CITY COUNCIL
CITY AND COUNTY OF HONOLULU
HONOLULU, HAWAII

FILED
JAN 03 2019
PURSUANT TO ROH Sec. 1-2.4

ORDINANCE _____

BILL 1 (2017), CD1

A BILL FOR AN ORDINANCE

TO ADOPT THE REVISED KOOLAU LOA SUSTAINABLE COMMUNITIES PLAN.

BE IT ORDAINED by the People of the City and County of Honolulu:

SECTION 1. Purpose. The purpose of this ordinance is to repeal the existing Sustainable Communities Plan ("SCP") for Koolau Loa, Article 7, Chapter 24, Revised Ordinances of Honolulu 1990, and to adopt a new Article 7 incorporating the revised Koolau Loa Sustainable Communities Plan.

This development plan ordinance adopts a revised sustainable communities plan for Koolau Loa that presents a vision for Koolau Loa's future development consisting of policies, guidelines, and conceptual schemes that will serve as a policy guide for more detailed zoning maps and regulations and for public and private sector investment decisions.

This ordinance is enacted pursuant to the powers vested in the City and County of Honolulu by Chapter 46, and Section 226-58 of the Hawaii Revised Statutes.

SECTION 2. Article 7 of Chapter 24, Revised Ordinances of Honolulu 1990, ("Koolau Loa"), is repealed.

SECTION 3. Chapter 24, Revised Ordinances of Honolulu 1990 ("Development Plans"), is amended by adding a new Article 7 to read as follows:

"Article 7. Koolau Loa

Sec. 24-7.1 Definitions.

Unless the context otherwise requires, the following definitions govern the construction of this article.

"Department" or "department of planning and permitting" means the department of planning and permitting of the City and County of Honolulu.

"Development" means any public improvement project, or any public or private project requiring a zoning map amendment.

"Development plan" or "sustainable communities plan" means a plan document for a given geographic area, which consists of conceptual schemes for implementing and accomplishing the development objectives and policies of the general plan for the several parts of the city.

"Director" means the director of the department of planning and permitting.

"Environmental assessment" or "EA" means a written evaluation prepared in compliance with the environmental council's procedural rules and regulations implementing Hawaii Revised Statutes Chapter 343 to determine whether an action may have a significant environmental effect.

"Environmental impact statement" or "EIS" means an informational document prepared in compliance with the procedural rules and regulations of the environmental council established in HRS Section 341-3(c) for the implementation of HRS Chapter 343; and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic and social welfare of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

"Finding of no significant impact" or "FONSI" means a determination based on an environmental assessment that the subject action will not have a significant effect and, therefore, will not require the preparation of an environmental impact statement.

"Functional plan" means the public facility and infrastructure plans prepared by public agencies to further implement the vision, policies and guidelines set forth in the Koolau Loa SCP.

"General plan" means the general plan of the city as defined by Charter Section 6-1508.

"Koolau Loa SCP" means the Koolau Loa Sustainable Communities Plan attached hereto as Exhibit A and made a part hereof.

"Planning commission" means the planning commission of the city.

"Project master plan" means a conceptual plan that covers all phases of a development project. The project master plan describes how the project conforms to the vision for Koolau Loa, and the relevant policies and guidelines for the site, the surrounding lands, and the region.

"Significant zone change" means a zone change that involves at least one of the following:

(1) Changes in zoning of 10 or more acres of land to any zoning district or combination of zoning districts, excluding preservation or agricultural zoning districts;

(2) Any change in zoning of more than 5 acres to an apartment, resort, commercial, industrial, or mixed use zoning district; or

(3) Any development that would have a major social, environmental, or policy impact, or major cumulative impacts due to a series of applications in the same area.

"Special area" means a designated area within the Koolau Loa Sustainable Communities Plan area that requires more detailed planning efforts beyond what is contained in the Koolau Loa SCP.

"Special area plan" means a plan for a special area.

"Unilateral agreement" means a conditional zoning agreement made pursuant to ROH Section 21-2.80 or any predecessor or successor provision that imposes conditions on a landowner or developer's use of the property at the time of the enactment of an ordinance for a zone change.

"Vision" means the future outlook for the Koolau Loa region extending out to the year 2035 and beyond, which seeks to preserve the region's overall rural character and its natural, cultural and scenic resources. Some growth in housing and related support services is envisioned to support the planned expansion of the Brigham Young University-Hawaii. Nevertheless, the future of the Koolau Loa region is to remain country, characterized by small towns and villages with distinctive identities that exist in harmony with the natural settings, defined by mountain ridges and scenic open spaces.

Sec. 24-7.2 Applicability and intent.

(a) The Koolau Loa SCP area encompasses the entire area from the mountains to the northeastern shoreline of Oahu stretching from Waialee on the northwest end, along the ridgeline of the Koolau Loa Mountain Range in a southeasterly direction to Kaoio Point at its southeast end.

(b) It is the intent of the Koolau Loa SCP to provide a guide for orderly and coordinated public and private sector development in a manner that is consistent with applicable general plan provisions, including the designation of Koolau Loa as a rural area where growth will be managed so that "an undesirable spreading of development is prevented."

(c) The provisions of this article and the Koolau Loa SCP are not regulatory. Rather, they are established with the explicit intent of providing a coherent vision to guide all new public and private sector development within Koolau Loa. This article guides public investment in infrastructure, zoning and other regulatory procedures, and the preparation of the city's annual capital improvement program budget.

Sec. 24-7.3 Adoption of the Koolau Loa Sustainable Communities Plan.

(a) This article is adopted pursuant to the Charter Section 6-1509 and provides a self-contained development plan document for Koolau Loa. Upon enactment of this article, all proposed developments will be evaluated against how well they fulfill the vision for Koolau Loa enunciated in the Koolau Loa SCP and how closely they meet the policies and guidelines selected to implement that vision.

(b) The plan entitled, "Koolau Loa Sustainable Communities Plan," attached as Exhibit A, is hereby adopted by reference and made a part of this article.

(c) Chapter 24, Article 1, entitled "Development Plan Common Provisions," in its entirety is no longer applicable to the Koolau Loa SCP area. This article and the Koolau Loa SCP, as adopted by reference by this ordinance, supersede any and all common provisions previously applicable to the Koolau Loa SCP area.

Sec. 24-7.4 Existing zoning and subdivision ordinances, approvals, and applications.

(a) All existing subdivisions and zoning approved prior to the effective date of this ordinance continue to remain in effect following the effective date of this ordinance.

(b) Subdivision and zoning ordinances applicable to the Koolau Loa SCP area enacted prior to the effective date of this ordinance continue to regulate the use of land within demarcated zones of the Koolau Loa SCP area until such time as the subdivision and zoning ordinances may be amended to be consistent with the Koolau Loa SCP.

(c) Notwithstanding adoption of the revised Koolau Loa SCP, applications for subdivision actions and land use permits accepted by the department for processing prior to the effective date of this ordinance continue to be subject only to applicable ordinances and rules and regulations in effect at the time the application is accepted for processing.

Sec. 24-7.5 Consistency.

(a) In the performance of their prescribed powers, duties and functions, all city agencies shall conform to and implement the policies and provisions of this article and the Koolau Loa SCP. Pursuant to Charter Section 6-1511.3, public improvement projects and subdivision and zoning ordinances must be consistent with the Koolau Loa SCP.

(b) Any questions of interpretation regarding the consistency of a proposed development with the provisions of the Koolau Loa SCP and the objectives and policies of the general plan are ultimately resolved by the council.

(c) In determining whether a proposed development is consistent with the Koolau Loa SCP, the responsible agency shall primarily take into consideration the extent to which the development is consistent with the vision, policies, and guidelines set forth in the Koolau Loa SCP.

(d) Whenever there is a question regarding consistency between existing subdivision or zoning ordinances, including any unilateral agreement, and the Koolau Loa SCP, the existing subdivision or zoning ordinances prevail until such time as they may be amended to be consistent with the Koolau Loa SCP.

Sec. 24-7.6 Review of development and other applications.

The review of applications for zone changes and other development approvals will be guided by the vision of the Koolau Loa SCP. Decisions on all proposed developments will be based on the extent to which the project enabled by the development approval supports the policies and guidelines of the Koolau Loa SCP.

The director may review other applications for improvements to land to help the responsible agency determine whether a proposed improvement supports the policies and guidelines of the Koolau Loa SCP.

Sec. 24-7.7 Zone change applications.

(a) All zone change applications relating to land in the Koolau Loa SCP area will be reviewed by the department of planning and permitting for consistency with the general plan, the Koolau Loa SCP, and any applicable special area plan.

(1) The director shall recommend either approval, approval with changes, or denial. The director's written review of the application becomes part of the zone change report, which will be sent to the planning commission and the city council.

(2) A project master plan must be part of an EA or EIS for any project involving 10 acres or more of land. The director shall review the project master plan for its consistency with the Koolau Loa SCP.

(3) Any development or phase of development already covered by a project master plan that has been fully reviewed under the provisions of this article does not require a new project master plan, provided the director determines that the proposed zone change is generally consistent with the existing project master plan for the affected area.

(4) If a final EIS has already been accepted for a development, including one accepted prior to the effective date of this ordinance, then a subsequent project master plan is not required for the development.

(b) Projects that involve a significant zone change are required to submit an environmental assessment to the department of planning and permitting prior to an application for a zone change being accepted. Any development or phase of a development that has already been assessed under the National Environmental Policy Act ("NEPA"), HRS Chapter 343 (Hawaii Environmental Policy Act, "HEPA"), Chapter 25, or the provisions of this article, and for which a FONSI has been filed or a required EIS has been accepted, are not subject to further EA or EIS requirements under this chapter unless otherwise required by NEPA or HEPA.

(c) The department shall review the environmental assessment. Based on review of the EA, the director shall determine whether an EIS will be required or whether a FONSI should be issued.

(d) If an EIS is required, the EIS must be accepted by the director before a zone change application may be initiated.

(e) Zone changes are to be processed in accordance with this section; Section 5.5 of the Koolau Loa SCP; Chapter 2, Article 24, Part A; and Chapter 21.

Sec. 24-7.8 Annual capital improvement program review.

Annually, the director shall work jointly with the director of budget and fiscal services and other city agencies to review all projects in the city's capital improvement program and budget for compliance and consistency with the general plan, the Koolau Loa SCP and other development plans, any applicable special area plan provisions, and the appropriate functional plans. The director shall prepare a written report of findings to be submitted to the council in accordance with Charter Section 6-1503.

Sec. 24-7.9 Five year review.

(a) The department shall conduct a comprehensive review of the Koolau Loa SCP, adopted by reference in Section 24-7.3(b), every five years subsequent to the effective date of this ordinance, and shall report its findings and recommended revisions, if any, to the council.

(b) The Koolau Loa SCP will be evaluated to assess the appropriateness of the plan's regional vision, policies, guidelines, and implementing actions, as well as its consistency with the general plan.

(c) Nothing in this section should be construed as prohibiting the processing of a revision to the Koolau Loa SCP at any time in the event either the director's biennial report or the council recommends consideration of such a revision, pursuant to the Charter.

Sec. 24-7.10 Authority.

Nothing in this article should be construed as an abridgement or delegation of the responsibility of the director, or of the inherent legislative power of the council, to review or revise the Koolau Loa SCP pursuant to the Charter and the above procedures.

Sec. 24-7.11 Severability.

If any provision of this article or the application thereof to any person or property or circumstances is held invalid, such invalidity does not affect the validity of the other provisions or applications of this article that can be given effect without the invalid provision or application, and to this end the provisions of this article are declared to be severable.

Sec. 24-7.12 Conflicting provisions.

Any provision contained in this article as it pertains to land within the Koolau Loa SCP area prevails should there be any conflict with the common provisions or any other provisions under Chapter 24."

SECTION 4. Effective Date of the Koolau Loa SCP. The City Clerk is directed to date the Koolau Loa Sustainable Communities Plan attached as Exhibit A to this ordinance with the effective date of this ordinance.

SECTION 5. In Section 3 of this ordinance, the Revisor of Ordinances shall, pursuant to the Revisor of Ordinances' authority under Section 1-16.3(b)(1), replace the phrase "effective date of this ordinance," with the actual effective date.

A BILL FOR AN ORDINANCE

SECTION 6. This ordinance takes effect upon its approval.

INTRODUCED BY:

Ikaika Anderson

DATE OF INTRODUCTION:

January 3, 2017
Honolulu, Hawaii

Councilmembers

APPROVED AS TO FORM AND LEGALITY:

Deputy Corporation Counsel

APPROVED this _____day of _____, 20 _____.

KIRK CALDWELL, Mayor
City and County of Honolulu

FILED
JAN 03 2019
PURSUANT TO ROH Sec. 1-2.4

EXHIBIT A

KO‘OLAU LOA
SUSTAINABLE COMMUNITIES PLAN

City and County of Honolulu • Department of Planning and Permitting | December 2012

KO‘OLAU LOA

SUSTAINABLE COMMUNITIES PLAN

City and County of Honolulu • Department of Planning and Permitting | December 2012

TABLE OF CONTENTS

PREFACE **P-1**

EXECUTIVE SUMMARY **ES-1**

CHAPTER 1: KOʻOLAU LOA'S ROLE IN OʻAHU'S DEVELOPMENT PATTERN **1-1**

CHAPTER 2: THE VISION FOR KOʻOLAU LOA'S FUTURE **2-1**

2.1 THE COMMUNITY GROWTH BOUNDARY GUIDES LAND USE 2-2

2.2 NATURAL, RECREATIONAL AND CULTURAL RESOURCES ARE PRESERVED AND ENHANCED, AND CONTRIBUTE TO KOʻOLAU LOA'S SENSE OF "OLD HAWAIʻI" 2-4

2.3 AGRICULTURAL LANDS ARE PRESERVED FOR AGRICULTURAL USES 2-6

2.4 RECREATIONAL AREAS AND RESOURCES ARE MAINTAINED AND ENHANCED 2-6

2.5 RURAL AREA DEVELOPMENT STANDARDS ARE USED TO MAINTAIN THE RURAL CHARACTER OF RESIDENTIAL AREAS 2-7

2.6 COMMERCIAL AREAS ARE ENHANCED AND COUNTRY STORES CONTRIBUTE TO KOʻOLAU LOA'S RURAL FABRIC 2-7

2.7 DECISION-MAKING PROCESSES REFLECT PRINCIPLES OF SUSTAINABILITY 2-8

CHAPTER 3: LAND USE POLICIES AND GUIDELINES **3-1**

3.1 OPEN SPACE PRESERVATION 3-1

3.1.1 Policies 3-3

3.1.2 Guidelines 3-3

3.1.2.1 Mountain Areas and Trails 3-4

3.1.2.2 Shoreline Areas 3-4

3.1.2.3 Wildlife Sanctuaries 3-6

3.1.2.4 Natural Gulches, Streams and Drainageways 3-9

3.1.2.5 Parks 3-11

3.1.2.6 Golf Courses 3-12

3.1.2.7 Kahuku Training Area 3-13

3.1.3 Relation to Open Space and Land Use Maps 3-14

3.2 AGRICULTURE 3-14

3.2.1 Policies 3-16

3.2.2 Guidelines 3-17

3.2.3 Relation to Open Space and Land Use Maps 3-18
3.3 PARKS AND RECREATION 3-18
3.3.1 Policies 3-23
3.3.2 Guidelines.....3-24
3.3.3 Relation to Open Space and Land Use Maps 3-25
3.4 HISTORIC AND CULTURAL RESOURCES.....3-26
3.4.1 Policies 3-28
3.4.2 Guidelines.....3-29
3.5 RESIDENTIAL COMMUNITIES.....3-30
3.5.1 Policies 3-32
3.5.1.1 Existing and New Residential Communities 3-32
3.5.2 Guidelines.....3-33
3.5.2.1 Rural 3-34
3.5.2.2 Rural Residential.....3-35
3.5.2.3 Low Density Apartment 3-37
3.5.2.4 Special Needs Housing.....3-37
3.5.3 Relation to Land Use Map.....3-38
3.6 COMMERCIAL AREAS 3-39
3.6.1 Policies 3-41
3.6.1.1 Kahuku Country Town.....3-41
3.6.1.2 Lāʻie Rural Regional Commercial Center 3-42
3.6.1.3 Hauʻula and Kaʻaʻawa Rural Community Commercial Centers.....3-42
3.6.1.4 Country Stores 3-42
3.6.2 Guidelines.....3-43
3.6.2.1 All Commercial Areas.....3-43
3.6.2.2 Kahuku Country Town.....3-45
3.6.2.3 Lāʻie Rural Regional Commercial Center 3-45
3.6.2.4 Hauʻula and Kaʻaʻawa Rural Community Commercial Centers.....3-46
3.6.2.5 Country Stores 3-46
3.6.3 Relation to Land Use Map.....3-46
3.7 BUSINESS/LIGHT INDUSTRIAL AND TECHNOLOGY PARK AREAS.....3-47
3.7.1 Policies 3-47
3.7.2 Guidelines.....3-48
3.7.2.1 Business/Light Industrial Areas 3-48
3.7.2.2 Technology Park 3-49
3.7.3 Relation to Land Use Map.....3-50

3.8 VISITOR FACILITIES 3-50
3.8.1 Turtle Bay Resort and Coastline 3-51
3.8.1.1 Policies 3-52
3.8.1.2 Guidelines 3-52
3.8.2 Visitor Facilities in Lāʻie 3-53
3.8.2.1 Policies 3-53
3.8.2.2 Guidelines – Polynesian Cultural Center 3-53
3.8.2.3 Guidelines – Visitor Accommodations in Lāʻie 3-54
3.8.3 Eco- and Agricultural-Tourism Operations 3-55
3.8.3.1 Policies 3-55
3.8.3.2 Guidelines 3-55
3.8.4 Relation to Land Use Map 3-56
3.9 INSTITUTIONAL USES 3-57
3.9.1 Health and Wellness Facilities 3-57
3.9.1.1 Policies 3-57
3.9.1.2 Guidelines 3-58
3.9.2 Brigham Young University – Hawaiʻi 3-58
3.9.2.1 Policies 3-59
3.9.3 Relation to Land Use Map 3-59

CHAPTER 4: PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES 4-1
4.1 TRANSPORTATION SYSTEMS 4-1
4.1.1 Policies 4-5
4.1.2 Guidelines 4-5
4.2 WATER SYSTEMS 4-7
4.2.1 Policies 4-11
4.2.2 Guidelines 4-11
4.3 WASTEWATER TREATMENT 4-12
4.3.1 Policies 4-13
4.3.2 Guidelines 4-13
4.4 ELECTRICAL SYSTEMS 4-14
4.4.1 Policies 4-14
4.5 SOLID WASTE HANDLING AND DISPOSAL 4-15
4.5.1 Policies 4-16
4.5.2 Guidelines 4-16
4.6 DRAINAGE SYSTEMS 4-16
4.6.1 Policies 4-17

4.6.2 Guidelines 4-18
4.7 SCHOOL FACILITIES 4-19
4.7.1 Policies 4-21
4.7.2 Guidelines 4-21
4.8 CIVIC AND PUBLIC SAFETY FACILITIES 4-22
4.8.1 Policies 4-23
4.8.2 Guidelines 4-23
4.9 OTHER COMMUNITY FACILITIES 4-24
4.9.1 Policies 4-25

CHAPTER 5: IMPLEMENTATION 5-1
5.1 PUBLIC FACILITY INVESTMENT PRIORITIES 5-2
5.2 DEVELOPMENT PRIORITIES 5-2
5.3 SPECIAL AREA PLANS 5-2
5.4 FUNCTIONAL PLANNING 5-3
5.5 REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS 5-4
5.5.1 Adequate Facilities Requirement 5-5
5.6 FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW 5-5
5.6.1 Adoption of the Sustainable Communities Plan and Existing Land Use Approvals 5-5
5.7 IMPLEMENTATION MATRIX 5-6

APPENDIX A: OPEN SPACE, LAND USE, AND PUBLIC FACILITIES MAPS A-1
A.1 OPEN SPACE MAP A-4
A.2 LAND USE MAP A-4
A.3 PUBLIC FACILITIES MAP A-6

