHC) Aloha House Malama Family Recovery Center Department of Prosecuting Attorney Drug Enforcement Agency
8.05	Examine options for extending the length of time police personnel and officers are on Lāna`i for a tour of duty.	6	MPD	
8.06	Provide Lāna`i orientation training classes and support for police staff.	6	MPD	Pūlama Lāna`i CDFL DLNR
8.07	Assist MHS and LARC in exploring options for expansion of animal control facilities and services.	3	MPD	MHS LARC
8.08	Assist in distribution of public education on responsible pet ownership.	3	MPD	MHS LARC
8.09	Study options for development of an impound yard and need for tow-truck services, and whether a four-wheel drive tow truck is necessary.		MPD	Pūlama Lāna`i

## 8 | PUBLIC FACILITIES AND SERVICES

### 8.3 FIRE AND PUBLIC SAFETY

#### A. EXISTING CONDITIONS

There is one MFD station on the island located on Fraser Avenue in Lāna`i City. A new four-wheel drive truck was purchased for the Lāna`i Fire Station in 2009 and a brush truck in 2014.

#### B. ISSUES AND STRATEGIES

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**Issue 1:** Response time to Mānele can be 15-20 minutes; population growth and increased visitors at Mānele may warrant the location of a fire station at Mānele.

**Strategy 1:** Explore options for locating fire, safety, ambulance, and ocean rescue services at Mānele.

**Issue 2:** The major beach and water activity areas, including Hulopo`e Bay, Kaumālapa`u Harbor, and Lōpā, are remote from the fire station in Lāna`i City and there are no water rescue services based on Lāna`i.

**Strategy 2:** Explore options for establishing water rescue services on the island.

**Issue 3:** Firefighters sometimes have problems locating addresses in Lāna`i City.

**Strategy 3A:** Upgrade the 911 system semi-annually with new addresses. Provide better orientation and maps of Lāna`i City streets, street names, and address locations to firefighters and first responders, including locations of health facilities.

**Strategy 3B:** Require Lāna`i property owners and managers to clearly place addresses on their structures with numbers that are visible from the street. Do not name streets after geographical locations on Lāna`i.

#### C. GOAL, POLICIES, ACTIONS

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**GOAL** Protect life, property, and the environment by providing effective and efficient fire protection and rescue services for the island of Lāna`i.

## 8 | PUBLIC FACILITIES AND SERVICES

### Policies

1. Provide appropriate levels of fire, safety, and rescue services throughout the island.
2. Support establishing ocean safety and rescue services on Lāna`i.
3. Encourage Pūlama Lāna`i to work with MFD, MPD, and Civil Defense while planning any development in remote areas of the island.
4. Ensure street names are not named after geographical locations on Lāna`i in order to provide timely first-responder service.

### Actions

No.	Action	Policy No.	Lead County Agency	Partners
8.10	Develop and construct fire, safety, and rescue services and facilities at Mānele.	1	MFD	Pūlama Lāna`i
8.11	Provide necessary equipment, training, and staffing for ocean and water rescue services.	2	MFD	Pūlama Lāna`i
8.12	Develop orientation and training about Lāna`i health and social service locations, and street addresses, for new Fire Department staff.	1	MFD	Pūlama Lāna`i
8.13	Work with homeowners, business owners, and landlords to visibly mark addresses on structures or properties for easy identification in case of emergencies. Update 911 system semi-annually with new addresses.	1, 4	MFD	Department of Planning Pūlama Lāna`i

## 8 | PUBLIC FACILITIES AND SERVICES

### 8.4 EDUCATION

#### A. EXISTING CONDITIONS

The Lānaʻi High and Elementary School campus is located on approximately ten acres on the western edge of Lānaʻi City. While some of the existing facilities on the campus date back to 1937, many structures were added in the 1970s, portable classrooms were added in the 1990s, and a few new classrooms were completed in 2013.

All of Lānaʻi's student population is served by the combined Lānaʻi High and Elementary School. It is the only school on the island and it is the largest K-12 school in the State. The DOE reports the school has been experiencing an average decrease in enrollment of about 20 students per year for the past five years; however, that decline occurred when the economy was struggling. School enrollment appears to be very much tied to the economy; during the recession, jobs on the island decreased, and many families moved away to seek work. With increased economic activity on the island, there will likely be an increase in student enrollment at all levels. Indeed, the Lānaʻi High and Elementary School enrollment for school year 2012-2013 was 530 students, while enrollment for the 2013-2014 school year was 585 students, or an increase of over 50 students in a single year. Since then, total enrollment has remained steady at 579 students for the 2014-2015 school year and 576 students for the 2015-2016 school year.

The DOE has developed a master plan to guide the future development of the school over the next 20 years. The master plan includes the upgrade and expansion of the school onto an additional 50 acres owned by the County located west of the existing campus to include facilities for preschool to university level classes. The preschool in town uses borrowed facilities. Currently, UHMC has a small facility on Lānaʻi.

With the array of economic ventures that Pūlama Lānaʻi has planned for Lānaʻi, there will be a need for more skilled labor, including technical and professional workers in an expanded workforce. Some new workers will come from off island. Since many current residents lack technical and professional skills, training and educational options are needed on the island.

## 8 | PUBLIC FACILITIES AND SERVICES

### B. ISSUES AND STRATEGIES

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**Issue 1:** Many people on Lānaʻi do not have relevant technical knowledge or skills to enter the 21<sup>st</sup> century workforce, acquire skilled jobs, or start their own business.

**Strategy 1:** Provide an array of options for workforce and business training at both the secondary and post-secondary level including: vocational training, apprenticeships, internships, small business training and support, associate and advanced degrees, and part-time continuing education programs.

**Issue 2:** The elementary and high school facilities are adequate to accommodate the projected student population for the short term. However, the community has often expressed the desire to physically separate the elementary school from the high school and create a larger overall campus that would include distinct facilities for preschool, elementary school, high school, and post-secondary education.

**Strategy 2:** Expand and improve the elementary and high school campus as the population warrants, consistent with the campus master plan. Add facilities for both pre-school and post-secondary education.

### C. GOAL, POLICIES, ACTIONS

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**GOAL** High-quality educational facilities and programs that accommodate the community's diverse learning needs.

#### Policies

1. Support an expanded array of adult education to include post-secondary, vocational, English as a second language, business, technical and professional, and career counseling programs.
2. Support adequate and affordable preschool facilities and programs.
3. Continue to support the Lānaʻi High and Elementary School Master Plan "P-20," a preschool to post-secondary education concept.
4. Support public, private, and nonprofit partnerships to build and staff schools and improve existing facilities.

## 8 | PUBLIC FACILITIES AND SERVICES

5. Encourage major employers to support or provide English as a second language education for employees.
6. Support Hawaiian language immersion programs.

### Actions

<b>Table 8.4 Public Facilities and Services – Education Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
8.14	Assist the State in implementing the master plan for the expansion of the elementary and high school into separate campuses and the creation of a "P-20" campus that includes educational facilities and programs for preschool through post-secondary education.	1, 2, 3	Department of Housing and Human Concerns (DHHC) Department of Management	UHMC DOE
8.15	Continue to fund adult and post-secondary education programs.	1, 3, 4	DHHC	UHMC DOE
8.16	Continue to fund English as a second language classes.	1, 5	DHHC	DOE Employer
8.17	Assess need for additional preschool services.	2	DHHC	DOE
8.18	Assist the State in developing educational curricula to teach the history of the island of Lānaʻi.	1	Department of Planning	UHMC DOE
8.19	Develop workforce development program internships.	1, 4, 5	OED	Employers

# 8 | PUBLIC FACILITIES AND SERVICES

## 8.5 HEALTH AND SOCIAL SERVICES

### A. EXISTING CONDITIONS

The population's small size makes it difficult to provide the full array of health and social services that are available to larger communities with larger markets. The aging population will increase the demand for health and social services.