LIST OF TABLES

TABLE	TITLE	PAGE
3-1	City and County of Honolulu Zoning Districts in Koʻolau Loa	3-2
3-2	City DPR Island-Wide Parks in Koʻolau Loa	3-20
3-3	Types of City DPR Community-Based Parks	3-21
3-4	City DPR Community-Based Parks in Koʻolau Loa	3-21
3-5	State Parks in Koʻolau Loa	3-23
3-6	Cultural and Pre-Contact Sites in Koʻolau Loa	3-27
3-7	Koʻolau Loa Housing Trends: 1990 to 2000	3-31
3-8	Density and Height Guidelines by Residential Category	3-33
4-1	2005 Groundwater Use by Aquifer (mgd)	4-9
4-2	Potential Groundwater Resources of Potable Water for Koʻolau Loa	4-10
4-3	Potential Nonpotable Water for Koʻolau Loa	4-10
4-4	Public School Enrollment and Capacity, Koʻolau Loa	4-20
5-1	Implementation Matrix	5-7

LIST OF EXHIBITS

EXHIBIT	TITLE	PAGE
1-1	General Plan Designations	1-4
3-1	Natural, Recreational and Cultural Resources	3-7

LIST OF ACRONYMS

BWS	Honolulu Board of Water Supply
BYU-H	Brigham Young University – Hawaiʻi
CIP	Capital Improvement Program
CLP	Coastal Lands Program
COEMAP	Coastal Erosion Management Plan
CSD	Department of Customer Services
CWRM	State Commission on Water Resource Management
CZM	Coastal Zone Management
DCS	Department of Community Services
DDC	Department of Design and Construction
DEM	Department of Emergency Management
DES	Department of Emergency Services
DFM	Department of Facility Maintenance
DOA	State Department of Agriculture
DOH	State Department of Health
DPP	Department of Planning and Permitting
DPR	Department of Parks and Recreation
DLNR	State Department of Land and Natural Resources
DOE	State Department of Education
DOT	State Department of Transportation
DTS	Department of Transportation Services
EA	environmental assessment
EIS	environmental impact statement
ENV	Department of Environmental Services
FEMA	Federal Emergency Management Agency
HBMP	Hawaiʻi Beach Management Plan
HECO	Hawaiian Electric Company, Inc.
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HPHA	Hawaiʻi Public Housing Authority
HRS	Hawaiʻi Revised Statutes
IAL	Important Agricultural Lands

KMC	Kahuku Medical Center
LUC	Land Use Commission
LUO	Land Use Ordinance
OMPO	Oʻahu Metropolitan Planning Organization
ORTP	Oʻahu Regional Transportation Plan
OTS	Oʻahu Transit Services, Inc.
OWMP	Oʻahu Water Management Plan
PCC	Polynesian Cultural Center
PIM	Public Infrastructure Map
TAX	State Department of Taxation
TBD	to be determined
TMDL	Total Maximum Daily Load
USFWS	U.S. Fish and Wildlife Service
WMP	Watershed Management Plan
WRF	Water Reclamation Facility
WWTP	Wastewater Treatment Plant

This page intentionally left blank.

PREFACE

The Koʻolau Loa Sustainable Communities Plan has been prepared in accordance with the Charter-prescribed requirements for development plans, and is to be accorded force and effect as such for all Charter- and ordinance-prescribed purposes. It is one of eight community-oriented plans intended to help guide public policy, investment, and decision-making over the next 25 years. Each of these plans addresses one of eight geographic planning regions on Oʻahu, responding to specific conditions and community values of each region.

Of the eight documents, the plans for ʻEwa and the Primary Urban Center, to which growth and supporting facilities will be directed over the next 25 years and beyond, have been entitled "Development Plans." They will be the policy guides for development decisions and actions needed to support that growth. Plans for the remaining six areas, which are envisioned as relatively stable regions for which public actions will focus on supporting existing populations, have been entitled "Sustainable Communities Plans" in order to appropriately indicate their intent.

Koʻolau Loa is a Sustainable Communities Plan. Its vision statement and supporting provisions are oriented toward maintaining and enhancing the region's ability to sustain its unique character, current population, growing families, lifestyle, and economic livelihood that all contribute to its vitality and future potential.

There has been a recent surge in widespread community discussions, actions and laws adopted to address sustainability. In 2005, the State Legislature convened a statewide group to draft the Hawaiʻi 2050 Sustainability Plan, whose primary purpose is to provide policy recommendations for creating a sustainable Hawaiʻi. In 2007, greenhouse gas emissions goals for 2020 were enacted (Act 234, 2007). Public service announcements dealing with conserving water and electricity abound. The concept of buildings that are designed, built and occupied with environmental considerations at the forefront largely did not exist when the original Development Plans and Sustainable Communities Plans were adopted. This setting raises the question of the role of the Development Plans and Sustainable Communities Plans. Are they the City's version of a sustainability plan?

The answer is that they are the land development portion of a larger blueprint for sustainability. As discussed previously, the General Plan sets long-term goals for the City and County of Honolulu, across eleven major elements. Perhaps its most substantive chapter deals with population, and hence land development distribution. It sets the growth management strategy for Oʻahu. The Development Plans and Sustainable Communities Plans provide more detail on this land management strategy, assuring that how we use the land now, and in the future,

responds to the three major elements of a sustainable place: economic health, social equity, and environmental protection.

The issues addressed either directly or indirectly by these regional plans certainly overlap with other planning responsibilities of other departments, such as water delivery and consumption, crime reduction, increasing public health, and developing responsive transportation systems. Collectively, these efforts comprise the strategy of developing a sustainable future for Oʻahu.

P.1 THE SUSTAINABLE COMMUNITIES PLAN PROCESS

This document is the culmination of a planning effort lead by the City and County of Honolulu's Department of Planning and Permitting. This effort comprised a process that encouraged and enabled significant involvement from the community. In its final form, this Plan will have considered input received from the Planning Advisory Committee, three community-wide meetings, and a number of meetings with community leaders and representatives of government agencies.

P.2 HONOLULU LAND USE PLANNING AND MANAGEMENT SYSTEM

The City and County of Honolulu guides and directs land use and growth through a three-tier system of objectives, policies, planning principles, guidelines and regulations. The General Plan forms the first tier of this system. First adopted by resolution in 1977, the General Plan is a relatively brief document, consisting primarily of broad statements of objectives and policies. It has been amended several times, but the basic objectives and policies set forth in the 1977 Plan remain intact.

The second tier of the system is formed by the regional Development Plans and Sustainable Communities Plans, which are adopted and revised by ordinance. These plans address eight geographic regions of the island, including the Primary Urban Center, East Honolulu, Central Oʻahu, ʻEwa, Waiʻanae, North Shore, Koʻolau Loa and Koʻolau Poko. Under the current program, the Primary Urban Center and ʻEwa plans are "Development Plans," and the other regions are referred to as "Sustainable Communities Plans" to reflect their policy intent.

The third tier of the system is composed of the implementing ordinances, including the Land Use Ordinance (Honolulu's zoning code) and the City's Capital Improvement Program. Mandated by the City Charter, these ordinances constitute the principal means for implementing the City's plans. These ordinances are required to be consistent with the General Plan, the Development and Sustainable Communities Plans, and each other.

In addition to these three Charter-mandated tiers, the Development Plans and Sustainable Communities Plans are supplemented by two planning mechanisms that are not required by the Charter, including the functional planning process and special area planning. Functional planning activities, some of which are mandated by state or federal regulations, provide long-range guidance for the development of public facilities such as water, wastewater disposal, and transportation. Special area plans are intended to give specific guidance for neighborhoods, communities or specialized resources.

P.3 AUTHORITY OF THE DEVELOPMENT AND SUSTAINABLE COMMUNITIES PLANS

The authority of the Development and Sustainable Communities Plans (herein referred to as "Development Plans" for simplicity) is derived from the City Charter, which mandates preparation of a General Plan and Development Plans to guide "the development and improvement of the city." Together with the General Plan, the Development Plans provide policy guidance for the land use and budgetary actions of the City. This is the authority the originally adopted Development Plans carried, and it remains unchanged.

Section 6-1511 of the City Charter provides that "public improvement projects and subdivision and zoning ordinances shall be consistent with the development plan for that area." Although the Development Plans are not themselves regulatory, they "regulate the regulators." They are policy tools and are to be used, in conjunction with the programs and budgets of the City, to accomplish the objectives of the City and as guides for the decisions made in the private sector.

P.4 1992 CHARTER AMENDMENT TO REVISE THE DEVELOPMENT PLANS

In 1992 the City Charter Commission recommended, and the voters of Honolulu adopted, amendments to the City Charter. Chief among its findings, the Charter Commission concluded that the Development Plans were overly detailed and had created processes that duplicated the zoning process. To eliminate this unnecessary duplication, the 1992 Charter amendments changed the definition of Development Plans from "relatively detailed plans" to "conceptual schemes."

The 1992 Charter amendments established that the purpose of the Development Plans is to provide:

- "priorities . . . (for the) coordination of major development activities;" and

- sufficient description of the “desired urban character and the significant natural, scenic and cultural resources . . . to serve as a policy guide for more detailed zoning maps and regulations and public and private sector investment decisions.”

In response to the 1992 Charter amendments, the Planning Department launched a thorough review of the Development Plans. The goal of that review was the revision of all eight of the Development Plans to bring them into conformance with the Charter-mandated conceptual orientation. The Plan presented in this document conforms to that mandate.

EXECUTIVE SUMMARY

This Plan is organized in five chapters and an appendix, as follows:

- **Chapter 1: Ko‘olau Loa’s Role in O‘ahu’s Development Pattern** defines the region’s role and identity within the overall framework of island planning and land management.

- **Chapter 2: The Vision for Ko‘olau Loa’s Future** summarizes the community’s vision for the future of the region, and describes important elements of that vision.

- **Chapter 3: Land Use Policies and Guidelines** is the Plan’s policy core. It provides policy guidance for the region’s various land use elements.

- **Chapter 4: Public Facilities and Infrastructure Policies and Guidelines** outlines policies and guidelines to support the land use policies of Chapter 3.

- **Chapter 5: Implementation** addresses needs for carrying out provisions outlined by the Plan.

The key recommendations contained in each chapter are briefly summarized in the following sections.

E.1 CHAPTER 1: KO‘OLAU LOA’S ROLE IN O‘AHU’S DEVELOPMENT PATTERN

Chapter 1 provides an overview of the relationship between O‘ahu’s General Plan and the County’s Development Plans and Sustainable Communities Plans, and provides specific context for the Ko‘olau Loa Sustainable Communities Plan within this land use paradigm. Consistent with the directed growth policies of the City’s General Plan, Ko‘olau Loa is projected to maintain its country character and to experience little growth throughout the Plan’s 25-year planning horizon. The Plan supports this and includes policies to maintain the region's current country ambiance. Development is largely limited to small residential projects within or contiguous to existing development, minimal infill commercial development, and support housing and services for the planned expansion of Brigham Young University-Hawai‘i. Cultural and natural resources will continue to be protected, and the Plan retains the patterns of development characteristic of the region.

E.2 CHAPTER 2: THE VISION FOR KO‘OLAU LOA’S FUTURE

This chapter presents the overarching concepts and goals of the Ko‘olau Loa Sustainable Communities Plan. It presents the vision statement for the long-range future of the region, and the key vision elements that the policies and guidelines in this Plan are based upon.

The vision for Ko‘olau Loa seeks to preserve the region’s rural character and its natural, cultural, scenic, and agricultural resources. Limited growth in housing is needed to sustain the current population and growing families, as well as housing and related support services envisioned to support the planned expansion of Brigham Young University-Hawai‘i. Nevertheless, the region will remain country, characterized by small towns and villages with distinct identities that exist in harmony with the natural settings of mountain ridges and winding coastline.

E.3 CHAPTER 3: LAND USE POLICIES AND GUIDELINES

Chapter 3 presents policies and guidelines for the principal types of land uses and resource management in Ko‘olau Loa. The Vision for Ko‘olau Loa’s future described in Chapter 2 is to be implemented through the application of these policies and guidelines. A summary of the major policies related to each land use type is provided in the following sections.

E.3.1 OPEN SPACE PRESERVATION

The emphasis for the policies and guidelines for Open Space is placed on the region’s rural character, the preservation of scenic views and natural resources, providing recreational resources and promoting accessibility to shoreline and *mauka* areas.

E.3.2 AGRICULTURE

The policies and guidelines related to Agricultural Areas recognize the importance of protecting existing agricultural land from being converted to urban uses, thus preserving the availability and crop production potential of those lands. The desire to maintain the economic viability of agricultural land is emphasized, along with the relationship between agricultural activities, drainage and water quality.

E.3.3 PARKS AND RECREATION

Policies and guidelines for Parks and Recreation stress the protection and enhancement of recreational resources; the need to ensure compatibility of adjoining uses; a desire to develop integrated bikeways and parks; the acquisition and improvement of coastal lands; and the

importance of parks and recreation areas as contributing factors to the aesthetic, cultural and environmental value of the region's open space resources.

E.3.4 HISTORIC AND CULTURAL RESOURCES

The Plan emphasizes the importance of historic and cultural resources as an integral fabric of the Koʻolau Loa community. It also underscores the need to properly identify historic and cultural resources and protect them from development, so they can be preserved for future generations. In addition, this section acknowledges the cultural and historic significance of *kuleana* lands.

E.3.5 RESIDENTIAL COMMUNITIES

The policies and guidelines related to Residential Communities propose to maintain sufficient inventory of land within the Community Growth Boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area. It allows for limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and anticipated future housing needs related to the expansion of employment opportunities in the region. The existing inventory of residential land for the communities of Kaʻaʻawa, Hauʻula and Punaluʻu will be maintained, and future residential needs in these communities will be met through infill residential development on appropriately-zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas. The importance of respecting and preserving the natural setting of the Koʻolau Loa region is stressed by requiring development in residential areas to be sensitive to physical constraints and to have minimal impact on the area's rural character. Finally, rural design considerations for zoning and subdivisions approvals are supported, as is affordable housing that meets the need for the region's pent-up demand and overcrowding.

E.3.6 COMMERCIAL AREAS

Guidance for Commercial Areas is focused on respecting rural design elements, maintaining rural character, and serving the communities in which they are located.

E.3.7 BUSINESS/LIGHT INDUSTRIAL AND TECHNOLOGY PARK AREAS

Policies and guidelines for Industrial and Technology Park Areas allow for a technology park in association with Brigham Young University-Hawaiʻi. Design that respects rural elements, with careful site planning and use of ample landscaping is supported, along with adequate buffering to protect against operations that discharge air or water pollutants, or generate high noise levels.

E.3.8 VISITOR FACILITIES

Policies and guidelines for Visitor Facilities support the existing visitor attractions and accommodations centered in Lāʻie and Turtle Bay Resort, and a limited number of small-scale eco-tourism and agricultural-tourism operations that complement the rural character and adjacent land uses. Emphasis is placed on ensuring that visitor facilities are compatible with the rural character of the region and have minimal impact on cultural, historic, recreational and open space resources.

E.3.9 INSTITUTIONAL USES

Policies and guidelines describing Institutional Uses support the retention and long-term viability of Kahuku Medical Center and the Koʻolau Loa Community Health and Wellness Center, and the expansion of student enrollment at Brigham Young University-Hawaiʻi to help maintain its long-term viability within the community.

E.4 CHAPTER 4: PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES

This chapter presents the policies and guidelines related to public facilities and infrastructure in Koʻolau Loa. Policies related to each facility type are summarized in the following sections.

E.4.1 TRANSPORTATION SYSTEMS

Policies and guidelines for Transportation Systems emphasize the importance for adequate highway safety and access for all residents, and for consultation with area residents in planning transportation system improvements. There is the need for reduced reliance on private passenger vehicles, and a desire for an integrated system of bikeways is recognized.

E.4.2 WATER SYSTEMS

This section of Chapter 4 provides an overview of the protection and regulation of water resources at the State and County levels, including the preparation of regional watershed management plans for Oʻahu by the Board of Water Supply. Policies and guidelines emphasize the importance of responsible management of water resources, including streams and natural drainage systems, watersheds, and coastal areas; the need for water conservation measures (including recycling); and the protection of all water sources.

E.4.3 WASTEWATER TREATMENT

Policies and guidelines for Wastewater Treatment call for the provision of adequate public and private wastewater treatment facilities and improvements to existing wastewater systems. In addition, using reclaimed water for irrigation purposes and developing alternative technologies for wastewater treatment that reflect the community's values and rural character are recognized.

E.4.4 ELECTRICAL SYSTEMS

Policies and guidelines for Electrical Systems emphasize the importance of adequate and reliable electric service, the need for visually compatible facilities, and support for the use of renewable energy sources and conservation measures.

E.4.5 SOLID WASTE HANDLING AND DISPOSAL

The section on Solid Waste Handling and Disposal focuses on providing adequate resources for efficient solid waste collection, in addition to promoting recycling and other source reduction programs dedicated to minimizing the amount of solid waste generated.

E.4.6 DRAINAGE SYSTEMS

Policies and guidelines for Drainage Systems call for improvements to mitigate storm runoff and to provide adequate protection from flooding, with an emphasis on low-impact design strategies that minimize nonpoint source pollution and support the retention of storm water on-site and in wetlands.

E.4.7 SCHOOL FACILITIES

Guidance for public schools focuses on the provision and maintenance of school facilities that serve the needs of the community, and ensuring that schools have adequate capacity to accommodate new residential development. This section also supports facility and drainage improvements at Kahuku High and Intermediate School, and emphasizes the importance of integrating school facilities with other community uses.

E.4.8 CIVIC AND PUBLIC SAFETY FACILITIES

Policies and guidelines for Civic and Public Safety Facilities promote an integrated approach to public safety, which enables police, fire, ocean safety, civil defense, and emergency medical efforts to share resources and information, as appropriate, and adequate staffing and facilities to ensure effective and efficient delivery of basic government service and protection of public safety.

E.5 CHAPTER 5: IMPLEMENTATION

This chapter discusses the various measures that support implementation of this Plan, including the regulatory mechanisms, physical improvements, and other actions that are needed to realize the Plan's vision. Section 5.7 presents an Implementation Matrix to help organize and facilitate plan implementation. The Implementation Matrix, which is based on the policies and guidelines presented in Chapters 3 and 4, identifies the specific actions, corresponding programs, and agencies that have a role in implementation.

E.6 APPENDIX A

Appendix A contains three color maps that illustrate some of the Plan's textual provisions. These maps are intended to be conceptual illustrations of the text, and should be considered secondary to the policies and guidelines articulated in the text.

1. KOʻOLAU LOAʼS ROLE IN OʻAHUʼS DEVELOPMENT PATTERN

Koʻolau Loa spans the northern half of Oʻahuʼs windward coast (Exhibit 1-1). It is bordered on the north by the Waialeʻe community just beyond Kawela Bay, and on the south by the ridgeline just beyond the north end of Kāneʻohe Bay. The residential communities located along Kamehameha Highway, the only arterial roadway linking this area with the North Shore and Koʻolau Poko, include Kahuku, Lāʻie, Hauʻula, Punaluʻu, Kahana and Kaʻaʻawa. The rural character of this region and its cultural and agricultural history are reminiscent of old Hawaiʻi.

The General Plan of the City and County of Honolulu directs growth to the urbanized areas of Oʻahu and the urban fringe areas in the Central Oʻahu and ʻEwa regions, and limits growth in the other urban fringe areas and rural areas of Oʻahu (Exhibit 1-1). It designates the Koʻolau Loa region as a rural area where physical growth and development will be managed so that "an undesirable spreading of development is prevented," and "population densities are consistent with the character of development and environmental qualities desired for the area" (General Plan, page 15). The General Plan also specifies that Koʻolau Loaʼs natural resources and predominately "country" character should be maintained by allowing only limited development in established communities, and that agricultural lands along the Windward, North Shore, and Waiʻanae coasts are to be maintained for diversified agriculture.

In this context, the vision of the Koʻolau Loa Sustainable Communities Plan is to maintain and enhance the man-made and natural elements that make Koʻolau Loaʼs rural character so unique and special, in contrast to the urbanized areas of Oʻahu. Consistent with the General Plan policies to preserve the region's open space and country atmosphere of the rural areas, the Koʻolau Loa Sustainable Communities Plan allows for limited growth to accommodate existing and future housing and employment needs, maintaining a population that is consistent with the General Plan.[1]

[1] General Plan for the City and County of Honolulu, Section I: Population Objective C Policy 4 (Amended, Resolution 02-205, CD1) seeks a 2025 distribution of Oʻahuʼs residential population as follows:

Distribution of Residential Population	
LOCATION	% SHARE OF 2025 ISLAND-WIDE POPULATION
Primary Urban Center	46.0%
ʻEwa	13.0%
Central Oʻahu	17.0%
East Honolulu	5.3%
Koʻolau Poko	11.6%
Koʻolau Loa	1.4%
North Shore	1.7%
Waiʻanae	4.0%
TOTAL	100.0%

This Plan affirms Koʻolau Loa's desired character as a rural area by establishing the following policies for future land use and development in the region:

- Recognize traditional *ahupuaʻa* principles and adapt the *ahupuaʻa* where practicable in Koʻolau Loa.
- Maintain and, where possible, expand critical open space areas and shoreline views between the existing pattern of community development so as to preserve a separation between the natural and built environment within each *ahupuaʻa*.
- Preserve continuous coastal views and scenic views of ridges, valley slopes, and prominent land features.
- Preserve the existing strong relationship between the natural landscape of the mountains to the ocean, and the man-made landscape of agricultural fields and small rural communities.
- Promote and expand diversified agriculture and aquaculture.
- Promote access to mountain and shoreline resources for recreational purposes and traditional hunting, fishing, gathering, religious, and cultural practices.
- Preserve the "country" lifestyle as expressed by rural housing clusters or neighborhoods which are defined by open space and blend into the surrounding landscape with as little disruption as possible to the scenic quality of the area.
- Use rural residential development standards so that new infrastructure and site layout requirements keep with the desired rural character of the region.
- Provide for new employment-based development which will offer quality jobs and be compatible with the existing communities' rural fabric and the natural environment.
- Establish country town design guidelines for commercial and other non-residential use areas so that new development will be in keeping with the region's rural character.
- Limit visitor accommodations and facilities to the existing resort-designated areas at Turtle Bay Resort and Lāʻie.
- Support and encourage improvements at existing educational and recreational facilities.

- Support a limited expansion of the Brigham Young University-Hawai‘i campus and associated off-site housing at Lā‘ie to accommodate projected future student enrollment and related support services.

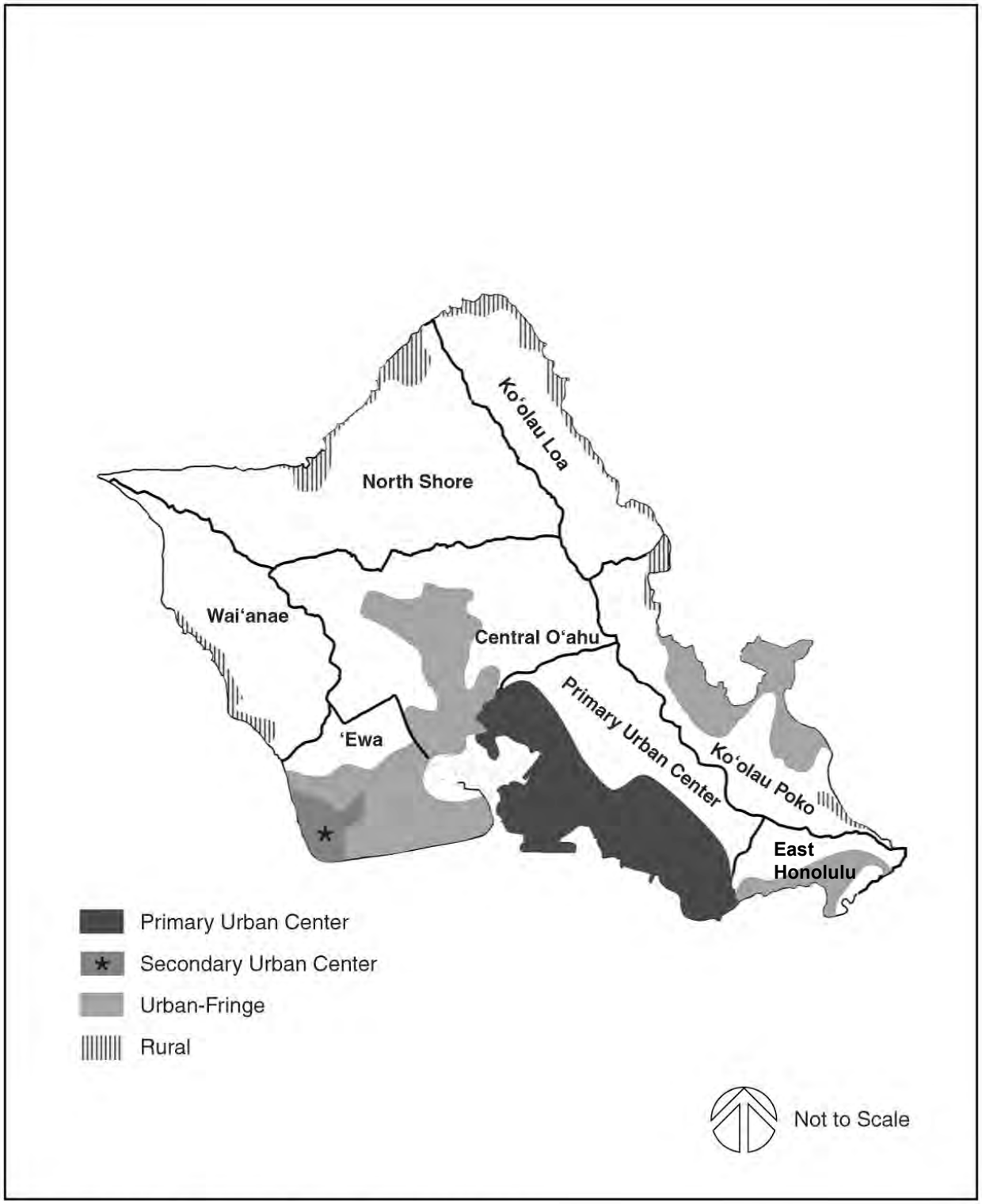


Exhibit 1-1: General Plan Designations

2. THE VISION FOR KOʻOLAU LOA'S FUTURE

This chapter presents the vision for Koʻolau Loa's future, its key elements and the general framework for implementation. Together they provide the foundation for the policies and guidelines discussed in Chapters 3 and 4 which direct future land use and development decisions in the Koʻolau Loa region. The vision emerged through community input and participation, as well as planning studies and agency meetings.

The vision for Koʻolau Loa extends to the year 2035. Between 2000 and 2035, the Lāʻie area is projected to experience some growth in housing related to sustaining the current population, growing families, working residents, and increases in student enrollment and related support staff associated with the planned expansion of Brigham Young University-Hawaiʻi. Overall, the region will remain rural, with wide open spaces, agricultural lands and rural communities continuing to define the rural landscape.

It is projected that Koʻolau Loa's resident population will increase from approximately 14,500 residents in 2000 to about 15,500 in 2035[2], representing an increase of less than one percent per year over a 35-year period. DPP projections for the year 2035 indicate that the region's population will account for approximately 1.4 percent of the island-wide population in the year 2035, which is consistent with the General Plan's population distribution policies[3].

The vision for Koʻolau Loa seeks to preserve the region's rural character and its natural, cultural and scenic resources. The community envisions a safe and healthy environment based on strong family values, where residents have access to quality jobs, affordable housing and ample recreational opportunities within the region. Koʻolau Loa will remain country, characterized by small towns and villages with distinctive identities that exist in harmony with the natural settings, defined by the mountain ridges and scenic open spaces which help give the region its unique form of organization.

A fundamental component of this vision is the *ahupuaʻa* concept. In traditional Hawaiian life, an *ahupuaʻa,* or land division, was a complete ecological and economic production system that provided all the resources to sustain the community living within its boundaries. *Ahupuaʻa*

---

[2] DPP Socio-Economic Projections, September 2009.

[3] The City and County of Honolulu General Plan Population Objective C, Policy 4 identifies the percentage of the projected 2025 regional population to be 1.4 percent of the total island-wide population. Based on recent census data, there were 14,456 residents in Koʻolau Loa in 2000, which accounted for 1.66 percent of Oʻahu's population. Since 1990 when Koʻolau Loa's population (14,263 persons) accounted for 1.7 percent of the island-wide population, the region's percentage of Oʻahu's population has continued to decline and approach the 1.4 percent island-wide population distribution indicated in the General Plan.

boundaries were the natural geographic formations such as mountain ridges, gulches and streams, and *ahupua‘a* were typically wedge-shaped, extending from the top of the mountain into the outer edge of the ocean reef. Fish and marine resources were harvested from the ocean, *kalo* (taro) and *‘uala* (sweet potato) were raised in the lowlands, and upland areas provided trees and other forest products.

The *ahupua‘a* concept is a holistic approach to land management that recognizes the connections between land-based and marine-based natural resources and the dependent relationships between ecological functions. Resources were managed for the collective good of all living within the *ahupua‘a,* based on the principle that activities in one part of the *ahupua‘*a affected all other parts. The *ahupua‘a* concept is used as the organizing basis for land use planning and natural resource management in Ko‘olau Loa. Adapted to reflect the region’s contemporary development patterns, it recognizes traditional *ahupua‘a* divisions between existing communities and helps to enhance the distinctions between the natural and built environment.

The following statements, or key vision elements, describe specific features of Ko‘olau Loa in the year 2035 and beyond. Successful implementation of these elements is integral to the desired future of Ko‘olau Loa. Although the key vision elements describe conditions in the year 2035, the vision elements are written in the present tense, from the perspective of the year 2035 looking back into the past.

2.1 THE COMMUNITY GROWTH BOUNDARY GUIDES LAND USE

The Community Growth Boundary guides development and preserves open space and agricultural areas. It has remained fixed through the 2035 planning horizon, and no new development has occurred outside the Community Growth Boundary. The Community Growth Boundary has served as a valuable tool to guide development, redevelopment, and resource management within existing zoning designations or future zoning designations and other standards or guidelines that may be developed in response to the provisions of this Plan, other established entitlements, or in accordance with pertinent policy and character described in this Plan.

The Community Growth Boundary defines, protects, and contains communities in areas that the General Plan designates “rural” and that exhibit the physical characteristics of rural lifestyles. The boundary provides adequate lands for facilities needed to support established communities, and protects such communities from more intense land uses and patterns of development associated with more urban areas. The Community Growth Boundary also preserves areas outside the boundary for agriculture or other resource or open space values.

Where appropriate, the area within this boundary also contains open space elements considered essential to the character of the rural community being defined. Open space elements within the Community Growth Boundary may include lands designated "Park," "Agriculture," "Preservation," or areas with development-related hazards such as steep slopes or unstable soils.

Rural communities defined by this boundary consist of residential communities and towns that are smaller, more dispersed, and less intensively developed than those in Oʻahu's urban and urban fringe areas. Development character is generally low-density, low-rise, small scale, and reflective of a "country" setting. Within residential areas, the landscaping and front yards that provide the foregrounds to the dwellings are the principal visual elements. In commercial areas, the pedestrian environment and associated amenities predominate, and storefronts are typically found on both sides of the street. Commercial buildings are oriented principally toward the street, relate readily to the human scale, and are organized to encourage interaction between the public and private domains.

The main objectives of the Community Growth Boundary are to:

- **Preserve Agricultural Lands, Significant Open Space, and Natural Resources.** The Community Growth Boundary has prevented the encroachment of development onto productive agricultural lands, and protects agricultural lands, significant open space, and natural resources outside the boundary.

- **Promote an Efficient Development Pattern.** The Community Growth Boundary has focused new development to "infill" sites within and adjacent to the existing communities. A compact form of development concentrated in distinct communities along the coast has resulted in relatively lower development costs, more efficient utilization of existing infrastructure systems, and reduced reliance on the automobile by making transit, walking, and bicycling more feasible and attractive as alternative modes of travel.

- **Provide Sufficient Capacity for Projected Growth.** Areas within the Community Growth Boundary provided ample capacity to accommodate projected residential and commercial development. Since 2000, there has been limited expansion of residential areas in Kahuku and Lāʻie, in addition to previously designated but undeveloped residential areas within each community. This has provided sufficient housing for job growth associated with operations at the Turtle Bay Resort and expansion of the Brigham Young University-Hawaiʻi at Lāʻie.

- **Protect Natural and Scenic Resources.** Significant natural landscape features have been more effectively protected from physical changes because the Community Growth Boundary clearly defines the potential areas for new community development. These natural scenic landscape elements include the mountain ridges, valleys, open areas, and coastal resources.

The Community Growth Boundary generally circumscribes the built sections of Ka‘a‘awa, Kahana, Punalu‘u, Hau‘ula, Lā‘ie, and Kahuku. It also includes pockets of agricultural lands and parks, which are to be preserved and maintained as such unless otherwise designated, to retain the open space character within the Community Growth Boundary.

2.2 NATURAL, RECREATIONAL AND CULTURAL RESOURCES ARE PRESERVED AND ENHANCED, AND CONTRIBUTE TO KO‘OLAU LOA’S SENSE OF “OLD HAWAI‘I”

Protection of this region’s resources and rural character has island-wide importance because of its unique quality and beauty to both residents and visitors. Natural resources continue to be conserved through retaining natural drainage ways and protecting valuable plant and wildlife habitats. Open space is preserved in recreation and preservation areas, parks, and agricultural areas, and the region’s many significant scenic *mauka* and *makai* views of mountain ridges, valleys, slopes and coastline are protected.

Of Ko‘olau Loa’s many natural resources, the following wetland areas have been identified by the U.S. Fish and Wildlife Service (USFWS) (James Campbell National Wildlife Refuge Comprehensive Conservation Plan, September 2011). These wetland areas are noted because of the occurrence and abundance of native waterbirds, including the endangered Hawaiian stilt (*ae‘o*), Hawaiian coot *(‘alae ke‘oke‘o*), Hawaiian duck (*koloa maoli*), Hawaiian moorhen *(‘alae ‘ula*), and migratory waterfowl and shorebird:

- Turtle Bay Golf Course Ponds
- Kuilima Mitigation Pond
- Punaho‘olapa Marsh
- James Campbell Natural Wildlife Refuge, Ki‘i Unit and Punamanō Unit
- Kahuku Aquafarms (former AmOrient)
- Kahuku Airstrips Ponds

- Kahuku Prawn Farm
- Lāʻie Aquaculture Farm/Poʻohaili Wetlands
- Hauʻula
- Punaluʻu Prawn Farm
- Ahupuaʻa o Kahana State Park/Huilua Pond
- Kaʻaʻawa Wetlands

Other natural resources, including streams and gulches which contain important biological, scenic, cultural and recreational values, are preserved and protected from development or incompatible activities. The following streams and gulches and their associated watersheds in Koʻolau Loa were identified in the State Commission on Water Resource Management, Hawaiʻi Stream Assessment (December 1990) for their outstanding aquatic resources:

- Koloa Gulch
- Kaluanui Stream
- Punaluʻu Stream
- Kahana Stream
- Kaʻaʻawa Stream
- Makaua Stream

It should be noted that the above lists of wetlands and streams were based on available information. In general, any activities in the vicinity of streams and wetlands need to ensure that their biological, scenic, cultural or recreational values are not impaired.

A *konohiki*[4] approach to management of natural resources has been re-established and is maintained in order to properly sustain and protect them. In summary, *konohiki* practices focus on sustainable usage and systematic management of natural resources, respecting ecosystem relationships and using the *ahupuaʻa* as a contextual or management unit. This approach is actively used in the management, monitoring, and regulating of uses to avoid resource misuse or mismanagement.

The Koʻolau Loa region contains several different types of historic and cultural resources. For example, the plantation era is an important period that made a substantial contribution to the development of this region. Reminders of that period, such as the Kahuku Sugar Mill site, are valuable records of the past. Significant historic features from earlier pre-contact periods or significant vistas associated with cultural features are also being preserved.

2.3 AGRICULTURAL LANDS ARE PRESERVED FOR AGRICULTURAL USES

Agricultural lands, including lands currently in agricultural use and lands available for future agricultural use, have been protected from urban development through the establishment of the Community Growth Boundary. Agricultural lands provide economic and open space value, and contribute to the region's identifiable rural character. By supporting the active use of these lands for agricultural purposes, the opportunity to retain and protect diversified agriculture and aquaculture activities on small and large farms has been enhanced. Successful agricultural operations are being pursued on former sugarcane lands and in the *mauka* portions of valleys, while aquaculture uses have been expanded near Kahuku, Mālaekahana, Punaluʻu and Kaʻaʻawa.

2.4 RECREATIONAL AREAS AND RESOURCES ARE MAINTAINED AND ENHANCED

Koʻolau Loa contains numerous undeveloped areas and natural resources which offer a variety of outdoor recreational opportunities, as well as cultural experiences. The region contains numerous beach parks along its coastline and State parks such as Kaluanui (formerly Sacred Falls), Mālaekahana and Ahupuaʻa O Kahana. These resource areas are recognized as important open space and recreation assets.

---

[4] *Konohiki* was the headman of an *ahupuaʻa* land division under the chief, or land or fishing rights under control of the *konohiki.* Such rights are sometimes called *konohiki* rights.

The existing parks and recreation areas are maintained and have been enhanced to utilize the region's abundance of natural and scenic resources for the enjoyment of residents and visitors. At the same time, the value of these resources is protected from overuse. Existing beach access is maintained and new shoreline access properties have been acquired along narrow stretches of ocean-front land. An open space system of landscaped pathways has been developed to link communities together along major roadways, streams, wetlands and other drainage ways.

2.5 RURAL AREA DEVELOPMENT STANDARDS ARE USED TO MAINTAIN THE RURAL CHARACTER OF RESIDENTIAL AREAS

The need for additional housing related to long-term growth in Koʻolau Loa is being met by the "infill" development of existing vacant lands within each of the region's rural communities. In addition, limited expansion of residential areas in Kahuku and Lāʻie accommodates long-term housing demand related to employment needs at Turtle Bay Resort, the expansion of diversified employment opportunities in Lāʻie, and the continued growth of Brigham Young University-Hawaiʻi.

The physical changes brought about by infill home construction or expansion in existing, built-up neighborhoods has been slower and subtler than the development that has occurred on moderate-sized vacant parcels. In any case, rural residential lot and subdivision development standards have been adopted, and are effectively being used to ensure that development reflects the rural character unique to the Koʻolau Loa region.

2.6 COMMERCIAL AREAS ARE ENHANCED AND COUNTRY STORES CONTRIBUTE TO KOʻOLAU LOA'S RURAL FABRIC

The character of the region's commercial areas, as well as its stand-alone "Country Stores," has been enhanced through design guidelines that are appropriate to the scale and theme of the region and communities they serve. Rural architectural style guidelines have been established for the Kahuku Sugar Mill site, and commercial centers in Kaʻaʻawa, Hauʻula and Lāʻie, with building and landscape treatment recommendations unique to the character and needs of each commercial area.

Design guidelines have also been established to provide information regarding the appropriate rehabilitation or renovation of existing commercial centers and country-store operations. "Country Store"-type establishments are an important part of Koʻolau Loa's character and have been encouraged to renovate or reconstruct accordingly. These small businesses provide

convenient locations for residents to eat out, get groceries or gather to socialize; and for visitors to shop in locally run stores and purchase a variety of handcrafted items. In general, these businesses remain limited to their original locations and have not expanded along Kamehameha Highway, in order to maintain the rural character of the region's "front door" and avoid the creation of a commercial strip along the coastal highway.