LCH was established in 1927 and is the only hospital on the island. A sister hospital to Kula Hospital and Maui Memorial Medical Center (MMMC), it is part of HHSC. LCH's current building was built in 1968, and the emergency room was remodeled from 2012 to 2013. It has 47 employees and approximately 30 admissions and 1,000 Emergency Room visits annually. In 2012, LCH provided laboratory services for 1,937 patients and X-ray services for 591 patients.

LCHC is a nonprofit organization that provides health services to all community members, but its particular focus is on residents who live below 200 percent of the Federal poverty level, which is nearly 40 percent of the island's population. Services are currently provided in a three-bedroom house that has been converted into temporary clinic space, but a facility in Lānaʻi City is currently being built. Straub runs the Lānaʻi Family Health Center in Lānaʻi City which provides clinical services and some minor surgical procedures. Ke Ola Hou O Lānaʻi provides health care services for all residents with an emphasis on the native Hawaiian population.

### B. ISSUES AND STRATEGIES

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**Issue 1:** Some important health services are not available, such as maternity and neonatal care, palliative care, psychiatric care, and hospice facilities.

**Strategy 1:** State and county agencies should collaborate with the HHSC, Straub, LCHC, and Pūlama Lānaʻi to develop and support improved health services and facilities on the island.

**Issue 2:** An increasing elderly population will increase health and social service needs.

**Strategy 2A:** Support the establishment and development of infrastructure, including facilities and programs, for elder care on the island.

**Strategy 2B:** Increase health and support services for aging community members to allow them to age in place, or to live safely in their own home, for as long as possible rather than spending years in a retirement home or care facility.

## 8 | PUBLIC FACILITIES AND SERVICES

- Strategy 2C: Encourage the development of palliative care services and hospice facilities to allow terminally ill patients to remain on the island, in facilities, or at home during their last days.
- Strategy 2D: Encourage the establishment of inexpensive, non-emergency medical transportation for Lāna`i residents who are hospice patients within the State to return to Lāna`i.
- Issue 3: As the population increases, there will be a need to expand social and mental health services including comprehensive foster care services.**
- Strategy 3: Encourage adequate funding for social and mental health services, including foster care.
- Issue 4: Lāna`i has multiple immigrant communities who have limited English language skills; as a result there is a need for health and social services in multiple languages.**
- Strategy 4: Expand support services for immigrants, including health and social services in their native language, whenever possible.
- Issue 5: The prevalence of alcohol and substance abuse is a concern to many Lāna`i residents.**
- Strategy 5: Encourage prevention, enforcement, treatment, and educational services for alcohol and substance abuse, and a coordinated effort to minimize harm to the community.
- Issue 6: The prevalence of domestic violence, child abuse and negligence, and sexual abuse is a concern to the community.**
- Strategy 6: Ensure support services for families in crisis are readily available on the island, including temporary emergency shelters.

## 8 | PUBLIC FACILITIES AND SERVICES

### C. GOAL, POLICIES, ACTIONS

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**GOAL**            **A comprehensive, integrated health care system with an array of health, behavioral health, and social services that provide for the needs of Lāna`i's population.**

#### **Policies**

1. Encourage improved accessibility to medical, dental, and vision care.
2. Encourage the expansion of public health programs, services, and facilities that support family planning and the special needs of children, elderly, and immigrants.
3. Encourage the long-term integrity of medical and emergency medical facilities and services with adequate funding for staff, programs, and capital improvements.
4. Support the development of an eldercare infrastructure system, including health and social programs for the elderly, services and facilities for "aging in place," and palliative care services and hospice facilities for the dying.
5. Encourage the provision of short-term and long-term nursing care on the island.
6. Support the provision of social services for immigrants.
7. Support the provision of social services for children and youth.
8. Support activities to provide adequate emergency sheltering for family intervention needs.
9. Support the provision of alcohol and substance abuse treatment services.
10. Support the continuation of social services for victims of domestic violence, child abuse and neglect, and sexual abuse.

## 8 | PUBLIC FACILITIES AND SERVICES

### Actions

Table 8.5 Public Facilities and Services – Health and Social Services Actions				
No.	Action	Policy No.	Lead County Agency	Partners
8.20	Assist with the development of a master plan or strategic plan for health care services on Lānaʻi.	1, 2, 3, 4, 5	DHHC	Pūlama Lānaʻi LCH Straub Clinic and Hospital Ke Ola Hou O Lānaʻi LCHC Hospice Hawaiʻi, Inc. DOH (Public Health Nursing Branch) US Department of Veterans Affairs Hawaiʻi Life Flight Corporation
8.21	Allocate funding to expand the number and variety of social services.	4, 5, 6, 7, 8, 9, 10	DHHC	Department of Human Services (DHS) Hospice Hawaiʻi, Inc. DOH (Public Health Nursing Branch) US Department of Veterans Affairs Hawaiʻi Life Flight Corporation
8.22	Assist with the preparation of a master plan for the Lānaʻi Community Hospital and related medical facilities.	1	DHHC	LCHC DOH Straub Clinic and Hospital DHS LCH

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Table 8.5 Public Facilities and Services – Health and Social Services Actions				
No.	Action	Policy No.	Lead County Agency	Partners
8.23	Assist with activities and projects that improve and enhance short term and long term nursing care services and facilities on the island.	5	DHHC	LCH Lāna`i Changes DOH LCHC DHS Ke Ola Hou O Lāna`i Pūlama Lāna`i Hospice Hawai`i, Inc. Straub Clinic and Hospital
8.24	Develop a plan for provision of services for seniors to age in place.	4	DHHC	LCH Pūlama Lāna`i Lāna`i Changes LCHC Straub Clinic and Hospital DOH Ke Ola Hou O Lāna`i Hospice Hawai`i, Inc.
8.25	Assist with the development of palliative care services and hospice facilities for the dying.	4	DHHC	DOH LCHC Straub Clinic and Hospital Hospice Hawai`i, Inc. Ke Ola Hou O Lāna`i Pūlama Lāna`i LCH Lāna`i Changes
8.26	Encourage funding of and support for the child welfare and social services network and ancillary support services, including foster care.	7	DHHC	DOH DHS Partners In Development Foundation

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<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
8.27	Coordinate services for immigrants.	6	DHHC	LCHC Straub Clinic and Hospital DOH Local Cultural Services
8.28	Continue to work with other organizations to maintain funding for the network of services for alcohol and substance abuse.	9	DHHC	DOH CDFL
8.29	Encourage support and funding for the network of services for domestic violence, sex assault, and families in crisis.	8	DHHC	DHS DOH
8.30	Participate in the development of an integrative, collaborative network to address the health care needs of the community.	1	DHHC	DOH All partners listed above

# 9 | LAND USE

## A. INTRODUCTION

Land use on Lāna`i has been strongly influenced by water availability, ranching, and large-scale pineapple production. With the decline and then eventual closure of pineapple production in 1992, tourism and resorts came to Lāna`i. Currently, a single landowner owns approximately 98 percent of the island, while the State, County, and other private landowners own the remaining 2 percent. Today the population of approximately 3,100 people<sup>25</sup> live primarily in the historic small town of Lāna`i City, with some residences located near the resort hotels in the Kō`ele and Mānele PDs. A few rural residences are scattered along the eastern coast. There are no permanent settlements on the windward and northern regions of the island as these areas are remote from existing development and services, lack infrastructure, and may have environmental and cultural constraints.

### Existing Conditions

The majority of the island is undeveloped open space covered by fallow and active agricultural fields, barren land, rocky areas, and patches of dry forest. Along the high ridgeline of Lāna`ihale is an expanse of wet forest lands. The State Land Use Commission (SLUC) has designated most of Lāna`i's lands as Agriculture or Conservation District (see Table 9.1 and Map 9.1).

State Land Use District	Acres	Percent
Urban	3,039	3.4
Rural	2,076	2.3
Agriculture	44,612	49.4
Conservation	40,570	44.9
TOTAL	90,298*	100

Source: State of Hawai`i, Office of Planning, February 2013.

\*Note: Acreage total is rounded from 90,297 to 90,298 due to fractions of acres.