2.7 DECISION-MAKING PROCESSES REFLECT PRINCIPLES OF SUSTAINABILTY

Koʻolau Loa is a community that has successfully managed change, and is flourishing and prospering. For Koʻolau Loa, this means ensuring that planned growth and development has respected and adhered to the principles of sustainability.[5]

Koʻolau Loa's principles of sustainability have promoted the long-term health of the land and its people, and its community resources for current and future generations:

- Protect agricultural lands, physical and biological resources, and where desired, open spaces and view planes.
- Use resources so they are not depleted, permanently damaged or destroyed.
- Encourage planning, development and construction technologies that minimize environmental impacts and promote the use of green building practices.
- Respect the cultural, social and physical resources that shape residents' sense of community and rural quality of life.
- Honor the process of change. Make no decisions without first understanding the effects such change will have on the land and community resources.
- Strive for balance between economic prosperity, social and community well-being, and environmental stewardship. Adopt a multi-disciplinary approach acknowledging the importance of our community capital in land use and infrastructure planning decisions.

[5] The most widely quoted definition of sustainable development is from the United Nations Brundtland Commission (1987): "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." It recognizes that development can be broken into three equivalent parts (environmental, economic and sociopolitical sustainability) and is based on development that balances economic prosperity with the integrity of natural ecosystems and social equity.

- Consider the long-term effect of our actions and take into account the interests of our future generations when planning for the future.

This page intentionally left blank.

3. LAND USE POLICIES AND GUIDELINES

The key element in implementing the vision for Ko‘olau Loa’s future, as described in Chapter 2, is the application of the resource management principles of the *ahupua‘a* concept to land use planning and development decisions. This concept defines the essence of Ko‘olau Loa’s rural character and provides the foundation for the organization of land uses within the region, in addition to shaping many of the land use policies and guidelines presented in this Chapter.

The vision for Ko‘olau Loa described in Chapter 2 will be implemented through the application of the land use policies and guidelines presented in Chapters 3 and 4. Proposed land use policies are intended to outline future actions and agency decision-making once the Plan is adopted. Policies are broad statements of intent that express the City’s overall philosophy toward particular land uses. Guidelines provide more specific guidance to public agencies and private entities in terms of planning, design and implementation of projects and programs in the various land use categories.

Chapter 3 is organized under the following headings:

SECTION
3.1 OPEN SPACE PRESERVATION
3.2 AGRICULTURE
3.3 PARKS AND RECREATION
3.4 HISTORIC AND CULTURAL RESOURCES
3.5 RESIDENTIAL COMMUNITIES
3.6 COMMERCIAL AREAS
3.7 BUSINESS/LIGHT INDUSTRIAL AND TECHNOLOGY PARK AREAS
3.8 VISITOR FACILITIES
3.9 INSTITUTIONAL USES

3.1 OPEN SPACE PRESERVATION

Open space preservation is a key element of the vision for Ko‘olau Loa’s future. Long-term protection and preservation of scenic resources, agricultural areas, natural areas, and recreational areas are important to maintaining the rural character of Ko‘olau Loa for both residents and visitors.

The open space system consists of areas that serve important ecological, recreational and scenic functions, including undeveloped *mauka* and shoreline areas, parks and recreational resources, natural gulches and drainageways, utility corridors, and agricultural areas. It also

includes the open space “gaps” that provide visual definition and physical separation between the existing rural communities in support of the region’s rural development pattern.

The City and County of Honolulu Land Use Ordinance (LUO) and accompanying zoning maps (Chapter 21, Revised Ordinances of Honolulu) prescribe the allowable uses of land for the City and County of Honolulu. The LUO identifies the various zoning districts, the uses allowed within each zoning district, and the applicable development standards within each district. Table 3-1 presents the acreage within each zoning district in Ko‘olau Loa. The vast majority of the land within Ko‘olau Loa is identified for uses that contribute to open space. With less than 5 percent of the land area zoned for residential, commercial or resort uses, more than 95 percent is zoned for either preservation or agricultural use, including approximately 37 percent zoned either AG-1 Restricted Agricultural or AG-2 General Agricultural and about 59 percent zoned either P-1 Restricted Preservation or P-2 General Preservation.

Table 3-1
City and County of Honolulu Zoning Districts in Ko‘olau Loa[6]

District	Acreage	Percent Total
R-7.5 Residential	24.8	0.07%
R-5 Residential	973.2	2.63%
A-1 Low Density Apartment	33.1	0.09%
A-2 Medium Density Apartment	5.5	0.02%
B-1 Neighborhood Business	44.8	0.12%
B-2 Community Business	48.1	0.13%
Resort	302.0	0.82%
AG-1 Restricted Agricultural	3,112.7	8.40%
AG-2 General Agricultural	10,521.4	28.39%
Country	193.8	0.52%
P-1 Restricted Preservation	20,589.2	55.56%
P-2 General Preservation	1,210.9	3.27%
TOTAL	37,059.5	100.00%

A number of policy initiatives and economic incentives are available to assist government agencies and community organizations to preserve existing open space resources. Some mechanisms that have been effective in other communities that could be investigated include:

[6] Source: Information is based on DPP Inventory of 1997 Zoning Acreages. The 1997 inventory remains current up to 2011, as there were no zone changes approved in Ko‘olau Loa between 1997 and 2011.

- landbanking (purchasing unimproved land before development pressures are experienced);
- transfer of development rights (a regulatory approach that allows land owners to transfer or sell their rights to develop one parcel of land to a different parcel of land, thereby shifting development from areas designated for agricultural use or open space to a location where development is encouraged);
- establishment of a regional open space district (a zoning special district overlay);
- creation of a land conservation trust; and
- open space and conservation easements (a legal agreement that limits the future development of the property, often provides economic incentives for landowners such as tax exemptions).

3.1.1 POLICIES

Open space will be used to:

- Maintain the region's rural character, protect and preserve scenic views and natural resources, provide recreational resources, and promote accessibility to shoreline and *mauka* areas.
- Define and maintain clear boundaries and separations between existing rural communities.
- Provide adequate shoreline setbacks that consider shoreline changes resulting from erosion hazards and rising sea levels, based on adopted projections of shoreline erosion rates and sea level rise.
- Allow outdoor lighting at the minimum level necessary for public safety, security and community aesthetics consistent with the goals of energy conservation and environmental protection.

3.1.2 GUIDELINES

The following provides a brief description of regional open space resources in Ko'olau Loa. They are followed by guidelines for carrying out the policies related to each open space element.

3.1.2.1 MOUNTAIN AREAS AND TRAILS

Major trails, which are inventoried by the State Department of Land and Natural Resources (DLNR), provide access to the mountainous areas of Koʻolau Loa. Within the region, the State's Na Ala Hele Program actively manages the Hauʻula Loop and Maʻakua Ridge trails. These trails all begin along the *mauka* edge of Hauʻula, extend for 2.5 to 3.0 miles respectively, and provide valuable and often unique backcountry experiences.

Other trails in the region that are under private ownership could add other, equally valuable wilderness experiences if issues of public access, use, safety and landowner liability are satisfactorily addressed. These trails include but are not limited to the Koʻolau Ridge Trail, which offers simultaneous views of Central Oʻahu and the windward coastlines and valleys, the Castle Trail, which begins in Punaluʻu, and other trails such as those that lead to Lāʻie Falls, Mālaekahana Falls and Turtle Falls (Hauʻula). Access to *mauka* resources to maintain traditional and customary rights of Native Hawaiian practitioners should be provided, in accordance with State Law.

Guidelines pertaining to mountain areas and trails are as follows:

- Maintain, protect, and/or restore native forests in the State Conservation District.
- Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and human activity.
- Avoid the establishment of utility corridors and other uses that would disturb areas with high concentrations of native or endangered species.
- Maintain and enhance *mauka* trail systems, including sufficient parking areas and signage at trailheads.
- Support State efforts to seek opportunities for cooperative agreements with private landowners to gain access to trails leading to public lands.

3.1.2.2 SHORELINE AREAS

The Koʻolau Loa shoreline extends for over 20 miles between Kaʻaʻawa Valley and Kawela Bay. The shoreline provides residents and visitors with significant active and passive recreational resources, and contributes significantly to the region's rural Hawaiian character and lifestyle. Therefore, *mauka-makai* and lateral public access to the shoreline should be maintained and improved to the greatest extent possible. In addition to their recreational value, shoreline areas

also provide significant scenic value. It is important to retain and, where possible, expand visual access to the shoreline from the coastal highway. It is equally important to maintain the physical integrity of these shoreline areas.

The DLNR has developed a Coastal Lands Program (CLP) to manage and protect the state's natural shoreline. The CLP aims to balance conservation and appropriate land uses, and oversees the implementation of technical recommendations and policies embodied in the Coastal Erosion Management Plan (COEMAP).

Guidelines pertaining to shoreline areas are:

- Maintain and, where possible, enhance the physical integrity and habitat value of shoreline areas.

- Preserve rare and sensitive coastal resources including coastal strand vegetation, sand dunes, and anchialine pools. Establish buffer zones around these resources where necessary.

- Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and inappropriate human activity.

- Maintain existing *makai* view openings along the coastal highway. Avoid obstructions, such as walls and heavy landscaping which block views, except where necessary for safety reasons. Maintain public beach parks to avoid unnecessary landscape screening or the placement of park structures within the view corridor. Recommendations of the Coastal View Study (1987) should be incorporated.

- To the extent possible, acquire shallow developed beach-front lots which would be impractical to redevelop given existing zoning standards or wave hazard considerations in order to improve public access and lateral shoreline views along Kamehameha Highway.

- Maintain and enhance public access to the shoreline and lateral access along the coast, including the provision of parking areas. Public access should be provided at approximately 1/2-mile intervals in rural areas, or at closer intervals when justified by public demand, traditional use patterns, the quality of the recreational resources, or natural barriers that impede shoreline access.

- Establish additional minimum setbacks for structures near the shoreline in erosion hazard areas, and implement other management strategies to protect unstable sandy beach areas that impact Kamehameha Highway along the Ka‘a‘awa, Punalu‘u and Hau‘ula shorelines.

- Adopt development standards that require new structures along the shoreline to incorporate structural and design elements compatible with coastal hazards such as coastal erosion, tsunami and hurricane overwash.

- Evaluate emerging policies relating to climate change and sea level rise.

- Prohibit off-road vehicular and motorcycle use in shoreline areas, including but not limited to the placement of barriers to prevent vehicular access along the beachfront.

- Maintain the untamed landscape quality of the Kahuku shoreline.

- Implement management practices that protect nearshore coral reefs from damaging activities such as soil erosion, non-point source pollution, dredging, and alterations to near-shore water circulation.

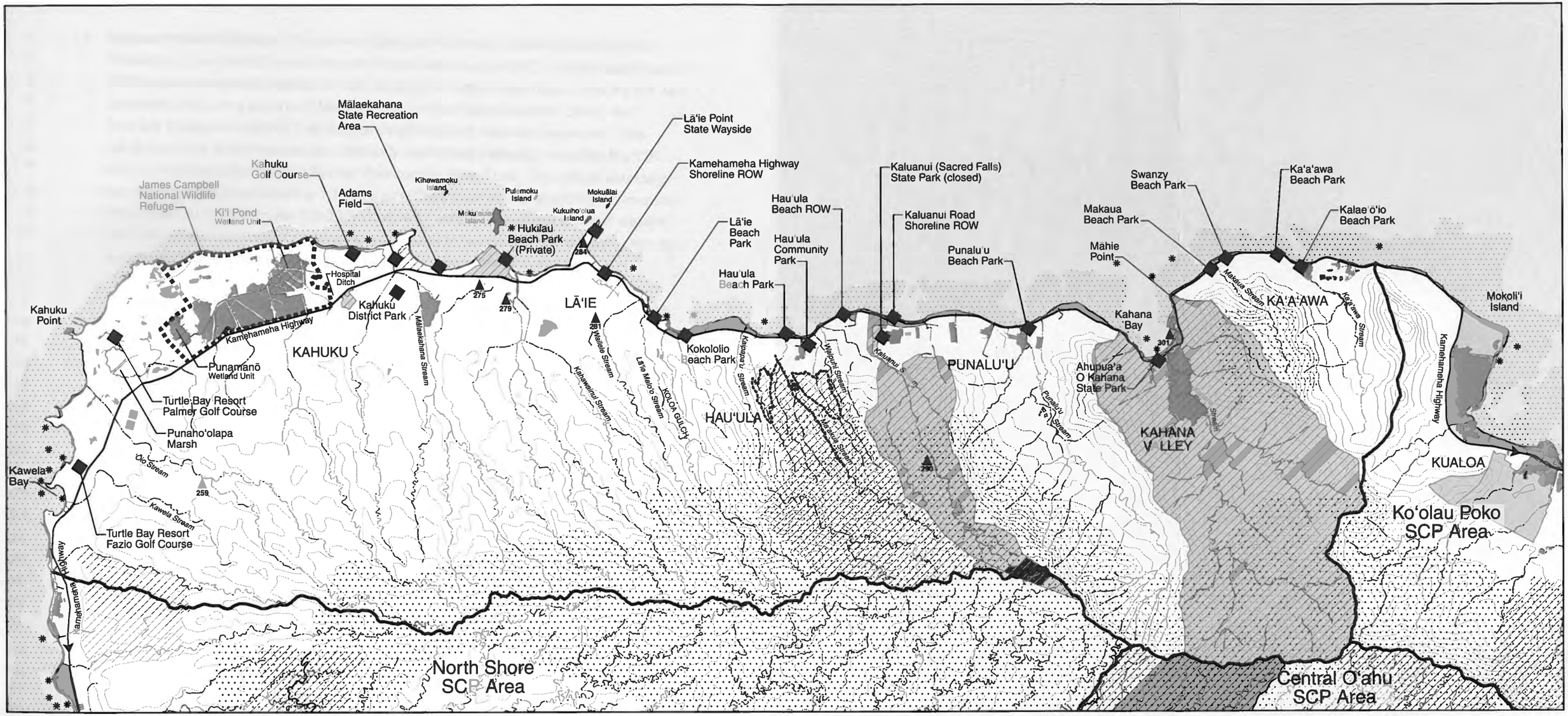
- Minimize the adverse effects of artificial lighting on wildlife and human health by balancing the need of outdoor lighting for night utility, security, and desire for reasonable architectural expression with the need to conserve energy and protect the natural environment.

- Adopt outdoor night lighting standards that encourage efforts to minimize glare and stray light, and reinforce the differences between urban and rural communities.

3.1.2.3 WILDLIFE SANCTUARIES

Ko‘olau Loa contains the following wildlife sanctuaries and preserves (Exhibit 3-1, Natural, Recreational and Cultural Resources):

- **State Seabird Sanctuaries.** There are five islands designated as State Seabird Sanctuaries which are located off the coast of Lā‘ie and Mālaekahana: Moku‘auia, Kīhewamoku, Pulemoku, Kukuiho‘olua, and Mokuālai. These off-shore islands are managed by the DLNR Division of Forestry and Wildlife, and provide habitats for the wedgetail shearwater as well as other migratory waterbirds and rare coastal species.



LEGEND

- SCP Boundary
- Streams
- Na Ala Hele Hiking Trails
- Wetlands
- Parks
- Natural Area and Forest Reserves
- Listed/Rare Species Recovery Area
- Coral Reefs
- Off-shore Recreation (Surfing and Canoe Paddling)
- Cultural and Pre-Contact Sites (McAllister Site Number)

Cultural and pre-contact sites shown are based on locations indicated by McAllister (1933). The sites are shown in very general locations, and do not represent the extensive inventory of historic and cultural sites found in the region. The State Historic Preservation Division is responsible for maintaining a comprehensive inventory of known historic and cultural resources.

0 1/2 1 Mile

Exhibit 3-1: Natural, Recreational and Cultural Resources

This page intentionally left blank.

- **National Wildlife Refuge**. The James Campbell National Wildlife Refuge (NWR) is managed by the United States Fish and Wildlife Service (USFWS). It was established in 1976 to provide wetland habitat for four endangered native waterbirds, including the *ae‘o* (Hawaiian stilt), *‘alae ke‘ok‘eo* (Hawaiian coot), *kōloa maoli* (Hawaiian duck), and *‘alae‘ula* (Hawaiian moorhen), as well as shorebirds and migratory waterfowl. The refuge consists of both natural and artificially maintained wetlands, including the 126-acre Ki‘i wetland unit and the 134-acre Punamanō wetland unit. The refuge boundary was expanded to approximately 1,100 acres in 2006 (James Campbell NWR Expansion Act of 2005, U.S. Public Law 109-225) to allow for additional wetland acreage and the last remaining intact coastal dune system on O‘ahu to be added. The USFWS plans to acquire additional lands within its boundary as funding is made available.

  The James Campbell National Wildlife Refuge Comprehensive Conservation Plan was completed in 2011. The Plan describes refuge management plans for the next 15 years, and identifies specific actions to restore and protect wetlands and habitats, and maintain the remote, undeveloped character of the coastline.

Guidelines relating to wildlife sanctuaries in Ko‘olau Loa are as follows:

- Respect and establish an appropriate balance between natural habitats and human uses in the management of wildlife sanctuaries. Appropriate buffers between uses should be established wherever necessary.

- Retain existing preservation zoning in the vicinity of Kahuku’s Punaho‘olapa Marsh, Punamanō and Ki‘i Pond National Wildlife Refuges.

- Encourage landowners to establish additional sanctuaries in other areas within the region that provide habitats for endangered wildlife, flora and fauna.

3.1.2.4 NATURAL GULCHES, STREAMS AND DRAINAGEWAYS

The ridges and valleys of the Ko‘olau Loa mountain range form natural streams and drainageways throughout the region. Significant perennial streams include those identified by the State Commission on Water Resource Management, Hawai‘i Stream Assessment, (December 1990) and other drainageways as identified by the Department of Design and Construction or Department of Planning and Permitting.

Wetlands are generally described as areas which are covered or saturated with water, whose substrate is primarily characterized by undrained moist or saturated soils and which support aquatic plants. Like streams and gulches, wetlands are important environmental resources that

can provide irreplaceable benefits for flood protection, water quality, fish and wildlife habitat, and opportunities for recreation, education and research. The U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Environmental Protection Agency, and various State and County agencies have responsibilities for the protection and management of wetlands.

Wetlands, stream channels, and drainageways are the primary means for carrying water from the inland areas to the ocean and are generally capable of handling normal rainfall runoff. However, during periods of intense rainfall, some of these drainageways overflow and create flooding problems. Section 4.6 “Drainage Systems” summarizes these conditions. In these cases, improvements which effectively address and correct the causes of these flood conditions are needed.

Guidelines pertaining to natural gulches, streams and drainageways in Ko‘olau Loa are:

- Preserve the aesthetic and biological values of natural gulches, streams and drainageways as part of the open space system. Restore and protect ecologically sensitive areas and ecosystems which should be maintained and enhanced as open space elements. Any activities in the vicinity of these areas need to ensure that the open space system will not be significantly impacted or that biological values will not be significantly degraded.

- Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and incompatible human activity.

- Minimize soil erosion, runoff of pesticides, fertilizers and other non-point source contaminants into streams, wetlands and marine habitats with strategies such as stream setbacks, erosion control devices, integrated pest management plans, and revegetation of disturbed areas. Incorporate erosion control measures and best management practices as recommended in the State of Hawai‘i Coastal Non-point Pollution Control Program Management Plan, Volume I (June 1996), to prevent pollution of wetlands, streams, estuaries, and nearshore waters.

- Where feasible, establish setbacks along rivers, streams, and shoreline areas to preserve these resources and protective buffer zones around biologically sensitive areas to minimize habitat disturbance. Where possible, provide access as part of the open space network.

- Restrict uses in these areas to conservation uses, compatible recreational uses such as walking and bicycling, traditional and customary rights of Native Hawaiian practitioners,

and controlled surface water diversion for agricultural purposes. Avoid development in ecologically sensitive areas; if activities are allowed, minimize impacts and implement mitigative measures that will fully offset any loss of resources.

- Restore, protect and maintain stream habitat values along the entire stream length, from the headwaters through the *muliwai* (nearshore marine zone created when freshwater streams flow into the ocean) to the marine reef system, to avoid degradation or interruption of habitat for native organisms and to provide for the health of the entire ecosystem.