There are inconsistencies between State Land Use District designations and the Lāna`i Community Plan land use designations that will need to be resolved over time. Major inconsistencies exist in areas along the eastern and southern coast that are designated as open space in the Lāna`i Community Plan, but designated as urban by the SLUC.

Lāna`i City is the island's population and service center. There is a shortage of housing on the island. Three large projects are planned at the northwestern edge of Lāna`i City to address the town's housing shortage and school expansion needs. These projects include: 1) the expansion

<sup>25</sup> State of Hawai`i, Department of Business, Economic Development & Tourism (2011). *2010 Census Tract Name and Their Population, Housing, and Land Area for the State of Hawai`i*.

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of the DHHL subdivision,<sup>26</sup> 2) the County's Lāna`i City Affordable Housing Project, and 3) the DOE's expansion of the Lāna`i Elementary and High School campus<sup>27</sup> (see Map 9.3). Lāna`i has two PDs, Mānele and Kō`ele, that have resort hotels and nearby dispersed residential development. The Mānele and Kō`ele PDs were approved in 1986, yet only a small fraction of the approved units has been constructed. Only about 6 percent of the entitled housing units in the Kō`ele PD and approximately 18 percent of the entitled housing units at Mānele have been constructed.<sup>28</sup> In addition, the PDs have required agreements and conditions that must be fulfilled.

The island's primary industrial areas are located southwest of Lāna`i City, near the Lāna`i Airport, and at Kaumālapa`u Harbor. These industrial areas are a very small percentage of the total lands (see Maps 9.4 and 9.6). Most land on Lāna`i is interim-zoned and needs to be rezoned to be consistent with the community plan.

### Future Conditions – Planned Growth

Five areas on Lāna`i are proposed for future development by Pūlama Lāna`i (see Maps 9.3 to 9.6). The mix and composition of the proposed land uses within these five growth areas are intended to provide economic diversity, promote sustainability and efficient use of existing infrastructure, offer a diversity of housing options and locations, improve the diversity of resort experiences, and broaden educational opportunities. These areas are meant to be interrelated and supportive of each other, with the goal of achieving economic and community sustainability.

Approximately 2,500 acres are proposed to be developed or conserved with the following community plan land use designations: mixed-use residential, hotel, airport, heavy and light industrial, public/quasi-public, park, rural, and open space (see Table 9.2 and Appendix 9.2). The new development will incorporate smart-growth principles with walkable neighborhoods, green infrastructure, and multi-modal transportation options. The new development will also continue the historic urban form of Lāna`i City by using block sizes and appropriate building types and scale, and by maintaining the traditional rural character and open spaces of the island.

### 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 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

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<sup>26</sup> Department of Hawaiian Home Lands, State of Hawai'i (2010). *Island of Lāna`i Regional Plan*.

<sup>27</sup> Department of Education, State of Hawai'i (2011). *Final Environmental Assessment Lāna`i High and Elementary School Master Plan* (Gerald Park, Urban Planner, Mililani).

<sup>28</sup> WUDP, Ordinance 3885 (2011).

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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. In the event that 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 Lānaʻi community plan area, Appendix 9.2, Comparison of Lānaʻi Community Plan Designations and Typical County Zoning Districts, sets forth each community plan land use designation applicable on Lānaʻi and identifies the zoning district or districts that would typically allow the uses envisioned by the community plan.

The Lānaʻi community plan land use map (collectively, Maps 9.2 through 9.6) 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.

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### Land Use Planning Principles and Standards

- 1. Protect ecological diversity, natural resources, culturally sensitive lands, and agricultural lands when defining future growth areas.** Lāna`i's ecology and natural and cultural resources are important for both current and future generations.
- 2. Protect open space and scenic landscapes.** Open space should be preserved to retain Lāna`i's rural character and to separate and define distinct edges of communities. Scenic landscapes, viewsheds, and view corridors are integral to identity of place and should be retained.
- 3. Strengthen existing communities through infill and redevelopment.** New development should be directed to designated growth areas: 1) contiguous or near to existing employment, and 2) where infrastructure and public facilities can be provided in a cost-effective manner.
- 4. Protect Lāna`i City's small-town character.** Development within and adjacent to Lāna`i City should be compatible and sensitive to the community's use of place. Development components, such as street layout, streetscape, architecture, and landscape design, should enhance the small-town character.
- 5. Promote equitable, healthy, livable, mixed-use communities.** Urban development and employment centers should be concentrated within or around Lāna`i City or in designated sites to avoid urban sprawl. Urban communities should provide a mix of housing types and affordability, be compact and pedestrian-oriented, provide access to parks and open space, and offer a mix of compatible land uses.

**Figure 9.1 Land Use Planning Principles and Standards**

Pūlama Lāna`i's estimate for total future population is approximately 6,000 residents. To meet the future demand for housing, Pūlama Lāna`i's plans include development of new residential housing in both urban and rural areas in the Kō`ele and Mānele PDs. The County of Maui currently has entitled lands in the Lāna`i City affordable housing project site (372 units).

Section 2.80B.070(E)(2), MCC, requires the community plan to include a statement of the social, economic, and environmental effects of development. The general intent of the development proposed for Lāna`i is to diversify the island's economy and increase and allow for a variety of housing opportunities. Future development is anticipated to create more business and job opportunities both within and outside the tourism industry. The social effects of such development depend on how the community responds to the changes associated with growth, such as a larger, more diverse population and increased demand for social services. The environmental effect of paramount concern to the community is the increased consumption of already limited water resources.

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Existing permitting and development review processes will further describe and address the specific social, economic, and environmental effects of development. In addition, Figure 9.1, Land Use Planning Principles and Standards, provides general guidance for ensuring new development beneficially affects the community plan area.

### Sequence of Development

The Lāna`i CPAC predicated its decisions on the availability of significant additional water sources for future development proposals. The desired sequence of future development, as required by Chapter 2.80B, MCC, is 1) the expansion of water sources, which may occur concurrently with the permitting of proposed developments; 2) improvements to existing resort developments to strengthen their economic viability; 3) construction of housing near Lāna`i City to address the current housing shortage; and 4) development of new areas that provide for economic diversity, provided that proposed developments may proceed concurrently.

### **Lāna`i City Area – Map 9.3**

New development west of Lāna`i City will include an education and recreation core surrounded by mixed-use residential development. Building design will retain the plantation village character, and neighborhoods will be connected and walkable. There will be a diversity of housing types and affordability. To the north, there will be rural lands for residential use, and light industrial lands to the south are proposed for film studio use. These areas are in the conceptual planning phase (pre-design) and proposed as described below.

**9.3A Mixed-Use Residential – Lāna`i City Expansion** – This area will consist of approximately 546 acres on the west end of the existing town. It will include part of the County's affordable housing lands and extend south, below 9<sup>th</sup> Street, to include the land area of the current WWTF. The WWTF will possibly be moved north of Paliamao Gulch. The Lāna`i City Expansion will be a mixed-use residential project, which includes primarily residential development, with neighborhood parks, commercial/business, and public/quasi-public development. Street pattern and housing form will be similar to the historic areas of Lāna`i City. Land for some of the housing is proposed for exchange by Pūlama Lāna`i for land within the County's affordable housing project, which currently has a 73-acre site. If approved, this will allow construction of mixed-use housing to occur at an earlier date and, over time, will blend the affordable housing with other housing throughout the area, resulting in a mixed-income housing community. Extensions of 5<sup>th</sup> Street and 9<sup>th</sup> Street will intersect with a new bypass road that will cross the Kaumālapa`u Highway and loop north then east to end at the corner of Lāna`i Avenue and Keomuku Road.

**9.3B Tennis Academy Park** – The tennis academy is proposed on approximately 50 acres of park land in the central education and recreation core. The concept is modeled after similar programs that train professional tennis players. The academy will have dormitory housing nearby and

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complete tennis facilities. Students will come from around the world to train for international level competition.

**9.3C Gateway Park** – This 16-acre site will expand the existing undeveloped park at the junction of Mānele Road and Kaumālapa`u Highway. The park will provide an attractive gateway entrance to Lāna`i City.

**9.3D University** – Approximately 524 acres are proposed for a new university and research institute on the western edge of the Lāna`i City Expansion. The proposed acreage reflects the intent to reserve enough space to achieve an attractive campus design.

**9.3E Paliamano Gulch Park** – Approximately 280 acres of natural landscaped linear park and drainage are proposed along the Paliamano Gulch.

## 9 | LAND USE

Table 9.2 Lānaʻi Community Plan Acreage by Growth Area and Land Use Designations									
Growth Area	Land Use Designations								Total Acres
	Mixed-Use Residential	Hotel	Airport	Light Industrial	Heavy Industrial	Public/Quasi-public	Park	Rural	
<b>Lānaʻi City</b>									<b>1,488</b>
Lānaʻi City Expansion*	546								
University Campus						524			
Tennis Academy							50		
Linear Park/Drainage							280		
Gateway Park							16		
Rural Residential								50	
Film Studios				22					
<b>Airport</b>									<b>246</b>
Enhancement of present airport facilities			46						
Miki Basin Industrial				100	100				
<b>Mānele</b>									<b>181</b>
Mānele Mauka	105								
Rural Residential								76	
<b>Kaumālapa`u</b>									<b>60</b>
Ocean Resources Heavy Industrial					10				
Kaumālapa`u Mixed-Use Residential	50								
<b>TOTAL ACRES</b>	<b>701</b>		<b>46</b>	<b>122</b>	<b>110</b>	<b>524</b>	<b>346</b>	<b>126</b>	<b>1,975</b>

\*Note: Includes proposal to incorporate County Affordable Housing Project into new land use designation.

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**9.3F Rural Residential** – A rural residential area is proposed adjacent to Kō‘ele stables. The 50-acre area is located between Keomuku Road and Kopolihua Road. It will be served by a proposed extension of Fraser Avenue for additional road access. This area is intended to provide larger lots than the lots within Lāna‘i City, and to allow farming. Lot sizes could range from 0.5 acre to 10 acres or more under the County’s current zoning code for rural lands.

**9.3G Film Studios** – Twenty-two acres of light industrial land will be used for film studio facilities. The warehouse-type structures will be sited to prevent the buildings from being visible from Mānele Road.

For the proposed development areas described above, and as shown on Map 9.3, Lāna‘i City Land Use Detail, a determination will be made at the time of entitlement as to whether a PD, detailed zoning, or other means will best achieve the goals stated above.

### **Airport Area – Map 9.4**

The Airport Area conceptual plan’s goals are to improve the experience of flying into Lāna‘i by improving transportation facilities, and to consolidate industrial uses.

**9.4A Airport Enhancement** – The enhancement of present airport facilities will add approximately 46 acres to the existing airport to increase its lift capacity. The runway will be extended by 500 feet for a total runway of 5,500 feet. In addition, facilities to assist airplane operation and an anticipated increase in air transportation will include a new taxiway, hangar area, and fueling station.

**9.4B Miki Basin Industrial** – The existing industrial uses on Miki Road will be expanded into a proposed industrial area of approximately 200 acres, divided into approximately one hundred acres each of light and heavy industrial. Light industrial uses in Lāna‘i City will also be moved and consolidated in this area. The area will also serve as a staging area for shipments from the harbor to be distributed closer to town.

### **Mānele Mauka Area – Map 9.5**

**9.5A Mixed-Use Residential – Mānele Mauka** – The conceptual plan proposes approximately one hundred and five acres, with approximately eighty-three acres for primarily residential use, with some commercial uses and amenities, such as neighborhood parks and a community center. Mānele Mauka will be a compact walkable neighborhood with single-family and multifamily units and a variety of housing types, including housing for seniors. Mānele Mauka is located south of the junction of Mānele Road and Kaupili Road, with open agricultural lands bordering both roads to retain views. Road access will initially be via Mānele Road and Kaupili Road; Hulopo‘e Drive will be opened at a later time to connect to the Mānele PD.

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To service the Mānele Mauka community, approximately two acres of commercial land are proposed. It is anticipated that businesses will reduce the number of trips into Lāna`i City for gas, groceries, and similar service needs.

Approximately twenty acres of neighborhood parks will be located in the Mānele Mauka mixed-use residential area. The neighborhood parks will contain a community center with a reservoir on the outer eastern edge.

**9.5B Rural Residential** – Due west of the Mānele PD, above Po`opo`o and the coastline, seventy-six acres are proposed as rural residential housing.

For proposed development areas described above, and as shown on Map 9.5, Mānele Land Use Detail, a determination will be made at the time of entitlement as to whether a PD, detailed zoning, or other means will best achieve the goals stated above.

### **Kaumālapa`u Area – Map 9.6**

The Kaumālapa`u Area conceptual plan creates heavy industrial and residential areas along the Kaumālapa`u Highway above the harbor.

**9.6A Ocean Resources Heavy Industrial** – Approximately ten acres of heavy industrial land is proposed as a new growth area south of the highway and adjacent to the western edge of the quarry. Industrial development will be limited to harbor- or ocean-related activities and could potentially include aquaculture, fish farming, and fish processing facilities.

**9.6B Mixed-Use Residential - Kaumālapa`u Harbor** – The concept proposes creating a mixed-use residential area on approximately 50 acres of land above the harbor and south of Kaumālapa`u Highway. There will be ocean-view residential lots, limited neighborhood service commercial uses, a community garden/farm, and neighborhood parks. The development will be sited to reduce visibility of buildings from the highway and to retain view corridors from the highway to the coast.

For proposed development areas described above, and as shown on Map 9.6, Kaumālapa`u Land Use Detail, a determination will be made at the time of entitlement whether a PD, detailed zoning, or other means will best achieve the goals stated above.

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### B. ISSUES AND STRATEGIES

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**Issue 1:** Interim-zoned lands lack specific zoning standards.

Strategy 1: Conduct a comprehensive review of interim-zoned lands to rezone them appropriately, in order to implement their community plan land use designations.

**Issue 2:** Wetlands, riparian areas, forests, and traditional use lands are being degraded or lost due to development.

Strategy 2: Identify and map natural and cultural resource areas, and provide guidelines for development, such as BMPs, to ensure protection of significant natural resources and traditional use lands.

**Issue 3:** Agreements and conditions of approval relating to the establishment of Chapter 19.70, MCC, Lāna`i Project District 1 (Mānele), and Chapter 19.71, MCC, Project District 2 (Kō`ele), may still need to be fulfilled.

Strategy 3: Work with landowners to review Chapters 19.70 and 19.71, MCC, and subsequent ordinances to determine if actions are needed to fulfill required agreements and conditions of approval.

**Issue 4:** The existing zoning code does not accommodate mixed-use development.

Strategy 4: Consider revisions to the zoning code, such as implementing a form-based code or other mechanisms, to facilitate the development of mixed-use, pedestrian-oriented communities.

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### C. GOAL, POLICIES, ACTIONS

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**GOAL** Lāna`i will have an efficient and sustainable land use pattern that protects agricultural lands, open space, natural systems, and rural and urban character.

#### **Policies**

1. Limit urban zoning to areas designated for urban use on the Lāna`i Community Plan land use maps.
2. Limit new residential, commercial, or industrial development to existing communities and proposed expansion areas as shown on the Lāna`i Community Plan land use maps.
3. Manage Lāna`i Airport lands to include commercial and industrial airport facility development within airport boundaries on the Lāna`i Community Plan land use maps. Expand airport boundaries to allow enhancement of existing runway.
4. Encourage conservation of existing Agricultural Lands of Importance to the State of Hawai`i (ALISH), classified as either Unique Agricultural Land or Other Important Agricultural Land, for agricultural use rather than for development.
5. Discourage developing or subdividing agricultural lands for residential uses where the residence will be the primary use and any agricultural activities will be secondary.
6. Encourage cluster housing, conservation subdivision design (CSD), the use of green spaces and natural separations, and transfer of development rights (TDR) to protect the character of rural and agricultural landscapes.
7. Discourage approvals of Special Use Permits in State Agricultural and Rural Districts unless they: 1) accommodate public/quasi-public facility uses such as utility installations, landfills, and wastewater treatment plants, the locations of which are determined by technical considerations; 2) support agricultural uses; 3) are required for the use or distribution of economic resources and do not otherwise adversely affect the environment or surrounding agricultural uses; or 4) allow very low-impact accommodations (non-permanent structure or tent) to support small-scale eco-, cultural, or adventure tourism.
8. Discourage urban level development in remote areas that will create a future demand for public infrastructure, facilities, or services, unless: 1) the area is

## 9 | LAND USE

shown as urban on the Lānaʻi Community Plan land use maps; and 2) a development agreement provides fiscal neutrality for the County.