- To the extent possible, limit any modifications to natural gulches and streams, except for measures which are necessary for flood protection. If modifications are needed, they should minimize impacts on biological habitats and natural resources, complement the existing rural character and aesthetic quality, and maintain existing water quality and the rate and volume of freshwater run-off into near-shore waters. Drainageway modifications may include stream-side vegetation and rip-rap boulder lining of stream banks; channelization should be a last resort and should be limited to v-shaped bottom channels and/or other appropriate measures that preserve environmental habitat qualities and capabilities to maintain a stream flow during low rainfall periods.

- Enhance, restore and preserve streams while providing public access for recreational and cultural purposes.

- Develop an implementation schedule with input from community and public agencies to establish permanent instream flow standards that support sound watershed management. The setting of instream flow standards should weigh the benefits of instream and non-instream uses of water resources, including the economic impact of restrictions of such uses.

- Support the implementation of the Ko‘olau Loa Watershed Management Plan.

3.1.2.5 PARKS

Parks provide important open space areas that meet the recreation needs of Ko‘olau Loa’s residents and island-wide visitors. While beach parks serve island-wide needs, parks within the community provide active recreation space for the region’s residents in the form of playfields, courts and other facilities. There are approximately 43 acres of City-owned beach parks and shoreline right-of-ways and 26 acres of City-owned community-based parks in Ko‘olau Loa. Four State parks account for almost 6,750 additional acres. In addition to their recreational value, parks provide visual relief from urban land uses and are valuable resources that

contribute to the region's open space system. Policies and guidelines for parks are discussed in Section 3.3 relating to Parks and Recreation.

3.1.2.6 GOLF COURSES

There are three golf courses in Ko'olau Loa: two private courses associated with the Turtle Bay Resort and the City and County's municipal nine-hole course at Kahuku (see Section 3.3). The City has a short-term lease agreement for the municipal course. All three golf courses are open to public play. These golf courses are important elements of Ko'olau Loa's open space system because they provide areas for active recreation while preserving the visual quality of the northern end of the region. In addition to their open space and aesthetic value, golf courses serve the practical purpose of reducing flooding and non-point source pollution. The location, design, and grading of golf courses, and siting of water features can contribute in a significant way to a passive stormwater drainage management system. Wildlife habitats are enhanced or created as a by-product of retention/detention capabilities that this integrated system provides.

Guidelines pertaining to golf courses in Ko'olau Loa are:

- Optimize and maintain the function of golf courses as passive drainageways to maximize their potential to serve as drainage retention areas, as well as wildlife habitats.

- Maintain golf course designs to provide view amenities for adjacent developed areas, including public rights-of-way, parks and vista points.

- Provide safe access through golf courses, as necessary, for regional continuity of shoreline access.

- When necessary for safety reasons, use screening, landscape treatment, setbacks and modifications to the course layout rather than fencing or solid barriers.

- Maintain golf courses to minimize environmental impacts such as siltation, pesticide and fertilizer runoff, and disturbance to coastal, riparian and wetland habitats.

- Expand the existing Kahuku public golf course in conjunction with flood control measures.

- Encourage the use of non-potable water resources for golf course irrigation.

3.1.2.7 KAHUKU TRAINING AREA

The Kahuku Training Area consists of approximately 9,400 acres of *mauka* lands above Kawela Bay and Kahuku Town that the United States Army uses for military training purposes. As the Army's second largest contiguous ground maneuver training area on O'ahu, the Kahuku Training Area supports various tactical training scenarios, including mountain and jungle warfare, pyrotechnics, and air support training. The federal government owns approximately 8,260 acres of the training area, while approximately 1,150 acres are leased from the State of Hawai'i. Less than three acres are owned by other interests, which include the City and County of Honolulu and the 'Ōpana Wells site currently owned by the Kuilima Resort Company. Military access to the site is via either Kamehameha Highway or Drum Road, a military access road that links Kahuku and Helemano Military Reservation. Existing training facilities and sites are being upgraded and modernized to support the Army's 2nd Brigade, 25th Infantry Division Stryker Brigade Combat Team.

This large area of *mauka* lands is an important open space and visual resource along Ko'olau Loa's northern boundary. Approximately 1/2 of the training area is located within the State Conservation District. These undeveloped lands which border the agricultural areas of the lower plains should, as much as possible, be maintained in their natural state.

Guidelines pertaining to the Kahuku Training Area are:

- Encourage the U.S. Army to manage its training area lands to minimize potential adverse drainage impacts to adjacent lowland areas. Storm water runoff from the Kahuku Training Area should not be increased from existing conditions, and long-term measures should be considered to reduce runoff.

- Discourage live-fire training in the area. This is consistent with the Army's stated position that the Kahuku Training Area will continue to be used for tactical maneuver training with no live-firing of weapons.

- Encourage the U.S. Army to conduct training exercises in a manner that will not significantly disturb the natural vegetation and wildlife; alter the landform that contributes to runoff; and affect the flow of natural streams and drainageways. For example, the Army's current policy of restricting or prohibiting blanks and pyrotechnic use during the dry seasons to minimize any fire hazard should be maintained as long as this area is used for training purposes.

3.1.3 RELATION TO OPEN SPACE AND LAND USE MAPS

The following components of the regional open space system are shown on the Open Space and Land Use Maps in Appendix A:

- **Mountain Areas.** These areas are to remain outside of the designated Community Growth Boundary.

- **Natural Gulches and Drainageways.** Gulches in the steeper sloped areas both within and beyond the Community Growth Boundary are indicated for preservation.

- **Shoreline Areas.** Shoreline areas with high scenic or wildlife value, generally along the Kahuku coastline between Mālaekahana and Kahuku Point, are designated for preservation and are located outside the Community Growth Boundary.

- **Parks.** Areas designated as parks are labeled with the park's name and, where space allows on the maps in Appendix A, the general location and land area of the park is outlined and colored.

- **Golf Courses.** The three golf courses in Koʻolau Loa are shown because of their recreational value and visual contribution to the landscape.

- **Kahuku Training Area.** Although depicted as military on the map, these lands are an important open space resource that should to the greatest extent possible be maintained in their natural wild state.

3.2 AGRICULTURE

With an abundance of natural resources and fresh water to support agricultural and aquacultural activities, Koʻolau Loa was historically a major population center for pre-contact Native Hawaiians. Wetland taro *loʻi* (fields) irrigated by a system of *ʻauwai* (irrigation ditches) were abundant at Lāʻie and through Hauʻula, Punaluʻu and Kahana valleys,[7] while the upland forest areas and streams, fishponds and nearshore fishing grounds were harvested for other necessary staples.

[7] E. S. Craighill Handy, Elizabeth Green Handy and Mary Kawena Pukui. Native Planters In Old Hawaiʻi: Their Life, Lore and Environment. 1991.

Today, the agricultural lands found throughout the region serve as a key component of Koʻolau Loa's rural character and open space. Whether actively cultivated in diversified crops or aquaculture, or used for more passive ranching activities, agricultural lands serve as important natural separators between the concentrations of small rural communities and support economic opportunities that are compatible with the region's rural character.

The Sustainable Communities Plan protects agricultural lands from urban development through the establishment of the Community Growth Boundary, accompanied by policy statements and guidelines that encourage agricultural activities and the long-term success of the industry. By supporting the active use of these lands for agricultural purposes, the opportunity to retain and protect diversified agriculture and aquaculture activities on small and large farms is enhanced.

The Sustainable Communities Plan calls for the preservation and expansion of agricultural lands and encourages diversification of agriculture-related enterprises to maintain the viability of agriculture throughout Koʻolau Loa. Over 25 percent - or more than 9,000 acres - of the Koʻolau Loa region is designated for Agriculture use on the Sustainable Communities Plan Land Use Map. As evidenced by the extensive network of traditional Native Hawaiian agricultural systems that were once a common feature of the landscape and the region's history of agricultural productivity, existing agricultural lands in Koʻolau Loa have the potential to support expanded agricultural production on Oʻahu.

Agricultural operations including ranching, truck crops, vegetables, taro, indigenous Hawaiian plants, shrubs, trees, and flowers and landscaping plants are currently being pursued on former sugarcane lands and in the valleys throughout the region. Aquaculture uses have also been developed in outlying areas near Kahuku and in rural areas and valleys within Mālaekahana, Punaluʻu and Kaʻaʻawa. These agricultural activities contribute significantly to the diversified economic base for the Koʻolau Loa region and provide area residents with local employment and economic development opportunities that foster a connection with the land. The Punaluʻu Ahupuaʻa Plan (Kamehameha Schools 2009), which encompasses all of the 3,600 acres in the *ahupuaʻa* of Punaluʻu under the ownership of Kamehameha Schools, portrays Punaluʻu as a major agricultural *ahupuaʻa* within Koʻolau Loa centered around traditional Hawaiian agricultural and cultural practices and environmental stewardship.

In 2006, the James Campbell Estate sold nearly 2,000 acres of largely agricultural land north of Kahuku to various private interests. With new landowners considering development alternatives that provide greater economic returns than agriculture ventures, agricultural lands have become increasingly vulnerable to higher-value, non-agricultural development pressures. As land ownership has changed, the conditions that have historically supported the continuation of small farmers in Koʻolau Loa have also changed, such that small farming operations that rely on agricultural leases are finding it difficult to secure long-term leases. The long-term viability of the agricultural industry in Koʻolau Loa requires appropriate incentives that can ensure the long-

term availability and use of agricultural lands and minimize the economic barriers that are impeding the industry's continued growth.

Under the State Constitution, the State is to identify important agricultural lands (IAL). Once identified, these lands cannot be rezoned except under a "super majority" vote. In 2005, Act 183 was adopted to address this mandate. It established a two-step process: first, incentives to assure the long term use and protection of IAL are to be established, and second, with adequate state funding, the counties would prepare maps identifying IAL lands to be adopted by the State Land Use Commission. Act 233 of 2008 adopted the incentive program. As of early 2012, the Department of Planning and Permitting has begun the mapping process. Lands identified for agricultural purposes by this Sustainable Communities Plan can serve as the basis for the county mapping process.

3.2.1 POLICIES

The following policies relate to the agricultural areas designated in the Ko'olau Loa Sustainable Communities Plan:

- Preserve the availability and crop production potential of lands designated as Agriculture in the Ko'olau Loa Sustainable Communities Plan.

- Protect and preserve agricultural lands from conversion to uses that are primarily residential, industrial, or commercial in purpose.

- Promote and support the long-term economic viability of the agriculture industry.

- Encourage the diversification of agriculture-related enterprises for the continued production of truck-crops, vegetables, flowers and landscaping plants, aquaculture and ranching activities.

- Ensure that agriculture is the primary use of agricultural lands. Prohibit the improper use of agricultural lands, including the development or subdivision of agricultural designated and zoned lands for residential and other non-agricultural uses, unless accessory to agricultural use with a direct connection between those activities and the maintenance of agricultural uses on the same or nearby properties.

- Recognize the function of agricultural areas as an important part of the region's natural drainage system. Cultivation activities or physical improvements in agricultural areas should not adversely modify critical natural drainage ways.

- Encourage landowners to offer affordable long-term leases to farmers.

- Protect coastal, riparian and wetland habitats from environmental impacts such as soil erosion, siltation, pesticide and fertilizer runoff, and other nonpoint source contaminants that flow from agricultural lands.

3.2.2 GUIDELINES

Guidelines relating to agricultural areas are:

- Discourage subdivision of Agriculture designated and zoned lands for residential uses.

- Cluster agricultural subdivisions that include farm dwellings to avoid the inefficient use of more productive agricultural lands and to reduce infrastructure costs.

- Maintain adequate buffers between agricultural lands and new residential development, with consideration given to prevailing winds and the noise or air-borne emissions associated with the type of agricultural operation. Allow for appropriate economic uses of buffer zones and if the buffer zone must remain vacant, provide for it to be assessed at a lower property tax rate than productive agricultural land.

- Design and locate buildings and other facilities that are accessory to an agricultural operation in a way that minimizes the impact on nearby community and residential areas, and the road system.

- Enforce permitted uses on agricultural lands to ensure that the use is contributing to meaningful and credible agricultural production on the same or nearby properties.

- Allow facilities necessary to support intensive cultivation of arable agricultural lands to be located in agricultural areas.

- Allow recreational or educational programs or other activities which provide supplemental income necessary to sustain the primary agricultural activity, as long as they are compatible with the character of the rural agricultural area and are accessory to the primary agricultural use of the site.

- Use best management practices and conservation procedures to reduce soil erosion, siltation, and nonpoint source runoff.

- Expand the use of alternative and renewable water resources for agricultural use, as appropriate.

- Support conservation initiatives of the Windward O‘ahu Soil and Water Conservation District and encourage farmers to apply for, maintain and implement conservation plans.

- Establish economic and tax incentives to provide for long-term agricultural leases.

- Identify and protect Important Agricultural Lands in accordance with Act 183 (2005).

- Encourage governmental agencies and landowners to upgrade and maintain adequate agricultural infrastructure networks, including roadways and irrigation systems.

3.2.3 RELATION TO OPEN SPACE AND LAND USE MAPS

The Open Space and Land Use Maps in Appendix A depict agricultural lands outside the Community Growth Boundary. However, there are also pockets of agricultural lands within the boundary which should be protected and maintained for agricultural purposes or open space values.

3.3 PARKS AND RECREATION

Ko‘olau Loa has an abundance of natural and scenic resources that provide a variety of outdoor recreational opportunities, although the region lacks a sufficient supply of community-based parks and play fields. The City and County of Honolulu Department of Parks and Recreation (DPR) and the DLNR, Division of State Parks maintain control of a number of parks and recreational facilities. In addition, there are several golf courses at Kahuku and the Turtle Bay Resort. The location of parks and recreation areas in Ko‘olau Loa are shown in Exhibit 3-1.

Adequate parks and recreation areas are highly valued by area residents, as opportunities to enjoy the outdoors and participate in recreational and sporting activities are an essential component of the quality lifestyle that residents desire. Parks and recreation areas in Ko‘olau Loa are popular, highly-utilized resources used by local residents and residents living elsewhere on O‘ahu, as well as tourists. In addition to the existing inventory of community-based parks and playing fields being insufficient for the region’s population, residents object to the poor condition of existing park facilities and the lack of restroom facilities at various parks. It is important that park facilities are adequately maintained and operated, that they are sufficient to meet current park standards and the unique demands of the community, and that any future development include adequate park capacity to accommodate current and future demands. Private landowners and community organizations in the area have expressed interest in

providing land for park use or funding for park development at a to-be-determined location in north Lāʻie.

City and County Parks. The DPR's Standards and Design Precepts for Future Park Development (December 2004) is the long-range plan for park facilities on Oʻahu. Parks are classified according to two basic categories: "island-based parks" and "community-based parks." Island-based parks serve the needs of the island-wide population, and typically attract people from beyond the neighborhood or district where the park is located. Community-based parks serve more localized populations and provide passive and active recreational facilities for residents of a specific community. Such parks also serve as community-gathering places, and their location and design often form an important part of a community's identity.

DPR's classification of island-wide parks include regional parks, beach/shoreline parks, beach/shoreline rights-of-way, nature parks/reserves, botanical gardens, golf courses, and zoological parks. DPR's standard for island-wide parks is 25 acres per 1,000 *defacto*[8] population. The size of the park and the facilities to be provided are based on the character of the site, intended use, and availability.

Existing DPR island-wide parks in Koʻolau Loa are identified in Table 3-2. There are eight public improved beach and shoreline parks and several public beach rights-of-way scattered along the coastline in Koʻolau Loa. There is also one privately-owned beach park in Lāʻie (Hukilau Beach Park) that provides an additional 8.4 acres of valuable recreational space. The privately-owned Hukilau Beach Park is considered to be a safer alternative for beach-goers than the City-owned Lāʻie Beach Park, which is a popular bodyboarding and bodysurfing beach with dangerous shorebreak conditions unofficially known as "Pounders." The DPR has no current projects for additional beach park development in Koʻolau Loa, although long-term plans include improvements to extend the shoreline area at Lāʻie Beach Park, land acquisition for the expansion of Kaluanui Beach Park, and the development of a new beach park adjacent to Kahuku Golf Course.

Koʻolau Loa does not have a regional park, nor are there plans to designate one within the district. The closest regional parks are at Kualoa (in the Koʻolau Poko SCP area) and Haleʻiwa (in the North Shore SCP area).

[8] The State of Hawaiʻi Data Book (2010) defines de facto population as "the number of persons physically present in an area, regardless of military status or usual place of residence. It includes visitors present but excludes residents temporarily absent, both calculated as an average daily census."

Table 3-2
City DPR Island-Wide Parks in Koʻolau Loa

Park Type/Name	Acreage
Regional Parks	
None	----
Beach/Shoreline Parks	
Hauʻula Beach Park	9.1
Kaʻaʻawa Beach Park	2.0
Kalaʻeʻoio Beach Park	0.8
Kokololio Beach Park	15.5
Lāʻie Beach Park	7.4
Makaʻua Beach Park	0.1
Punaluʻu Beach Park	2.8
Swanzy Beach Park	4.8
Subtotal	42.5
Beach/Shoreline Rights-of-Way	
Hauʻula Beach Remnant	0.01
Kaluanui Road	0.66
Kamehameha Highway	0.04
Subtotal	0.71
Nature Parks/Reserves	
None	----
Botanical Gardens	
None	----
Total Park Area	**43.2**

Community-based parks are intended to provide for active recreation and consist of district, community and neighborhood parks, as well as other smaller park areas (see Table 3-3). Community-based parks provide courts and playing fields for various sports and serve a wide array of active sports leagues.

The Koʻolau Loa Region Park Master Plan (2008) provides an inventory of existing recreational facilities within the region, and prioritizes physical improvements to existing facilities and the acquisition for new park spaces. Koʻolau Loa contains two community-based park areas totaling approximately 26 acres. These are the 15.9-acre Kahuku District Park (undersized according to DPR standards) and the 10.4-acre Hauʻula Community Park located adjacent to the elementary school (see Table 3-4).

Table 3-3
Types of City DPR Community-Based Parks

Park Type	Minimum Size (Acres)	Population Service Size	Typical Facilities
District	25	25,000	Playfields, playcourts, passive areas, gym/recreation complex, swimming pool
Community	10	10,000	Playfields, playcourts, passive areas, recreation building
Neighborhood	6	5,000	Playfields, playcourts, passive areas, comfort station
Mini Park	0.25	High Density Area	Benches, picnic tables, children's play area

Table 3-4
City DPR Community-Based Parks in Koʻolau Loa

Park Type/Name	Acreage
District Parks	
Kahuku District Park	15.9
Community Parks	
Hauʻula Community Park	10.4 (includes 6.7 acres of wetland)
Neighborhood Parks	
None	------
Mini Parks	
None	------
Total Park Area	**26.3**

In evaluating community-based recreational park needs, the DPR uses a standard of two acres per every 1,000 residents, although this may vary according to each community's or region's situation. Based on DPR's population standard and Koʻolau Loa's population in 2000, Koʻolau Loa's current inventory of community-based parks (26.3 acres) is less than the 29 acres of park space identified by DPR's standard. The current park acreage of 26.3 acres is about three acres below DPR's standard of 29 acres; however, when the acreage of current usable park space is considered, the deficiency is almost 10 acres less than DPR's standards (i.e., an estimated 60 percent of the Hauʻula Community Park area is unusable due to wetland conditions). Furthermore, given that the five distinct communities in Koʻolau Loa are widely spaced along the region's linear coastline, the resident population park standard does not

consider the physical separation and distribution of parkland when assessing the adequacy of existing community-based parks. It is more appropriate to look separately at the needs of each individual community in rural areas like Koʻolau Loa.

Application of the community-based park standard (2 acres/1,000 people) to the 2035 population projections for the region indicates a need for 32 acres of park acreage, which is about 6 acres more than the current inventory of 26.3 acres. The City normally develops community-based parks from lands dedicated to the City by residential land developers, as per the park dedication standards of the City's Subdivision Ordinance (350 square feet of park space per residential unit for Residential-zoned land, 100 square feet per unit for Apartment-zoned land). Acquisition of land for a new community-based park would most likely occur as part of any future residential development.