9. Establish a predictable and timely development approval process for requests that meet community plan policies and land use regulatory requirements.
10. Ensure all lands are zoned and zoning standards are consistent with community plan policies and land use designations as shown on Maps 9.2 through 9.6.
11. Ensure the boundaries of community plan land use designations are aligned with the boundaries of the applicable State land use districts.
12. Facilitate the provision of infrastructure and public facilities and services prior to, or concurrently with, development, including provision for ongoing maintenance through community facilities district funding or other funding mechanisms.

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### Actions

No.	Action	Policy No.	Lead County Agency	Partners
9.01	Conduct a comprehensive review of interim-zoned lands to identify and adopt zoning that is consistent with the community plan. The process shall include consultation with affected property owners and assessment of potential impacts of rezoning.	1, 10	Department of Planning	Pūlama Lāna`i
9.02	Amend the zoning code to facilitate the development of mixed-use, pedestrian-oriented communities. Develop a form-based code, transect-based code, or similar mechanism.	10	Department of Planning	
9.03	Evaluate and establish zoning for airport land expansion, when needed, for runway improvements consistent with the community plan. Evaluate lands between the airport and Lāna`i City for compatible land uses, particularly with respect to sound attenuation.	3	Department of Planning	Pūlama Lāna`i HDOT (Airports)
9.04	Review the zoning ordinance to determine if amendments are needed to permit low-impact accommodations for small-scale eco-, cultural, or adventure tourism in open space and park lands through the issuance of a County special use permit.	4, 7	Department of Planning	DLNR
9.05	Revise zoning and subdivision ordinances to permit clustering and conservation subdivision design within the Rural and Agricultural Districts.	5, 6, 7	Department of Planning	DPW

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Table 9.3 Land Use				
No.	Action	Policy No.	Lead County Agency	Partners
9.06	Develop and provide incentives to landowners to preserve and protect agricultural lands.	5, 6, 7	Department of Planning	DOA (IAL Program)
9.07	Work with landowners to review PDs in Chapters 19.70 and 19.71, MCC, and subsequent ordinances to determine if actions are needed to fulfill outstanding requirements.	2	Department of Planning	Pūlama Lāna`i
9.08	A 50-100-year coastal erosion rate analysis shall be developed. Where new major waterfront structures or developments are to be approved, open space preservation should be assured by employing a shoreline setback based upon the erosion rate established by the coastal erosion rate analysis.	13	Department of Planning	Pūlama Lāna`i

## 10 | URBAN DESIGN

### A. INTRODUCTION

Lāna`i City was originally conceived by James Dole as a new town in 1923. Today, it is the last intact plantation town in the State. Built to be a self-sufficient company town, Lāna`i City is centered around the rectangular shaped Dole Park, with most of the town's commercial and civic properties facing the park, surrounded by a grid pattern of residential streets with modest plantation houses on small lots. Most of the plantation-style structures were built between 1927 and 1938. One of the most significant character-defining elements of Lāna`i City is the abundant plantings of Cook Island Pines throughout the town. Now that the mature trees are 60 to 100 feet tall, the town has the unique ambiance of being nestled in a forest. The landscaping, the rectilinear street pattern, the centralized commercial land uses around a large green park, and the small scale of the buildings embodies many of the best qualities of late nineteenth, early twentieth century American town planning.

#### **Existing Conditions**

In 2009, the National Trust for Historic Preservation included Lāna`i City on its list of the Top Ten "Most Endangered" historic sites in the United States. Most of Lāna`i City's original structures are still standing; however, in recent years some buildings, both commercial and residential, have been demolished and replaced with new construction. There are also a number of structures that are empty and falling into substantial disrepair, becoming so termite infested that they may not be renovated and restored, resulting in what has become known as "demolition by neglect." Residents of Lāna`i greatly value the unique character of their town and would like to see the town's design character maintained and enhanced, while also allowing for improvements for safety, efficiency, expansion, and viability. The Cook Island Pines that were planted throughout Lāna`i City are now mature and some are reaching the end of their lifespans. Some trees will have to be cut down and replaced as they age, become diseased, or create risks to property.

There are design guidelines for the B-CT District of Lāna`i City. The other settlements on the island, the Kō`ele and Mānele PDs, also have their own design standards and guidelines under their PD ordinances.

## 10 | URBAN DESIGN

### **Growth and Expansion of Lāna`i City**

The next 20 to 30 years will likely see considerable growth and expansion of Lāna`i City as well as the creation of new areas of development (Mānele Mauka Village and Kaumālapa`u Harbor Village). Even before Pūlama Lāna`i announced conceptual plans to expand Lāna`i City, there were three major development projects proposed (or ongoing) on the northwest edge of Lāna`i City: the DHHL subdivision, the Lāna`i High and Elementary School campus expansion, and the County's affordable housing project. With a combined total of over 150 acres, these three projects represent a sizeable extension of the existing town. In 2013, Pūlama Lāna`i initiated conceptual plans to expand Lāna`i City to the west and north. The expansion is intended to accommodate the existing need for non-resort housing, including affordable and non-market rate housing at a variety of price points, and additional commercial space, as well as future needs associated with the anticipated growth in economic activity and population. The projects will be constructed in phases over the next 25 years and will require infrastructure upgrades and expansions and coordinated urban design.

### **Streetscape and Landscaping Principles**

Section 2.80B.070(E)(15), MCC, requires the community plan to contain a "list of streetscape and landscaping principles and desired streetscape and landscaping improvements." The Lāna`i City Country Town Business District Design Guidelines and Standards 2011 provide guidelines and standards for streetscape, landscaping, and planting within the Lāna`i City B-CT district that can also be applied to areas outside the B-CT district. The streetscape and landscaping principles of this community plan shall be the streetscape, landscaping, and planting guidelines and standards of the Lāna`i City Country Town Business District Design Guidelines and Standards 2011, and any of its subsequent updates.

Streetscape and landscaping improvements typically occur with new development or redevelopment. Therefore, the policies and actions within the chapter are intended to provide general guidance on the streetscape and landscaping improvements desired by the community.

### **Urban and Rural Design Principles**

Section 2.80B.070(E)(6), MCC, requires the community plan to contain a "statement of urban and/or rural design principles and objectives for the community plan area." Figure 10.1, Urban and Rural Design Principles, fulfills this requirement by identifying the key concepts that affect the character of Lāna`i. These principles apply to the entire island and address design features such as streets, public spaces, building orientation, and parking. The goals, policies, and actions in this chapter provide direction for implementing the Urban and Rural Design Principles.