Golf Courses. There are three golf courses within Koʻolau Loa, of which two are privately owned and operated courses associated with the Turtle Bay Resort. The Kahuku Golf Course, which is operated by the City's Department of Enterprise Services, is a nine-hole municipal course located along the coastal shoreline *makai* of Kahuku town. The City's long-term plans include acquiring 60 acres adjacent to the Kahuku Golf Course and expanding the golf course to 18 holes in conjunction with flood control measures.

In addition to their recreational value, golf courses are open space and aesthetic resources that support efficient stormwater management and provide additional wildlife habitat. Policies and guidelines for golf courses are presented in Section 3.1.2.6. Development of any new golf courses within the Koʻolau Loa region is not desired, except for the possible expansion of the Kahuku Golf Course if it serves to mitigate the drainage problem that currently exists there.

State Parks. Koʻolau Loa also contains four significant and unique State Parks: Ahupuaʻa O Kahana (formerly Kahana Valley State Park) and Kaluanui (Sacred Falls) State Parks, Mālaekahana State Recreation Area and Lāʻie Point State Wayside. There are also a number of rights-of-way that provide access to recreation areas. With the exception of Kaluanui (Sacred Falls) State Park, which was closed in 1999 due to liability concerns, these State parks offer a variety of camping, hiking and recreational opportunities, as well as cultural experiences for residents and visitors alike. Managed by the State DLNR Division of State Parks, these parks are recognized as important open space and recreational assets in the Koʻolau Loa Sustainable Communities Plan (see Table 3-5). A master plan for Kahana Valley was developed in 1974 and policies for its implementation are currently in place, followed by the completion of a study on the restoration of Huilua Fishpond in Kahana Valley. The DLNR is in

Table 3-5
State Parks in Koʻolau Loa

Park Type/Name	Acreage
Ahupuaʻa O Kahana State Park	5,256.5
Mālaekahana State Recreation Area	110.0
Kaluanui (Sacred Falls) State Park – closed in 1999	1,374.2
Lāʻie Point State Wayside	1.4
Total Park Area	**6,742.1**

the process of completing a master plan for Kaluanui (Sacred Falls) with input from the community and the Kaluanui Advisory Group.

3.3.1 POLICIES

The following policies relate to island-wide parks, community-based parks and other recreational resources in Koʻolau Loa:

- Maintain, expand and enhance existing park resources and recreational areas to provide high quality recreational experiences for residents and visitors. Such improvements should occur in a timely manner. Parks and recreation areas are a critical component of the region's abundance of natural and scenic resources and contribute to the attractiveness and accessibility of Koʻolau Loa's coastline and *mauka* areas for both residents and visitors.

- Ensure that the development of park facilities avoids adverse impacts on natural resources or processes in the coastal zone or any other environmentally sensitive area.

- Ensure that park facilities, recreational resources and recreational activities are compatible with surrounding land uses and rural character.

- Provide safe and convenient access to parks and recreation areas.

- Consider an expansion of the existing Kahuku public golf course to mitigate the drainage problem that currently exists there.

- Develop an integrated system of bikeways to link parks and recreational areas.

- Protect existing recreational resources from overuse and incompatible uses.

- Expand or provide new community-based parks in areas where there is a lack of sufficient facilities and where recreational needs of residents are not being adequately met.

- Acquire and improve additional coastal lands and shoreline sites to expand coastal-oriented beach and passive park resources.

- Ensure that physical improvements and landscaping features contribute to the aesthetic, cultural and/or environmental value of these open space elements.

3.3.2 GUIDELINES

The following guidelines provide more specific direction for implementing the policies for the parks and recreation areas discussed above.

- Continue coordination efforts between the City DPR and the State Department of Education (DOE) to co-locate neighborhood or community parks with elementary or intermediate schools. Facilities should be designed and operated to achieve efficiencies and reduce duplication in the development and use of athletic, recreation, meeting and parking facilities, wherever possible, either by dedication, or upon agreements between the developer, DOE, and DPR. Co-located parks should be ready for public use upon opening.

- Where feasible, site community and neighborhood parks at the center of neighborhoods to maximize accessibility.

- Provide for accessible pathways from surrounding streets to facilitate pedestrian and bicycle access to parks in master plans for development of new parks or redevelopment of existing parks.

- Link parks and recreational areas with the surrounding community using connecting roadways, bikeways, walkways and landscape features or architectural design.

- Develop a new community park in Lāʻie with a community center facility.

- Expand the Hauʻula Community Park to include a multi-purpose recreational facility.

- Provide neighborhood parks in Kaʻaʻawa, Punaluʻu, and Kahuku (Adams Field) to serve the residential population of these communities.

- Expand Kahuku District Park to support the development of a multi-purpose recreational building and swimming pool complex.

- Acquire and/or improve additional shoreline areas for public recreational uses, including adjacent areas at Kaluanui and Lāʻie Beach Park.

- Encourage continued public access and use of Hukilau Beach Park to provide beach-goers a safer alternative than other nearby public beaches.

- Establish community gardens to expand gardening opportunities for area residents.

- Establish management strategies that minimize overcrowding and prevent the negative consequences of overuse.

- Locate bus stops or loading areas at principal entries and adjacent to convenient pedestrian access to main activity areas within the park.

- Use generous landscaping or other appropriate visual screens to m inimize the visibility of perimeter fencing and maintenance facilities from surrounding areas.

- Provide landscaping along major roadways to serve as linear open space features and create an inviting environment for walking, jogging and biking.

- Incorporate natural features of the site and native landscaping materials when designing park improvements.

3.3.3 RELATION TO OPEN SPACE AND LAND USE MAPS

The following components of the parks and recreation areas are shown on the Open Space and Land Use Maps in Appendix A:

- **Parks.** The general location of areas designated as parks are outlined and colored. The park's name is labeled, where space allows on the maps.

- **Golf Courses.** The three golf courses in Koʻolau Loa are shown because of their recreational value and visual contribution to the landscape.

- **Shoreline Areas.** Shoreline areas with high scenic or wildlife value, generally along the Kahuku coastline between Mālaekahana and Kahuku Point, are designated for preservation and are located outside the Community Growth Boundary.

3.4 HISTORIC AND CULTURAL RESOURCES

The Koʻolau Loa region contains several different types of historic and cultural sites which are representative of its history and are valuable as historic records and cultural references.

Early periods associated with Native Hawaiian use are represented by physical remnants of the historic landscape and archaeological sites. In the 1930's, J. Gilbert McAllister conducted an archaeological survey of Oʻahu, which is considered to be the most comprehensive report of the major archaeological features documented in the region. While McAllister (1933) documented approximately 57 sites within the region of Koʻolau Loa, it is likely that many of these sites may have been destroyed by land altering activities such as agricultural cultivation and development. The plantation era is also an important period which made a substantial contribution to and imprint on Koʻolau Loa's history. Reminders of that period, such as the Kahuku Sugar Mill site, are significant and valuable as records of the past.

There are literally hundreds of archaeological features known to exist in Koʻolau Loa, which attests to the richness of the region's cultural heritage. There are also numerous legends and historical accounts from Koʻolau Loa's past which are important in Native Hawaiian culture. Table 3-6 presents a sample of well-known cultural resources found in the Koʻolau Loa region. Although not listed in the table, there are other cultural resources throughout Koʻolau Loa, including undisturbed archaeological sites deep within the region's valleys and cultural resources listed on the National and State Registers of Historic Places. More recent field studies of site-specific development areas have identified additional archaeological sites, which are recorded with the State Department of Land and Natural Resources, Historic Preservation Division.

Table 3-6
Cultural and Pre-Contact Sites in Koʻolau Loa

Feature	Location	Reference
Waikane Stone	Kawela	McAllister Site 259
Punamanō Water Hole	Kahuku Point	McAllister Site 261
Kalaewila Heiau	Kahuku Point	McAllister Site 266
Waiʻāpuka Pool	Mālaekahana	McAllister Site 275
Paeo Fishpond	Lāʻie	McAllister Site 277
Nioi Heiau	Lāʻie	McAllister Site 281
Laniloa Point	Lāʻie	McAllister Site 284
Kaliuwaʻa Valley	Kaluanui	McAllister Site 290
Maka Heiau	Punaluʻu	McAllister Site 291
Huilua Fishpond	Kahana	McAllister Site 301

Source: McAllister, J. Gilbert. *Archaeology of Oʻahu.* 1933.

Comprehensive listings of recorded archaeological sites can be found in the following references. It is probable that there are many other sites that have not been discovered.

- J. Gilbert McAllister, Archaeology of Oʻahu (1933)
- E.P. Sterling and C. C. Summers, Sites of Oʻahu (1978)
- Fornander & Thrum, Ancient Oʻahu
- State Burial Sites Program Inventory/Oʻahu Burial Council
- State Historic Preservation Division Records

The abundance of *kuleana* lands remaining in Koʻolau Loa is further evidence of the use of the land by Native Hawaiians and the region's cultural value. By definition, *kuleana* lands are the fee simple parcels that were awarded to native tenants by the Hawaiian Kingdom under the Kuleana Act of 1850. Intended to allow Native Hawaiians to continue their traditional subsistence lifestyles, *kuleana* awards were limited to lands used for subsistence agriculture,

plus small houselots distinct from the cultivated lands.[9] For a variety of reasons – including social, political and economic stresses and environmental conditions – many of the original *kuleana* awards have been lost. Today, *kuleana* lands that have endured are held in high regard, and are often significant as "family lands" where families have lived for many generations. For families that have been able to hold onto their *kuleana,* such lands often hold deep cultural and historic value, and symbolize an individual's connection to the land and ancestral right to belong to a certain place.

Kuleana landowners are faced with a number of challenges that affect their ability to maintain their *kuleana.* Such challenges include: (1) the ability to afford property taxes (which have steadily increased as a result of development in adjacent areas); (2) developing consensus among the many heirs that may hold interest in the property (typical for land passed from one generation to the next); and (3) protecting their *kuleana* rights to use their property (including rights of access, rights for agricultural and residential uses, traditional gathering rights and water rights).

3.4.1 POLICIES

The following policies relate to the preservation of historic and cultural resources in Koʻolau Loa.

- Encourage all activities within the Koʻolau Loa area to respect traditional and customary rights of Native Hawaiian practitioners in respective *ahupuaʻa*.
- Acknowledge the cultural and historic significance of *kuleana* lands.
- Integrate physical references that emphasize Koʻolau Loa's history and cultural roots into the developed landscape.
- Protect existing visual landmarks and support the creation of new, culturally appropriate landmarks at *ahupuaʻa* boundaries.
- Preserve and protect, and if appropriate, restore historic and cultural resources associated with Native Hawaiian and pre-contact periods.

[9] Of the 29,211 adult males in Hawaiʻi in 1850 eligible to make land claims, only 7,500 received kuleana awards. Their awards account for a combined 28,600 acres of kuleana lands, less than one percent of the Kingdom's lands (Harvard Environmental Law Review. Volume 29:2, 523-571).

- Preserve and protect significant post-contact cultural and historic features, such as those established during the plantation era.

- Apply appropriate management policies and practices in the treatment of historic and cultural resources. Such practices may range from total preservation to integration with contemporary uses.

- Retain, wherever possible, significant vistas associated with archaeological features and culturally sensitive areas.

3.4.2 GUIDELINES

The treatment of a particular historic or cultural site should depend upon its characteristics and historic value. Appropriate treatments range from direct physical access and/or use of a site to limited visual contact. In some cases, adaptive reuse may be the only feasible way to preserve a site. In other cases, however, it may be highly advisable to restrict access to protect the physical integrity or sacred value of the site. The following guidelines should be used to determine appropriate treatment for cultural and archaeological sites.

- Implement *in situ* preservation and appropriate protection measures for sites that have high preservation value because of their good condition or unique, historic, cultural and archaeological features, and for which the State Historic Preservation Officer has recommended such treatment in conjunction with the community.

- Consider the particular qualities of a site and its relationship to its physical surroundings when determining the appropriate treatment for a site. Determine the following on a site-by-site basis in consultation with the State Historic Preservation Officer, O‘ahu Island Burial Council, local Hawaiian cultural organizations, the owner of the land on which the site is located, and the community:
  - appropriate preservation methods;
  - appropriate delineation of site boundaries and setbacks;
  - appropriate restrictions on uses and development of adjacent lands; and
  - the appropriateness of public access and interpretation.

- Include sight lines and view planes that are significant to the original purpose and value of the site in any restrictions placed on adjacent uses and development.

3.5 RESIDENTIAL COMMUNITIES

The establishment of the Community Growth Boundary is intended to contain development and keep it from spreading into significant agricultural and preservation areas. The need for additional housing in Koʻolau Loa will be met primarily by the "infill" development of existing vacant lands within each of the region's rural communities, and by allowing the limited expansion of residential areas in Kahuku and Lāʻie. These areas are contiguous to and in proximity to existing development and will also accommodate housing needs in Kahuku related to long-term projected employment growth at Turtle Bay Resort. In Lāʻie, 200 units are designated in north Lāʻie to address the area's long-standing housing demand to sustain existing residential needs and growing families, as well as 200 units of workforce housing on the Brigham Young University-Hawaii campus to support its planned expansion and long-term sustainability.

Vital, contemporary communities oriented toward meeting the needs of their residents often offer a network of amenities to facilitate and enhance individual, family, and community life. At their best, they may offer parks and landscaped public open spaces, churches, community centers, and other places for social and civic functions, residences or other facilities for persons with special needs, and safe, pleasant bicycle and pedestrian connections that link homes and important destinations. While this Plan refrains from prescribing what the specific ingredients of any given community should be, it takes this opportunity to cite the need, in each community, for appropriate elements which aid and enhance the act of living as well as residence.

Table 3-7 presents Koʻolau Loa housing trends from the 1990 and 2000 U.S. Census. Between 1990 and 2000, Koʻolau Loa's housing inventory increased by about 50 new homes, accounting for an increase of about 1.2 percent. During this same period, the resident population in the region increased from 14,263 to 14,546 people and the number of households increased by 104 households, representing a 2.0 percent population growth rate and a 2.9 percent growth in the number of households, respectively. In general, the discrepancy between the number of new housing units constructed between 1990 and 2000 and the population and household growth experienced during the same period is reflected in the increased household size reported in 2000.

According to the 2000 Census, Koʻolau Loa's housing inventory is comprised of mostly older homes. Almost 1/4 of the structures are greater than fifty years old, while slightly more than 50 percent are 30 years old or older. Only 1/4 of the homes are less than 29 years old. Considering that the majority of the homes are older homes, a trend towards an increase in the number of home renovation and/or replacement projects in the near future is expected.

Table 3-7
Ko‘olau Loa Housing Trends: 1990 to 2000

Housing Data Category	1990	2000
Total Housing Units	4,422	4,473
Occupied Units	3,578 (80.9%)	3,682 (82.3%)
Owner-occupied Units	1,657 (37.5%)	1,801 (40.3%)
Renter-occupied Units	1,921 (43.4%)	1,881 (42.1%)
Vacant Units	844 (19.1%)	791 (17.7%)
Homeownership Rate	46.3%	48.9%
Number of Households	3,578	3,682
Household Size	3.69	3.75

The median price of a single-family home sold on O‘ahu in 2000 was $295,000 and the median condominium price was $125,000. (The average price for a single-family home and condominium was $406,331 and $165,674, respectively.) In 2000, the median family income for the island of O‘ahu was $60,142, which is about $10,000 over the median family income in Ko‘olau Loa ($49,826). Between 2000 and 2005, the median sales price of a single-family home on O‘ahu increased 100 percent to $590,000 and the median condominium price increased 115 percent to $269,000. (The average price for a single-family home and condominium was $744,174 and $320,003, respectively.[10]) Despite fluctuations in the real estate market, home prices in Ko‘olau Loa have continued to increase, as the median price of a single-family home sold on O‘ahu’s windward coast during the first quarter of 2018[11] was $812,000 and the median condominium price was $251,900. In contrast, an “affordable” single-family home for a family of four with an annual income of $87,000 (80 percent of O‘ahu’s median income) would be priced at $735,000, assuming a 10 percent down payment and financing at 4.5 percent.[12] There is a need for housing priced to meet the affordability of area residents.

Inflated real estate values and the lack of affordable housing have made it difficult for many Ko‘olau Loa residents to purchase a home. In many cases, families that are unable to purchase homes are moving from the area or resorting to multi-generational living arrangements – either living in crowded situations or adding rooms to existing homes to accommodate extended families – as a way to afford the cost of housing. The trend towards larger, multi-generational

[10] Honolulu Board of Realtors. “Annual Residential Resales Data for O‘ahu 1985 - 2008.”

[11] Honolulu Board of Realtors. HiCentral Multiple Listing Service 2018.

[12] Honolulu Board of Realtors. HiCentral Multiple Listing Service 2018.

households is changing the appearance and composition of Koʻolau Loa's rural neighborhoods. In many areas, yards appear to be getting smaller as additional square footage is added to homes, and, as the number of people living within a neighborhood increases, there is additional traffic, more cars parked on public streets, and greater demand for infrastructure and public services.

Alternative development layouts that allow for higher densities, along with financing programs and alternative tenure strategies (e.g., long-term lease options) that support home ownership, are needed to address the need for affordable and appropriately-priced housing. The establishment of rural development standards could also benefit affordable housing by lessening the infrastructure costs associated with development. While single-family homes have been the dominant housing type in the region, more high-density forms such as attached multi-family housing and smaller lot sizes, including rental units should be encouraged, as long as the integrity of existing neighborhoods and the rural character is not altered.

While development of moderate-sized vacant parcels may be readily viable and the effects may be more immediately apparent than infill development of small parcels and single lots, physical changes brought about by incremental intensification in existing built-up neighborhoods through infill and home expansions are generally slower and more subtle. Effective residential lot and subdivision design and development standards which identify standards such as building heights, lot coverage, paving width of streets, and landscaping requirements are needed to ensure that the long-term cumulative impact of the gradual transformation of small parcels and single lots does not adversely affect the character of existing neighborhoods.

3.5.1 POLICIES

3.5.1.1 EXISTING AND NEW RESIDENTIAL COMMUNITIES

The following policies are applicable to existing and new residential communities:

- Respect and help to preserve the natural setting of the Koʻolau Loa region by requiring development in residential areas to be sensitive to physical constraints and have minimal impact on the area's rural character.

- Maintain sufficient inventory of land within the Community Growth Boundary to accommodate existing and future housing needs of residents within the Koʻolau Loa area by supporting limited expansion of residential areas in Kahuku and Lāʻie to meet existing pent-up demand and provide land for affordable work force housing.

- Increase housing affordability to Koʻolau Loa residents.

- Maintain the existing inventory of residential land for the communities of Ka‘a‘awa, Hau‘ula and Punalu‘u. Future residential needs in these communities will be met through infill residential development on appropriately zoned vacant lots within existing neighborhoods. No new housing areas are designated in these areas.

- Adopt zoning, subdivision and related project design regulations which foster a rural character in new residential developments and improvements to existing residential areas.

- Encourage and support the development of affordable housing in the region in order to address existing pent-up demand for housing and overcrowded housing conditions.

3.5.2 GUIDELINES

This Plan recognizes three categories of residential development: Rural, Rural Residential and Low Density Apartment. Table 3-8 provides an overview of the density and height guidelines for existing and planned residential developments.

Table 3-8
Density and Height Guidelines by Residential Category

Residential Category	Density (Housing Units)	Building Height
Rural	1 unit per acre	Not over two stories (25 feet maximum)
Rural Residential	5-12 units per acre	Not over two-stories, but may vary according to required flood elevation, slopes, and roof form.
Low Density Apartment	12-30 units per acre	Generally not over four stories (60 feet maximum for gable or similar roof format), but may vary according to required flood elevation, slope, protection of natural features and roof form.

Except for pockets of existing apartments in Punalu‘u and Turtle Bay, additional apartments for faculty, staff, and student housing in Brigham Young University-Hawai‘i campus, and a limited number of additional dwellings at north Lā‘ie, the majority of the housing in Ko‘olau Loa consists of single-family homes in rural residential areas. It is important that residential areas exhibit the physical characteristics of a rural context, including:

- Smaller building footprints, less lot coverage, and greater open space than encountered in more urbanized areas;

- Alternative development patterns such as clustering and traditional compact layouts to preserve open space and minimize infrastructure demands;

- Low-rise structures, generally not exceeding two stories;

- Relatively narrow roadway widths;

- Minimal amount of paved driveway surfaces;

- Landscaping and design alternatives that reduce impervious surfaces, such as grassed swales rather than curbs and gutters; and

- Building, landscaping, and fencing design elements that impart an informal, open feeling.

The City should utilize more flexible and appropriate subdivision standards for roads and utilities in rural residential subdivisions. For example, current City subdivision rules and regulations require curb/gutter/sidewalk for most new subdivisions. These standards are essentially urban or suburban standards, but may not be practical for most "Country" subdivisions with one-acre lots or for residential subdivisions with R-20 or R-10 zoning located in rural areas. More appropriate standards for rural residential subdivisions that do not require urban style "curb/gutter/sidewalk" and underground drain lines are desired by the community for aesthetic and economic reasons, and should be studied. These rural type standards could result in less cost for the development of these subdivisions, and thus more affordable lot prices for local families. The simpler standards would also help to maintain the rural quality of Koʻolau Loa's neighborhoods and residential areas.

3.5.2.1 RURAL

This category consists of single-family homes on relatively large lots (e.g., lots of one acre or more). Development is low density and generally consists of a single-family home with ancillary structures if necessary, low site coverage, and a predominance of landscaped open space. Rural areas are intended to be transitional areas between the denser, developed rural residential areas and agricultural uses, and are located on existing Country-zoned lands between Lāʻie and Kaʻaʻawa. Agricultural activities are encouraged in rural areas. Single-family homes surrounded by open landscapes such as fields or tree cover, and largely unobstructed views and rural roadways are the principal visual qualities of these areas. No intensification in the use of existing Rural areas nor creation of new Rural areas is intended. Except for the subdivision of existing Country-zoned lots into conforming lots, new Country-zoned lots should not be allowed.

Rural areas should adhere to the following guidelines:

- Use rural development standards to establish building height limits and lot coverages, roadway and setback widths, infrastructure requirements, and architectural design guidelines.

- Encourage alternative development layouts that promote residential clustering and open space preservation.

- Ensure compatibility between uses in rural areas and adjacent agricultural lands, natural resources, views and cultural features.

Two variants of the Rural category are recognized by this plan:

- Inside the Community Growth Boundary, Rural areas may be developed as large-lot residential uses.

- Outside the Community Growth Boundary, Rural areas should be used primarily for agricultural uses.

3.5.2.2 RURAL RESIDENTIAL

This category is intended to describe the bulk of existing and new residential developments located within the Community Growth Boundary. Rural residential areas are intended to consist of single-family homes in "country" settings, as well as higher densities (e.g., smaller lot sizes, multi-family homes) around Kahuku and Lāʻie. Typical residential lot sizes range from just less than one acre to about 3,500 square feet. Alternate development forms, such as cluster or planned development housing approaches which provide development flexibility for greater amounts of open space and common area facilities, the use of reduced development standards which may lower development costs, or smaller lot sizes and higher densities associated with affordable housing may also be used.

New Rural Residential development may occur through infill development on existing residential-zoned parcels, or in areas designated for residential development in Kahuku and Lāʻie. Areas designated for future residential development are intended to respond to existing housing needs of the region's residents, and also accommodate housing needs related to long-term employment growth projected for the region. The intent of directing residential development to these areas is not to promote larger lots, which may make them unaffordable to area residents or may encourage sprawl, but to allow for more site flexibility, integration of open space and neighborhood parks, and a joint infrastructure system for cost efficiency.

The intent of the Rural Residential designation is to distinguish rural from urban residential development. It is anticipated that Rural Residential will carry development standards for roadways, building envelope, and other features that will convey rural rather than urban character. New Rural Residential areas in Ko‘olau Loa are intended to support densities ranging from five to 12 units per acre or up to 14 units for cluster and planned development housing approaches, so that they can remain affordable and at the same time reflect rural character. They should adhere to the following guidelines:

- Use rural development standards to determine appropriate scale and character, limit building heights and lot coverages, reduce current requirements for the paving width of residential streets and infrastructure systems, and encourage appropriate architectural design and ample native, natural landscaping forms.

- Housing development generally should not be sited on areas where the slope exceeds 20 percent. Where this does occur, housing should be developed to avoid adverse visual impacts, potential slope stability problems and increased runoff. Soils engineering and view studies may be necessary to determine the appropriate density and site design for such locations.

- Building scale, roof form, and the quality of materials for infill and new development, as well as future modifications to existing homes, should be generally compatible with the predominant form and character of existing homes on adjacent properties and with the neighborhood as a whole. Building heights generally should not exceed two stories, but may vary according to required flood elevation, protection of natural features, slope, and roof form. Modification of zoning standards for residential development, such as provisions for building scale or spacing, roadway widths, or sidewalks, and/or changes in existing zoning district categories, may be necessary to promote rural character.

- Sites on level terrain with fewer development constraints may have overall site densities approaching the higher end of the range for Rural Residential use. To achieve higher density while providing an attractive living environment, optional design or rural development standards for clusters and planned unit developments should be promoted in lieu of conventional subdivision provisions.

- Avoid monotonous rows of garages and driveways along neighborhood street frontages by employing features such as varied building setbacks and shared driveways.

- Use plantation architectural features such as pitched roofs with varied forms, exterior colors and finishes, building orientation, floor plans and architectural details to provide visual interest and individual identity and accentuate the rural setting.

- Support affordable housing initiatives in areas designated for new housing development.

3.5.2.3 LOW DENSITY APARTMENT

This category consists of predominately two- to four-story townhouse complexes, stacked flats, or low-rise apartment buildings with a maximum height of 60 feet. Densities may be in the range of 12 to 30 dwelling units per acre.

Except for an additional low-density apartment-zoned district at north Lāʻie and additional apartments on the Brigham Young University-Hawaiʻi campus to accommodate the housing needs of its planned expansion, no new Low Density Apartment areas are recommended.

Low Density Apartment development should adhere to the following guidelines:

- Limit building heights to three stories or 40 feet, including roof form, with heights above 40 feet allowed only when warranted due to the required flood elevation, steep slope of the site, or the desire to protect important natural features. Gabled or similar roof forms should be used to reflect a primarily rural residential design character.

- Employ building form and orientation, location of entries and landscape screening, etc., to maintain the existing residential scale and provide greater privacy and individual identity for housing units.

- Ensure compatibility of building scale, roof form and the quality of materials with those of adjacent low-density residential areas.

- Apartment buildings at north Lāʻie should be earth-tone in color and should be screened from views along Kamehameha Highway.

3.5.2.4 SPECIAL NEEDS HOUSING

This Plan does not indicate specific housing or building types for special needs housing. Rather, the Plan refers to facilities designed for certain segments of the population with special living requirements. Categories of special needs groups include low- and moderate-income sectors including long-term rental housing and housing for the homeless, senior citizens, disabled people, and people with health problems or individuals who need other forms of special care. Often such housing includes special features and accessory support services, such as congregate dining and social rooms; laundry, housekeeping and personal assistance services; shuttle bus services (both public and private) for residents; and skilled nursing beds or physical therapy clinics. Temporary shelters and transitional housing for homeless and low-income

populations, permanent housing for persons requiring assistance to live independently, and emergency safe havens are types of facilities that provide special needs housing. There are several special needs housing facilities in Koʻolau Loa, such as the Kahuku Elderly Housing Project and the Ponds at Punaluʻu in Hauʻula.

Special needs housing development should adhere to the following guidelines:

- In general, apply Low Density Apartment building height and density guidelines to special needs housing sites, as described in Section 3.5.2.3.

- Special needs housing, as an exception to standard density situations, may have densities up to 30 units per acre if it consists primarily of smaller dwelling units with residential scale and character. Special needs housing may have congregate living facilities, and is for individuals who, for the most part, do not rely on or require personal automobiles for travel.

- Whenever possible, locate special needs housing close to public transit, community services and commercial activities.

- Require community and agency review of permits for special needs housing proposals to maintain flexibility in the location of special needs housing and promote flexible site design that preserves natural features or scenic elements.

- Allow heights above 40 feet, subject to community and agency review, only when warranted due to the required flood elevation, steep slope of the site, or the desire to protect important natural features. Gabled or similar roof forms should be used to reflect a primarily rural residential design character.

- Ensure compatibility of building scale, roof form, and materials with adjacent residential uses.

3.5.3 RELATION TO LAND USE MAP

Conceptual locations for Rural Residential areas are shown on the Koʻolau Loa Land Use Map in Appendix A, while the other residential areas are not designated on the Land Use Map.

- **Rural.** Rural areas are recognized where they occur as a pre-existing use, generally consistent with the Country zoning district. No new areas are planned.

- **Rural Residential.** Areas with this designation should be zoned as Residential subject to appropriate siting considerations, and the policies and guidelines provided in Sections 3.5.1 and 3.5.2.

- **Low Density Apartment.** Apartment areas are not shown on the Land Use Map, but are noted in Section 3.5.2.3 Low Density Apartment.

- **Special Needs Housing.** This land use is not specifically designated on the Land Use Map, but it is allowed in residential areas subject to project-by-project review for compatibility with surrounding uses.

Non-residential uses that are not specifically designated on the Land Use Map, but are allowed in all residential areas include elementary schools, parks, churches, community centers, child care centers, and public facilities and utilities serving the area. It should be noted that some of these uses require project review and/or public hearings and issuance of permits before they can be developed in residential and rural areas.

3.6 COMMERCIAL AREAS

Commercial establishments in Ko‘olau Loa range in type from small, individual stores along Kamehameha Highway to a grouping of many shops and other commercial enterprises clustered together to form a shopping area. These types are:

- Country Town

- Rural Regional Commercial Center

- Rural Community Commercial Center

- Country Stores

Brief descriptions of each type follow.

Country Town. The country town generally distinguishes itself from its larger, often new urban counterparts by its compactness, small scale and mixture of different land uses, located in close proximity to each other. The land use mixture may include retail and office commercial, dining establishments, compatible service business and light industry activity, and some residential uses. Buildings are usually one to two stories in height and built to the street property line. Commercial activity is along street frontage in typically “Main Street” settings. Country towns often lend identity to adjacent rural communities.

The commercial district at the north end of Kahuku Village is designated as a Country Town. While current uses are primarily retail shops and restaurants, the intent is to allow commercial, low impact industrial (crafts manufacturing, light assembly, etc.), and residential uses in a compatible mix that is characteristic of many plantation or neighbor island rural towns. The arrangement of uses and the style and character of building designs would be reminiscent of Kahuku's plantation heritage.

Rural Regional Commercial Center. The Rural Regional Commercial Center is a consolidated cluster of commercial retail, offices, and dining establishments that serve both the immediate and nearby communities, with the primary intent of providing services within the region so that residents do not have to travel outside Koʻolau Loa. These establishments may be located on adjacent, individual parcels or on a single, consolidated parcel. It is located along a major roadway to enable convenient access without intrusion into residential communities. Buildings are generally low-profile and small in appearance, may include taller, vertical accents, and are generally compatible with the scale of adjacent residential areas in locations where such adjacencies exist. Its service area may be regional or sub-regional. Lāʻie Shopping Center is an example of this type of center.

Characteristics which distinguish this type of commercial establishment from urban or urban fringe counterparts include physical characteristics and type of tenancy. Rural Regional Commercial Centers maintain a rural, small-scale character. Buildings are visually organized, designed, or "broken up" into pieces that approximate or relate to the scale of residential buildings. They also feature elements that are "friendly" to someone walking. They feature covered walkways, open ground-floor storefronts, pathways that offer adequate resting and gathering, as well as walking space, and landscaping to shelter people from the elements and accentuate the Center's best features. While supermarkets are encouraged, "Big Box" retail is not.

The business center in the middle of Lāʻie is designated as a Rural Regional Commercial Center. It provides a mix of retail shopping, restaurant, personal service, entertainment and professional office uses that serve a regional consumer base which includes local residents, residents from neighboring communities and, to a limited extent, tourists. It is operated as a unit with shared parking and center management.

Rural Community Commercial Center. The rural community commercial center is a small cluster of commercial and service businesses which service primarily the immediate community, providing a mix of limited convenience retail shopping and service uses that meet the day-to-day needs of residents living in the nearby neighborhoods. Since most are located along highways, these centers also attract visitors and residents from outside the immediate community.

This type of center typically consists of a cluster of establishments on individual land parcels or a shop consolidated into one or a group of buildings on a single parcel. Structures are generally low-profile (one to two stories) and small in scale. The shopping center at Hauʻula located at a prominent site at the north or Lāʻie end of the town, as well as the commercial area in Kaʻaʻawa located along Kamehameha Highway across from Swanzy Beach Park are designated as Rural Community Commercial Centers.

Country Stores. This category generally refers to isolated, free-standing retail or eating establishments located on commercially-zoned lands or which exist as non-conforming uses. Its purpose is to recognize such establishments and to provide guidance for renovation or reconstruction. It is not intended to provide for new country stores.

Country stores are generally small in scale and low in intensity of uses, often assuming residential size and character. Their character generally approximates that of old neighborhood grocery stores. These businesses serve a variety of purposes, including convenience retail, shops selling art and crafts and other specialty items, and restaurants. Most cater almost exclusively to the needs of area residents, but some such as the restaurants and art studios depend heavily on the business of island residents and visitors who are traveling through the area.

3.6.1 POLICIES

3.6.1.1 KAHUKU COUNTRY TOWN

- Maintain a plantation town character that reflects the building forms and exterior appearance of traditional commercial and mixed-use buildings in Hawaiʻi's plantation communities. The mill theme should continue to be a dominant element for the town.

- Allow limited expansion to create sufficient critical and diversified mass for the center's continued viability to meet local and visitor shopping needs.

- Allow for compatible mixtures of commercial, industrial and residential uses within the Country Town. Emphasize commercial uses along the Kamehameha Highway frontage.

- Emphasize commercial and related uses conducive to pedestrian activity at the street level along main street frontages. Encourage adequate landscaping, and where possible and appropriate, bikeway and public transportation provisions to improve public thoroughfares through these locations.

3.6.1.2 LĀʻIE RURAL REGIONAL COMMERCIAL CENTER

- Introduce a rural architectural character which incorporates appropriate themes and building forms reflective of the diverse heritage of Lāʻie's residents.

- Provide for a modest expansion of the district in order to meet future resident and visitor needs associated with Lāʻie's anticipated long-term housing and employment growth, and the expansion of visitor attractions. Given its size, and potential mix of uses, Lāʻie's center has potential as a focal point for the region's shopping and services, and expansion is appropriate in order to better serve adjoining communities as well as local residents.

- Limit uses primarily to commercial retail, business service establishments, professional offices and public uses such as a satellite city hall, library, post office, or other similar facilities, that provide services to Lāʻie and surrounding communities.

3.6.1.3 HAUʻULA AND KAʻAʻAWA RURAL COMMUNITY COMMERCIAL CENTERS

- Maintain low-rise profile and small building scale, and emphasize rural character in the maintenance, renovation, or redevelopment of the center or site. Such actions or those which involve changes in the tenant mix to improve the range and quality of local shopping and service uses should be oriented toward maintaining the center's primarily community-oriented role.

- Emphasize a mix of retail and service uses which meet the day-to-day shopping needs of area residents.

3.6.1.4 COUNTRY STORES

- Recognize the contribution that existing country store-type establishments make to Koʻolau Loa's unique rural character by allowing them to remain and, where necessary, be renovated or reconstructed in accordance with appropriate design criteria.

- In general, limit these establishments to their existing locations and prohibit expansion that would alter their country store character or create commercial strips along Kamehameha Highway. New locations for country stores are not supported.

3.6.2 GUIDELINES

3.6.2.1 ALL COMMERCIAL AREAS

- ***Architectural Style***

- Utilize building forms and details which reflect the region's rural character and incorporate the style and any desirable distinctive features of buildings in the community in which they are located.

- Encourage the use of building façades, sloped roofs, and breaks in the roof line to reduce the apparent scale of large roof plates in commercial buildings with multiple storefronts.

- Avoid blank façades on portions of buildings visible from the street. Provide articulation through the use of building materials, finishes and fenestration.

- Reflect a more residential scale and character in the portions of commercial buildings that are adjacent to or readily visible from residential areas.

- ***Building Scale and Massing***

- Limit commercial buildings to a maximum 50,000 square feet of retail space, and a 40-foot height limit, including roof form. In general, buildings should maintain a low-rise, rural scale.

- Avoid the use of large, continuous buildings in new commercial developments. Commercial buildings adjacent to residential areas should be designed to recognize the balance between commercial needs and residential concerns. In general, the physical composition of height, size, and massing of commercial buildings in these locations should be compatible with adjacent residential development.

- ***Site Design and Access***

- Provide for the general visibility from Kamehameha Highway of buildings within commercial centers, and employ adequate and appropriately designed signage at entries.

- Provide access to parking and loading areas primarily from Kamehameha Highway for the shopping areas in Kahuku and Lāʻie, and exclusively for the Rural Community Commercial Centers (Hauʻula and Kaʻaʻawa) and country store establishments that front the highway. Alternative access should be considered when appropriate and feasible.

- Employ site design practices and provide facilities which promote pedestrian, bicycle and public transit access.

- Improve bus stops in front of commercial centers, including pull-out bus stop lanes and shelters for waiting passengers.

- Provide racks for bicycle parking at all commercial centers and locate them where they are secure and visible from entry points or other heavy circulation areas.

- ***Economic Viability***

- Emphasize that existing commercial space should be occupied before the development of new commercial properties is considered.

- Use existing commercial space and the planned future expansion of the existing Lāʻie rural regional commercial center to accommodate future commercial needs.

- ***Visual Screening, Lighting and Signage***

- Plant a landscape screen consisting of trees and hedges along streets fronting parking lots.

- Provide shade trees throughout parking lots.

- Visually screen service areas from public and residential areas.

- Require indirect illumination for signage visible from residential areas.

3.6.2.2 KAHUKU COUNTRY TOWN

- ***Architectural Style***

– Incorporate architectural themes and details in new buildings and building renovations which reflect the traditional built forms and cultural heritage of Kahuku and other plantation communities in Hawai‘i.

- ***Building Scale and Massing***

– Promote the development of two-story as well as one-story buildings to accommodate and encourage the desired mix of uses. The sugar mill theme should be continued.

– Keep buildings relatively small in size and distinctive in character, and avoid the development of long “shopping center”-type structures.

– Group buildings and related public spaces in a way which fosters a pedestrian orientation and encourages travel on foot between different establishments.

3.6.2.3 LĀ‘IE RURAL REGIONAL COMMERCIAL CENTER

- ***Architectural Style***

– Employ architectural design strategies, forms, and details in new building design which reduce the sense of building mass of the center. Incorporate architectural forms and details in future renovations of existing buildings which visually reduce their apparent size.

– Incorporate architectural themes and details in new buildings and building renovations which are appropriate to the region’s rural character.

- ***Building Scale and Massing***

– Maintain the existing center’s low-rise building scale consistent with the character of surrounding residential development.

– To the extent possible, site new buildings in a manner which emphasizes a pedestrian orientation and encourages travel on foot between new and existing establishments. Future renovation, redevelopment or expansion of the Rural Regional Commercial

Center should take or create opportunities to implement a primarily pedestrian-oriented, village-like setting, in contrast to its current linear form.

3.6.2.4 HAU'ULA AND KA'A'AWA RURAL COMMUNITY COMMERCIAL CENTERS

- ***Architectural Style***

– Encourage and support new building construction, existing building renovation or site redevelopment in a manner which complements and conveys the surrounding area's rural character.

- ***Site Design***

– Utilize landscaping within the parking lot and along the center's Kamehameha Highway frontage in order to soften its appearance and improve its compatibility with the community's rural character.

3.6.2.5 COUNTRY STORES

- ***Architectural Style***

– Encourage renovations to existing establishments which maintain or, where appropriate, improve upon the traditional stand-alone "country store" architectural style found in Hawai'i's rural communities.