### Urban and Rural Design Principles

1. **Preserve and maintain the features of the built and natural landscape that give the island its distinctive character.** Some of the character-defining features include the wide open spaces in the center of the island, the iconic rows of Cook Island Pines, the historic quality of Lāna`i City, and development concentrated in specific areas.
2. **The design of newly developed areas should be visually compatible with the landscape the character of the island and existing development.** New development should reflect the island’s architectural history, character, climate, and landscape.
3. **Maintain and enhance the town’s historic character.** The historic character of the town is one of its most distinguishing features. As a result, the renovation and preservation of historic structures is encouraged. Also, new buildings and other improvements should be designed to complement and enhance the town’s historic character.
4. **Mixed-Use.** Strive for a balance of housing, jobs, shopping, recreation, and civic uses in Lāna`i City. Establish the town as a lively place to be during the week, on the weekends, at night, and for special events.
5. **Walkability.** Create a comprehensive network of travel options, with an emphasis on the pedestrian experience. Sidewalks, walkways, and greenways should link land uses and offer a safe, inviting, and comfortable walking experience.
6. **Street Connectivity.** Street networks should continue the existing grid network and contain multiple paths for efficient circulation. New streets should connect to the existing street network in all adjoining areas where practical. Dead-end streets and cul-de-sacs should only be allowed when required by topographic constraints or when connectivity is prevented by conditions on adjoining properties.
7. **Public Realm.** The town’s streets, sidewalks, parks, and other open spaces collectively comprise the public realm. These features provide public gathering places and the physical framework around which buildings and other improvements are made. The design of the public realm should create a sense of community, safety, and pedestrian activity.

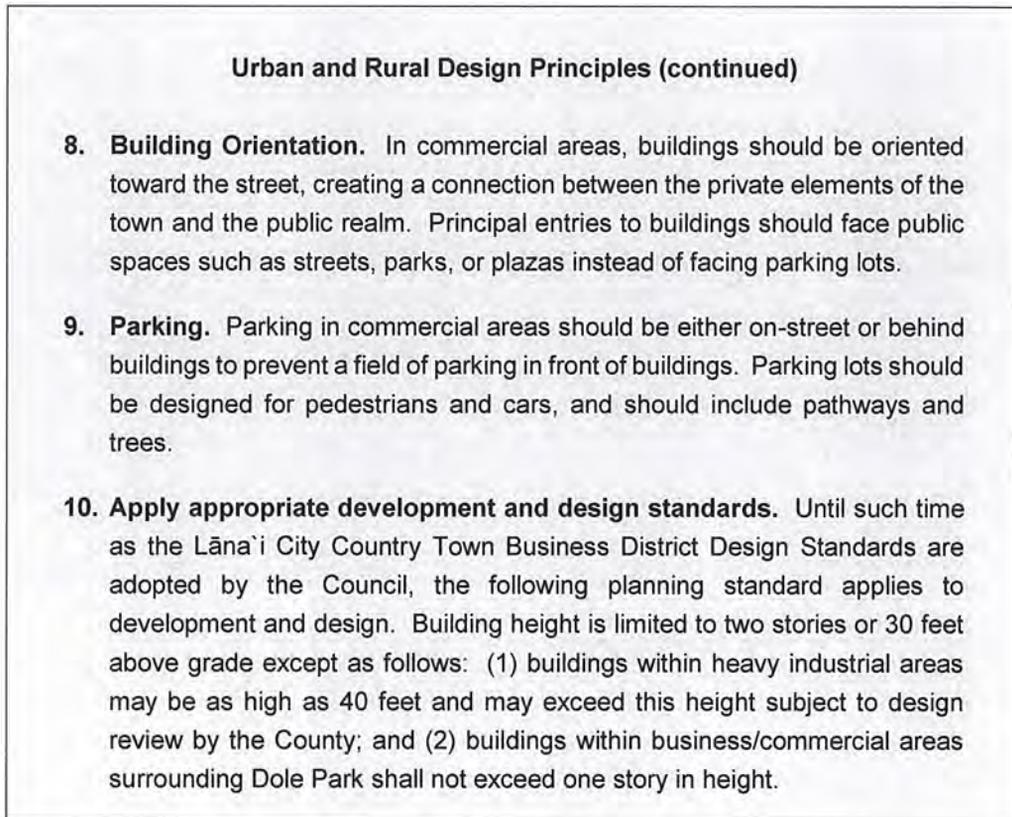


Figure 10.1 Urban and Rural Design Principles

**B. ISSUES AND STRATEGIES**

**Issue 1:** The array, quality, and integrity of the historic structures that make up the core of Lāna`i City are threatened by inadequate maintenance, demolition, and renovation without care for historic character.

**Strategy 1:** Protect Lāna`i City's unique small-town character and plantation heritage by supporting collaborative efforts to develop a vision and master plan for Lāna`i City that includes preservation of historic structures in the B-CT District.

**Issue 2:** Lāna`i City's intact and unique plantation era historic character could be compromised by inappropriate new development and insensitive renovation of existing structures.

**Strategy 2A:** Review, revise, and enhance as necessary the B-CT design guidelines for Lāna`i City to provide more detailed guidance for new construction as well as renovation

## 10 | URBAN DESIGN

and reconstruction of existing structures. Review and amend the B-CT zoning ordinance to allow flexible adaptive reuse.

**Strategy 2B:** Develop design guidelines for new structures not only in the Lāna`i City B-CT District but also outside of the B-CT District to provide guidance on appropriate form, scale, architectural character, details, and materials.

**Strategy 2C:** Many Lāna`i residents would like to ensure the urban design of the town expansion provides a similar “sense of place” and quality of life to the existing town. Encourage Pūlama Lāna`i to collaborate with the community and the County on the development of site plans, building types, planning and design standards, and design guidelines for any expansion of Lāna`i City, as well as for any new development areas, through interactive public design workshops.

**Issue 3:** **County standard parking requirements for commercial operations make it expensive and difficult to obtain building permits and yet, there is ample parking surrounding Dole Park for the adjacent businesses and institutions, making the requirement for onsite parking for each business unnecessary.**

**Strategy 3:** Create a comprehensive parking strategy for Lāna`i City and develop and adopt less restrictive parking requirements as part of the revised Lāna`i City B-CT design guidelines which would allow businesses to utilize public parking surrounding Dole Park instead of developing new parking spaces on site. Review and amend the B-CT zoning ordinance to be consistent with proposed guidelines.

**Issue 4:** **The rural character of Lāna`i City’s streetscapes will be compromised by the imposition of modern street design standards. Lāna`i’s rural design character is dependent upon, in large part, its rural streetscapes, street design, and road network configuration. Previous expansions of Lāna`i City have utilized curvilinear street network forms, breaking the rectilinear grid and intimate scale of Lāna`i City’s small-town streets. Modern/contemporary street design standards, which include requirements for curb and gutter, wide concrete sidewalks, and wider lane and street widths, have been used in newer areas of town and create a very different urban design pattern and ‘sense of place’ from older areas of town.**

**Strategy 4:** Develop and adopt by ordinance specific rural and small-town street design standards, as well as streetscape guidelines, for Lāna`i to govern both existing areas and new development areas. These standards and guidelines would permit context sensitive street design, such as streets without wide concrete sidewalks and formal curbs and gutters, and maintenance of the small-town streetscapes found in Lāna`i City. They would also maintain, where possible, the overall street grid pattern for Lāna`i City.

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**Issue 5:** Loss of the array of Cook Island Pines in Lāna`i City from age or disease would significantly alter the character of the town.

**Strategy 5:** Work with appropriate agencies, NGOs, and the community to prepare a management and replanting plan for the Cook Island Pines throughout Lāna`i City. Explore options for appropriate alternative tree species, depending on location and site. Cook Pines could be replanted if appropriate for that location, or native and noninvasive species could be used.

**Issue 6:** Non-native landscaping in settled areas can consume precious water resources and may introduce invasive species.

**Strategy 6:** Support the development of a street tree planting plan for existing areas and new development. Distribute a guidance document for homeowners and landowners to address both new and existing landscapes that would promote the use of non-invasive, drought-tolerant, and climatic-zoned native plants wherever possible.

**Issue 7:** Parks in Lāna`i City are concentrated in the central area; outlying neighborhoods are lacking park facilities.

**Strategy 7:** Ensure the expansion of Lāna`i City or development of new residential areas provides for adequate parks and open spaces, as required by Title 18, MCC.

**Issue 8:** Unshielded street lights and playfield lighting cause glare and light pollution that not only detract from the rural character of Lāna`i, but also cause problems for migrating and nesting seabirds.

**Strategy 8:** Ensure street lighting is minimized and street lights use shielding to prevent unnecessary light pollution.

### C. GOAL, POLICIES, ACTIONS

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**GOAL** Lāna`i will retain and enhance its urban design character, which is unique in the State.

#### Policies

1. Maintain and enhance the traditional small-town streetscape design and rural road character in Lāna`i City and outside of town.

# 10 | URBAN DESIGN

2. Enhance the landscape of Lāna`i City and other settlement areas through the use of native or other appropriate landscaping, such as using non-invasive and drought-tolerant plants.
3. Ensure the character of new development within and around Lāna`i City respects and enhances the urban design character of the plantation town by utilizing appropriate design guidelines, including expansion of the grid street network.
4. Ensure the urban and architectural design of new development areas outside of Lāna`i City is consistent with the rural, small-town character of the island.
5. Ensure there is community engagement and input into any new development.
6. Support the coordination of major development projects in Lāna`i City to maximize efficiency, provide infrastructure and public amenities, and enhance the overall character of the town.
7. Encourage the planting of suitable street tree species in new and existing areas; encourage the replacement of Cook Island Pines, if appropriate.
8. Protect and maintain the dark sky of the island's rural environment by ensuring street lighting, building lighting, and park lighting do not create excessive light pollution and glare.
9. Promote the development of a variety of park and recreational facilities distributed throughout Lāna`i City and the island.
10. Encourage the provision of public restrooms in major parks and public spaces.
11. Continue assisting property owners to preserve and rehabilitate historic buildings in the B-CT District.

**Actions**

<b>Table 10.1 Urban Design Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
10.01	Prepare a vision and master plan for Lāna`i City through collaborative efforts that include historic preservation of structures in the B-CT District.	1, 3, 6, 11	Department of Planning	Pūlama Lāna`i

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<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
10.02	Revise and enhance the B-CT design guidelines for Lāna`i City to provide more detailed guidance for new construction, as well as renovation and reconstruction of existing structures for adaptive reuse.	1, 3, 11	Department of Planning	Pūlama Lāna`i
10.03	Develop design guidelines for structures in Lāna`i City, but outside of the B-CT District, to provide guidance on appropriate form, scale, architectural character, details, and materials.	3, 6	Department of Planning	Pūlama Lāna`i
10.04	Create a comprehensive parking strategy for Lāna`i City. Revise the B-CT design guidelines to lessen parking requirements and allow businesses to fulfill onsite parking requirements through use of existing public parking surrounding Dole Park.	1, 3, 6	Department of Planning	Pūlama Lāna`i
10.05	Develop an urban forestry management plan for County and public property throughout Lāna`i City. Include options for the planting of native and non-invasive species, where appropriate, and consider replanting Cook Island Pines only where there is adequate space for the mature trees. Encourage Pūlama Lāna`i to adopt a similar plan.	2, 7	Department of Parks and Recreation	Department of Planning Pūlama Lāna`i
10.06	Select options for implementing LED lighting to save energy and provide a more point-like light source.	8	DPW	Department of Planning Pūlama Lāna`i

# 11 | HOUSING

## A. INTRODUCTION

During the 1920s, as pineapple production rapidly expanded on Lāna`i, more than 600 plantation-style houses were constructed by Hawaiian Pineapple Company to house the influx of workers. The island now has around 1,400 dwelling units, most of which were built during the 1980s and 1990s. Lāna`i may be on the cusp of another expansion in housing construction that could double the number of housing units if current plans to diversify the island's economy are realized.

While new residential construction will likely improve the island's housing choices, there are challenges: housing development plans should address factors affecting affordability and community character; special needs populations, such as disabled residents or the frail or elderly, may require special housing types; and zoning regulations may need updating to allow for a variety of housing types, lot sizes, and mixed-use districts.

Housing affordability is a problem throughout the County, and Lāna`i is no exception. Shortages of reasonably priced housing can contribute to high rates of crowding and lower ownership rates. Housing affordability can improve when residences are built near employment, services, and existing infrastructure. 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. However, investment or second homes used as visitor rentals may increase housing prices.

The County has a number of policies and regulations to help ensure quality, island-appropriate housing is available to all residents. The Countywide Policy Plan specifically addresses affordable housing:

Ensure that an adequate and permanent supply of affordable housing, both new and existing units, is made available for purchase or rental to our resident and/or workforce population, with special emphasis on providing housing for low- to moderate-income families, and ensure that all affordable housing remains affordable in perpetuity.<sup>29</sup>

On Lāna`i, the Mānele and Kō`ele PD ordinances both contain provisions requiring the development and coordination of an affordable housing program for island residents.

### Existing Conditions

According to the United States Department of Housing and Urban Development (HUD), families who pay more than 30 percent of their annual income on housing are considered cost burdened. By this standard, and as shown in Figures 11.1 and 11.2, a relatively low number of Lāna`i renters pay unaffordable rents. However, a high number of Lāna`i homeowners are paying unaffordable monthly ownership costs.

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<sup>29</sup> County of Maui, Department of Planning (March 2010). *County of Maui 2030 General Plan, Countywide Policy Plan*, p. 57.

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As shown below in Figure 11.1, for the years 2007 to 2011, only 17 percent of Lāna`i renters paid more than the HUD affordable rate for housing costs versus 55 percent of Maui County renters and 56 percent of statewide renters.<sup>30</sup>

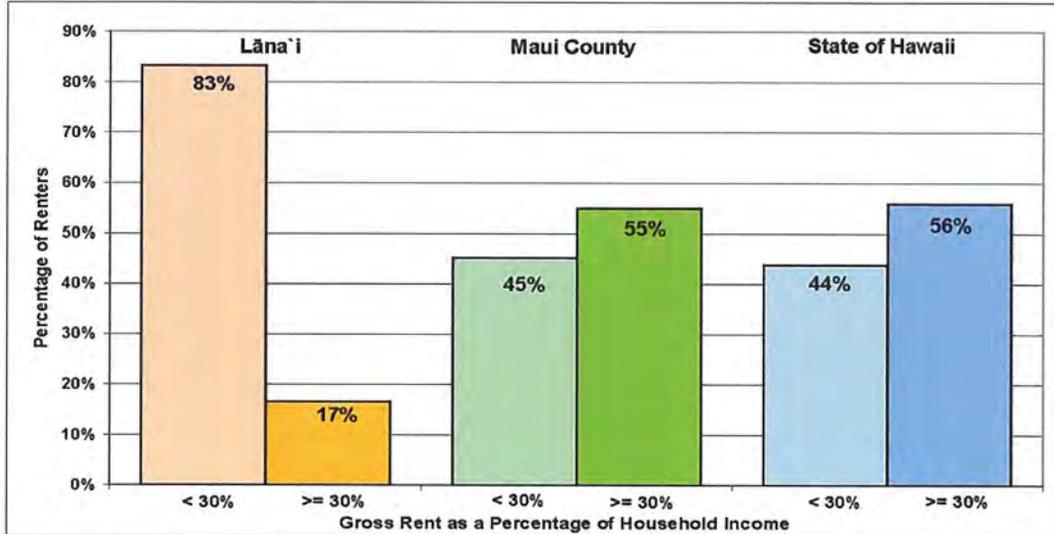


Figure 11.1 Gross Rent as a Percentage of Household Income

As shown below in Figure 11.2, for the years 2007 to 2011, 61 percent of Lāna`i homeowners with mortgages paid more than the HUD affordable rate for housing costs versus 53 percent of county homeowners and 49 percent of owners statewide.<sup>31</sup>

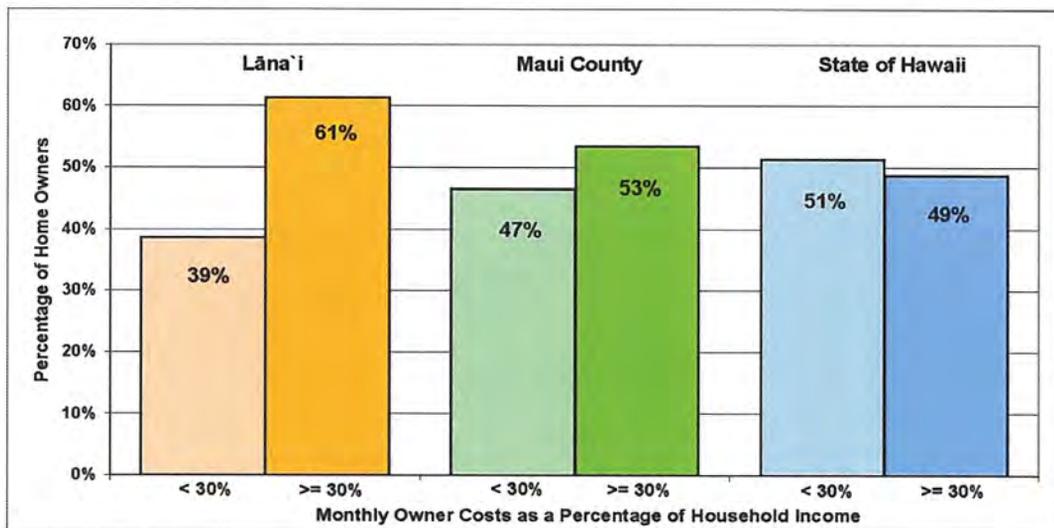


Figure 11.2 Monthly Owner Costs as a Percentage of Household Income (for homes with mortgages)

<sup>30</sup> United States Census Bureau (December 2012). *2007-2011 American Community Survey 5-Year Estimates*.

<sup>31</sup> Id.

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Most residents live in moderately priced housing located in Lānaʻi City, while the island’s high-end housing is primarily located in the Mānele and Kōʻele PDs. Around 59 percent of Lānaʻi households own their homes, which equals the statewide ownership rate.<sup>32</sup> Pūlama Lānaʻi is the primary provider of rental housing, with 455 single-family and multifamily units.

A large number of capital improvement projects were initiated by Pūlama Lānaʻi in 2013, boosting island employment. These job gains sharply increased the need for housing, creating a housing shortage. The main barrier to alleviating this housing shortage is the scarcity of developable residential land apart from the luxury offerings in Kōʻele and Mānele PDs. There are two housing projects on the edge of Lānaʻi City that have been approved for a number of years, but both appear unlikely to contribute a significant number of housing units anytime soon.

The first project is a DHHL development that has had 45 lots available to qualified Native Hawaiians since 2005, 29 of which have been leased and developed. The second project is a County affordable housing development located on 73 acres that was approved for 372 affordable residential units. The project is planned in five phases over a period of 17 years. However, the County has not yet provided a construction timeline for the project.

Lānaʻi also has a number of transient vacation rental (TVR) and B&B accommodations. The conversion of houses to TVRs and B&Bs has reduced the inventory of housing available for residents. However, TVRs and B&Bs do provide an alternative source of visitor accommodations that support the State hunting program, which generates significant economic activity for the island.

## B. ISSUES AND STRATEGIES

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**Issue 1:** There is a lack of affordable housing and affordable residential building sites on Lānaʻi.

Strategy 1A: Support development and implementation of a comprehensive affordable housing plan for Lānaʻi within one year of adoption of the community plan.

Strategy 1B: Encourage Pūlama Lānaʻi to develop new rental and ownership housing that is affordable to a broad range of Lānaʻi household income levels.

Strategy 1C: Work with the community and public-private partners to establish a community land trust to improve access to affordable land and housing.

**Issue 2:** The County does not currently have the funding to develop the Lānaʻi City Affordable Housing Project and there is an immediate need for more housing.

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<sup>32</sup> Id.

# 11 | HOUSING

**Strategy 2:** Encourage the County to negotiate a swap of the entitled affordable housing project land so Pūlama Lāna`i can immediately begin construction of new housing. In exchange, the approved number of affordable housing units will be distributed throughout each new residential growth area.

**Issue 3:** **There is a lack of housing choices at different price levels and housing sizes.**

**Strategy 3:** Encourage new development to include a variety of lot sizes, housing types, tenures, and price points that accommodate the full spectrum of household compositions, life stages (i.e. single, married, with children, multigenerational, etc.), and income levels. Ensuring housing variety on Lāna`i will increase residents' ability to remain on the island when family or economic circumstances change. Housing types include small and large single-family detached homes, `ohana dwelling units, duplexes, town homes, multifamily buildings, and live-work units.

**Issue 4:** **There is an increasing need for housing and services for special needs populations.**

**Strategy 4:** Support the formation of partnerships to provide housing and residential care for special needs populations.

## C. GOAL, POLICIES, ACTIONS

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**GOAL**            **A diverse supply of housing that meets the needs of all Lāna`i residents.**

### **Policies**

1. Support regulations to keep all affordable housing affordable in perpetuity.
2. Require County-mandated affordable housing has a buyback provision so affordable units will not be taken out of the affordable housing stock.
3. Require County-subsidized affordable rental housing remain available as rental housing at affordable rents.
4. Expedite the permit process for housing projects that are safe, affordable, environmentally sustainable, and community oriented.
5. Encourage development of a mix of quality multifamily and single-family housing units to expand housing choices and price points.

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6. Support opportunities for multigenerational housing and efficient use of existing infrastructure through the development of 'ohana units on Lāna'i.
7. Ensure elderly and special needs residents have access to appropriate housing.
8. Encourage Lāna'i residents to take advantage of the USDA Rural Development Mutual Self-Help Housing Loan program to help build their own homes.
9. Increase homeownership for Lāna'i residents by encouraging the sale of residential rental properties.
10. Encourage locating employee housing near remote employment centers.
11. Encourage the County to work collaboratively with Pūlama Lāna'i in order to build affordable housing throughout all residential growth areas.
12. Encourage the establishment of a community land trust to improve access to affordable land and housing.
13. Promote the use of sustainable green building and development practices, such as the Leadership in Energy and Environmental Design (LEED) standard.

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## Actions

<b>Table 11.1 Housing Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
11.01	Develop and implement a comprehensive affordable housing plan for Lānaʻi within one year of adoption of the community plan.	1, 2, 3, 4, 11, 12	DHHC	Pūlama Lānaʻi
11.02	Implement a housing rehabilitation program including loans, grants, and/or technical assistance and community outreach.	8	DHHC	Pūlama Lānaʻi
11.03	Amend zoning codes to allow a greater variety of housing types, including mixed-use, mixed housing types, co-housing, prefabricated homes, and small lots.	1	Department of Planning	
11.04	Provide assistance with securing/leveraging grants, Low Income Housing Tax Credits, and other resources that support affordable housing price points.	8	DHHC	
11.05	Develop a plan for establishing a long-term care infrastructure on Lānaʻi, including long-term and short-term supportive housing, palliative care, and hospice facilities.	7	DHHC	Pūlama Lānaʻi Lānaʻi Changes
11.06	Provide adequate government-sponsored affordable housing units for Lānaʻi government personnel and residents.	3, 10	DHHC	Various State Agencies
11.07	Redesign and accelerate development of the County's affordable housing site in order to help alleviate the existing housing shortage.	1, 4	DHHC	Department of Planning Mayor's Office Pūlama Lānaʻi
11.08	Assist with community workshops to explore different housing types and development patterns that could be utilized in an expansion of Lānaʻi City or in new residential areas.	11	Department of Planning	Pūlama Lānaʻi DHHC DHHL

# 11 | HOUSING

<b>Table 11.1 Housing Actions</b>				
<b>No.</b>	<b>Action</b>	<b>Policy No.</b>	<b>Lead County Agency</b>	<b>Partners</b>
11.09	Investigate whether Na Hale `O Maui, a community land trust on Maui, would consider operating on Lāna`i.	12	DHHC	Department of Planning Na Hale `O Maui
11.10	Form partnerships to establish an elder care infrastructure system.	7	DHHC	DOH NGOs Pūlama Lāna`i
11.11	Explore the development of incentives promoting the use of sustainable green building and development practices.	13	Department of Planning	DPW Pūlama Lāna`i