– Require the architectural character of any redeveloped buildings to be harmonious with adjacent developments and setting in form, material, finishes and color.

- ***Building Scale and Massing***

– Retain the existing stand-alone, small-scale, limited setback, one-story height building form in the redevelopment of any existing establishments.

3.6.3 RELATION TO LAND USE MAP

Commercial areas are shown on the Ko'olau Loa Land Use Map in Appendix A as follows:

- **Country Town, Rural Regional Commercial Center, and Rural Community Commercial Centers.** The general location of these commercial areas is designated by an appropriate symbol.

- **Country Stores.** Due to their relatively small-scale, their locations are not depicted on the Land Use Map.

3.7 BUSINESS/LIGHT INDUSTRIAL AND TECHNOLOGY PARK AREAS

Industrial areas are intended for light and service-related industrial uses associated with repair, processing, construction, manufacturing, transportation, wholesaling, distribution, storage and similar economic activities.

Technology parks are areas intended for light technology and service-oriented industrial and business uses in a campus-like setting. Development intensity is low, while open space and landscaping are the predominant visual and physical elements. A technology park, which may be affiliated with the Brigham Young University-Hawaiʻi, has been designated adjacent to the campus.

3.7.1 POLICIES

The following policies are applicable to new and existing industrial and technology park areas:

- Industrial uses serving the Koʻolau Loa area should be located in the existing Kahuku industrial site or in the area proposed for the Lāʻie Industrial Park.

- The Kahuku Sugar Mill industrial site may also accept agricultural support activities.

- Light industrial areas should provide adequate space for uses and services such as small warehousing facilities; repair facilities for automobiles, appliances and agricultural machinery; light manufacturing such as wood products and local crafts; and agricultural support industries including processing for biomedical and plant products.

- Site development should respect and adequately address on-site and adjacent cultural and natural resource values in compliance with applicable federal and state regulations.

- No culturally sensitive area, habitat, water quality and other values and characteristics of streams, wetlands, and other natural or cultural resources should be disturbed. In addition, on-site development and associated activities should take care to avoid adverse impacts on adjacent land uses and activities.

- High technology enterprises such as telecommunications, technological support services, computer parts manufacturing, business education, multi-language translation,

research and development, and film-related facilities should be located in the Lāʻie Technology Park planned adjacent to the Brigham Young University–Hawaiʻi campus.

Appropriately developed, the industrial area and the technology enterprise park will serve to establish an appropriate land supply and locations for these uses and provide a more competitive market for businesses seeking to locate these activities.

3.7.2 GUIDELINES

3.7.2.1 BUSINESS/LIGHT INDUSTRIAL AREAS

The following guidelines apply to business/light industrial areas:

- ***Appropriate Scale and Siting***

  - Minimize the visibility of large building volumes and tall building or machinery elements from residential areas, commercial and civic districts, resort areas, and parks through careful site planning and use of ample landscaping.

- ***Environmental Compatibility***

  - Locate and buffer operations that discharge air or water pollutants, even when treated, in areas where they would impose the least potential harm on the natural environment, in case the treatment process fails to perform adequately. Uses that generate high noise levels should be located and operated in a way that will keep noise to an acceptable level in existing and planned residential areas.

- ***Use Allocation***

  - Provide mostly small lots within the Lāʻie Industrial Park to accommodate small business service uses.

  - No buildings should be primarily used for offices or business services.

- ***Building Height and Mass***

  - Building heights should convey the area's rural character and generally not exceed 40 feet.

- Buildings should maintain a low-rise, rural character and be compatible with surrounding land uses which include agricultural lands, open space, and residential areas.

- Employ building coverage that is appropriate to the rural environment and minimize visibility of structures with careful site planning and ample landscaping.

- ***Visual Screening***

- Minimize the visibility of parking, storage, industrial equipment and operations areas from the street by planting a landscape screen.

- Encourage the use of native plants in landscaping.

3.7.2.2 TECHNOLOGY PARK

The following guidelines apply to the technology park area:

- ***Appropriate Scale and Siting***

- The character of the technology park should be relatively low in scale and visibility. The form of the structures should be modeled on campus-like business parks, but the architectural style should be in keeping with and blend into the rural character of the technology park's setting and adjacent uses. The buildings should not be visible from off-site scenic viewpoints looking *mauka*, and the site should be carefully planned and ample landscaping used so the development is integrated into its surroundings.

- ***Environmental Compatibility***

- The technology park is primarily intended for emerging and technology-oriented industries and support services. Uses that should not be permitted in the technology park include uses that: produce noise and noxious emissions; uses connected with agricultural production and processing; large-scale retailing/wholesaling commercial operations; dwelling units or overnight accommodations of any kind.

- ***Use Allocation***

- Uses are intended to be emerging and technology-oriented industries, including but not limited to telecommunications, business education, and research and development facilities.

- ***Building Height and Mass***

  - Building heights should convey the area's rural character and generally not exceed 40 feet.

  - Buildings should maintain a low-rise, rural character and be compatible with surrounding land uses which include agricultural lands, open space, and residential areas.

  - Employ building coverage that is appropriate to the rural environment; avoid use of large, continuous buildings; and minimize visibility of structures with careful site planning and ample landscaping.

- ***Visual Screening***

  - Soften the visual impacts of parking, storage, industrial equipment and operations areas from the street by planting a landscape screen.

  - Encourage the planting of native trees and plant materials.

3.7.3 RELATION TO LAND USE MAP

The industrial and technology park areas are shown on the Koʻolau Loa Land Use Map in Appendix A as follows:

- **Industrial Park.** The location of the existing industrial site in Kahuku and the planned Lāʻie Industrial Park are designated in their general locations on the Land Use Map.

- **Technology Park.** The location of the planned Lāʻie Technology Park is not shown as it is intended to be adjacent to the Institutional area designated for the Brigham Young University-Hawaiʻi campus.

3.8 VISITOR FACILITIES

Koʻolau Loa will remain a rural community with a predominance of open space and low impact recreational opportunities for residents and visitors alike. Facilities for visitor activities and accommodations in Koʻolau Loa will be centered at the Polynesian Cultural Center, the Lāʻie Marriott Courtyard Hotel, and within the existing resort destination boundaries at Turtle Bay Resort, and supplemented by a limited number of small-scale eco-tourism and agricultural-tourism operations that are compatible with the rural character and adjacent land uses.

3.8.1 TURTLE BAY RESORT AND COASTLINE

Located at the north end of Koʻolau Loa, the existing complex of the Turtle Bay Resort – with its 500-room hotel, ocean villas, townhouses and golf courses – will continue to be a major visitor accommodation in the area.

A zone change and a special management area permit approved by the City in 1986 (Honolulu City Council Resolution 86-308, October 1, 1986) allow the construction of up to five new hotels with 3,500 new hotel and condominium units at the nearly 900-acre Turtle Bay Resort property, providing expansion potential for the resort complex to include a total of six hotels with 4,000 total rooms/units (including the existing 500-room hotel). Kuilima Resort Company completed an environmental impact statement (EIS) for the proposed development in 1985, as required by the City's development approval process. When a subdivision application in support of the resort expansion was submitted in 2005, a coalition of community groups filed a civil lawsuit to require resort owners to prepare an updated EIS. In April 2010, the Hawaiʻi Supreme Court decided in favor of the community groups and ruled that an updated EIS was required under state environmental law before any ground could be broken on the project.[13]

Within this context, many residents of Koʻolau Loa do not support the resort expansion due to concerns about traffic impacts on the two-lanes of Kamehameha Highway, the capacities of existing infrastructure systems and public services to accommodate the future projected demand (e.g., water, wastewater, electrical systems, police and fire protection, and emergency services), and the potential impacts to archaeological, cultural and natural resources. Labor force issues related to population growth, housing demand and transportation, as well as a desire to preserve the undeveloped shoreline and scenic view planes and maintain the region's rural character, are also concerns. Although there is general support for existing hotel operations, community discussions about the future development of the resort continues, pending completion of an updated EIS. Community concerns about the proposed resort expansion include:

- Preserving the uninterrupted shoreline and scenic view plane, as well as the cultural and historic significance of the area for future generations;

[13] The State of Hawaiʻi Supreme Court, in Unite Here! Local 5 v. City and County of Honolulu (No. 28602, April 8, 2010), found that the 1986 EIS contained a time frame that projected project completion in three phases, with the last phase starting in 1996. In the majority opinion, the Court noted that several elements of the EIS did not address current environmental conditions, such as the presence of Hawaiian monk seals and green sea turtles, and traffic.

- Providing for appropriate recreational and other uses that are compatible with existing land uses;
- Maintaining the viability of the existing Turtle Bay Resort, restaurants, condominiums and golf courses as an employment base for the region;
- Minimizing the impacts of future development;
- Providing for appropriate agricultural and other compatible uses in the *mauka* area;
- Developing design guidelines for any proposed additional structures to assure their compatibility with the rural character of the region; and
- Acknowledging existing land use designations and development approvals that have already been granted.

Proponents of the resort expansion support the creation of jobs and the regional economic benefits of additional visitors to the area, and the requirements to develop public shoreline park improvements and workforce housing as conditions of the City's 1986 permit approval.

3.8.1.1 POLICIES

This area should be preserved for open space and low impact recreation within the context of existing land use approvals. No further approvals resulting in an expansion of the existing resort beyond what is consistent with the already granted land use approvals should be granted.

3.8.1.2 GUIDELINES

Guidelines for the use of this area should focus on preservation and low impact recreation, within the context of existing land use approvals.

- ***Shoreline Access***

  - Preserve public access to the shoreline.

- ***Natural Environment***

  - Preserve and enhance existing features of topography, landscape and views unique to the area.

- ***Cultural Resources***

  - Protect cultural resources and practices within the area.

3.8.2 VISITOR FACILITIES IN LĀʻIE

3.8.2.1 POLICIES

The Polynesian Cultural Center (PCC) has been Hawaii's top paid visitor attraction for almost three decades and should be supported as a major contributor to Koʻolau Loa. PCC is unique in its primary orientation toward Pacific Island themes. To maintain its continued viability, visitor attractions like PCC must remain constantly aware of market trends and be able to adjust on a timely basis to changing visitor interests.

Plans to renew and expand facilities as necessary to maintain the viability and vitality of the PCC should be supported. Expansion of PCC may include expanding *mauka* toward Hauʻula, and towards the Brigham Young University-Hawaiʻi.

3.8.2.2 GUIDELINES - POLYNESIAN CULTURAL CENTER

Guidelines for the development of the Polynesian Cultural Center are as follows:

- ***Design Character***

  - Design and construction of new facilities or renovations should be consistent with existing architectural character or appropriate Polynesian themes expressed in the existing center. The PCC should continue to improve its overall design character and outward appearance as a Polynesian attraction, with emphasis toward tropical landscaping.

  - The architectural character of new facilities should respect the region's rural features.

- ***Appropriate Scale and Siting***

  - Expansion areas should be low-rise in character and set back from the roadway and adjacent uses. The architectural character of new facilities should respect the region's rural features.

- ***Accessibility***

  - Impacts to Kamehameha Highway traffic flow should be minimized by focusing traffic through existing intersections without creating new driveway connections to the highway.

- ***Built Height and Mass***

  - Portions of the Center adjacent to residential areas should be organized and designed to relate compatibly in scale, materials, character, color, and function with existing residential structures and activity.

  - Where functionally practical and visually appropriate, use breaks in roof lines to reduce scale and apparent building mass.

- ***Views and Vistas***

  - Place any new parking and service areas behind the buildings or otherwise visually screen them from streets and residential areas.

  - Maintain and enhance view channels of the shoreline from Kamehameha Highway.

- ***Landscaping***

  - Include a landscape screen of trees and hedges in setbacks from street frontages and property lines.

  - Plant and maintain shade trees throughout parking lots.

  - Use native plants and landscaping materials that reflect PCC's Polynesian themes and complement the region's rural character.

- ***Shoreline Access***

  - Provide a public pedestrian easement to the shoreline.

3.8.2.3 GUIDELINES - VISITOR ACCOMMODATIONS IN LĀʻIE

The following guidelines apply to any expansion of the Lāʻie Inn:

- ***Design Character***

  - Maintain a rural character in any design or expansion. Any expansion is envisioned to blend into the surrounding community in form and materials and provide a feel of *kama‘aina* simplicity and elegance.

- ***Appropriate Scale and Siting***

  - Any redevelopment on the site should enhance the surrounding community by incorporating appropriate size, orientation and materials.

- ***Environmental Compatibility***

  - Lā‘ie Inn expansion or redevelopment should respect flooding constraints and cultural sensitivity of the site.

3.8.3 ECO- AND AGRICULTURAL-TOURISM OPERATIONS

Eco- and agricultural-tourism operations are an alternative form of tourism activities. They may include guided hiking trips, water-based activities, horseback riding or nature tours, and in some cases overnight camping and farm tours/products. These operations could provide new employment and economic opportunities for the residents of Ko‘olau Loa’s communities, alleviating the need for people to commute outside of the region for employment.

3.8.3.1 POLICIES

Applicable regulations should be followed to address concerns about where eco- and agricultural-tourism operations should be located, their hours of operation, and allowable uses.

3.8.3.2 GUIDELINES

- ***Allowable Uses***

  - Such uses should be low impact, appropriate to sound management of affected resources, compatible with other existing uses in the area, and reflective of community values.

- ***Environmental Compatibility***

  - Eco- and agricultural-tourism uses should be compatible with the natural environment and adjacent uses. Activities should not significantly or negatively alter the natural state of the environment in which they take place or impact other uses.

- ***Appropriate Scale and Location***

  - Facilities used for the assembly of participants and parking of vehicles should be low-rise and small in scale. They should also be sufficiently set back from public roadways and adjacent properties, and screened with landscaping, so that they are not visible from these locations.

- ***Accessibility***

  - Eco- and agricultural-tourism operations should be reasonably accessible from Kamehameha Highway and should not adversely impact traffic on local streets.

- ***Visual Screening***

  - Visually screen parking areas from roadways, streets and residential areas.

  - Encourage the use of native plants in landscaping.

- ***Lighting and Signage***

  - Use only low-level or indirect lighting which meets safety and security requirements.

  - Ensure compatibility between the type, size, design, placement, and color of signage and the context of adjacent uses and the area's rural character.

3.8.4 RELATION TO LAND USE MAP

Visitor facilities are shown on the Koʻolau Loa Land Use Map in Appendix A as follows:

- **Resort Areas and Visitor Facilities.** The general location and size of the resort areas at the Turtle Bay Resort north of Kahuku and at Lāʻie Inn, and the visitor facilities area of the Polynesian Cultural Center are shown, as illustrated on the Koʻolau Loa Land Use Map in Appendix A.

- **Eco- and Agricultural-Tourism.** The locations for eco- and agricultural-tourism operations are not depicted on the map. Their locations are to be determined through appropriate zoning permit processes.

3.9 INSTITUTIONAL USES

The purpose of designating lands for institutional uses is to provide areas for public and/quasi-public institutions such as schools and universities, major health care facilities, utility plants and substations, corporation yards and maintenance yards of public agencies, and religious, social and social service institutions, as well as other public services.

3.9.1 HEALTH AND WELLNESS FACILITIES

Kahuku Medical Center is the primary health care facility in the region. It provides a range of medical services for both Koʻolau Loa and the North Shore. Other medical providers in the region include the Kaiser Permanente's medical clinic in Kahuku, as well as several dentists and pharmacies.

In response to the growing demand for health care treatment and prevention programs, the Koʻolau Loa Community Health and Wellness Center has been established in the Koʻolau Loa area. Other facilities intended to meet the needs of certain segments of the population, such as the elderly and/or disabled people, those with health problems, and for those wanting to participate in preventative-measure and educational programs may also be established. These types of health and wellness facilities can take a variety of forms, ranging from consolidated buildings to relatively small or even residential-scale structures where training and clinical programs could be offered to short-term participants. An example in Koʻolau Loa is the Ponds at Punaluʻu assisted living facility.

3.9.1.1 POLICIES

Where possible, government land use policies, public facility improvements and community assistance programs should support the retention and long-term viability of Kahuku Medical Center and the Koʻolau Loa Community Health and Wellness Center; allow for possible development of other health-related facilities that will support the continued viability of those organizations; and provide critical complementary health services for the community.

Development of other health and wellness facilities in Koʻolau Loa should be encouraged in order to enhance job opportunities and the availability of a "continuum of care" for local residents. Such facilities should be located and designed in a manner which is compatible with adjacent uses and the region's rural character.

3.9.1.2 GUIDELINES

- ***Design Character***

  - Health and wellness facilities should be low-density, residential-scale buildings. The visibility of buildings or outdoor activities should be minimized through site planning and landscaping.

- ***Compatibility with Environmental and Adjacent Uses***

  - Facilities should be sited so that the intensity of uses and hours of operation are compatible with adjacent uses. The built environment should avoid adverse impacts on natural resources. To retain a sense of place, facilities should incorporate natural features and landscape materials that are indigenous to the area.

- ***Accessibility***

  - Facilities should be easily accessible from a collector street or major roadway while minimizing negative impacts on residential streets. Sufficient on-site parking should be provided.

- ***Building Height and Mass***

  - Maintain a rural character in the height, size, and massing of buildings in order to be compatible with adjacent residential or commercial uses.

- ***Landscaping***

  - Minimize the visibility of parking areas from the street by planting a landscape screen along street frontages.

  - Encourage the use of native plants in landscaping.

3.9.2 BRIGHAM YOUNG UNIVERSITY – HAWAIʻI

Brigham Young University-Hawaiʻi (BYU-H) is a four-year college with an annual enrollment, as of 2018, of approximately 2,900 students from numerous countries around the world. The existing BYU-H campus is approximately 204 acres in size, and while nearly 25 percent of it is undevelopable, there is land area available to accommodate planned future improvements to academic programs, student housing, and other support facilities. BYU-H's expansion area will

provide space for faculty, staff, and related entity workforce housing, and other uses needed to support its long-term sustainability. BYU-H's immediate plans are to increase its student enrollment to a full-time equivalent of 3,200. BYU-H's long-term plans are to possibly expand its enrollment to up to 5,000 students, which may extend beyond the Plan's time horizon.

A technology park, which may be affiliated with the University, has been designated adjacent to the BYU-H campus. Development policies and guidelines for the technology park are addressed in Section 3.7.

3.9.2.1 POLICIES

Brigham Young University-Hawai‘i should continue to evoke a sense of place that distinguishes it as an important educational and cultural institution and unique asset to the Ko‘olau Loa region. The following are policies for development and maintenance of the campus:

- Encourage the University to maintain its strong community orientation and continue to serve the Ko‘olau Loa region as a center of education and multi-cultural exchange, as well as support community activities and services and provide adult educational opportunities.

- The design of new facilities should be environmentally sensitive and compatible with the architectural character and culture of the existing campus and adjacent residential areas.

3.9.3 RELATION TO LAND USE MAP

Institutional areas are shown on the Ko‘olau Loa Land Use Map in Appendix A as follows:

- **Health and Wellness.** Locations for existing and possible new health and wellness facilities are not depicted on the Land Use Map in Appendix A. They are permitted in all areas subject to project-by-project review for compatibility with surrounding uses.

- **Schools and Universities.** The general locations of existing public schools are indicated on the Public Facilities Map. Brigham Young University-Hawai‘i’s campus is shown in its approximate location and shape on the Land Use Map.

- **Other Institutional Uses.** Major public facilities (both existing facilities and future improvements) are identified by appropriate symbols on the Public Facilities Map. Churches, social and social service institutions, child care centers, fire stations, and other public facility and utility uses serving the area are not specifically designated, but are allowed in all residential and commercial areas, subject to appropriate zoning controls to assure compatibility with surrounding uses.

This page intentionally left blank.

4. PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES

The vision for Koʻolau Loa will be implemented in part through application of the policies and guidelines for public facilities and infrastructure which are presented in the following sections.

Like many other rural communities in Hawaiʻi and elsewhere that have been touched by tourism and population growth in nearby urban areas, Koʻolau Loa is experiencing increased traffic congestion, overcrowded beaches and insufficient parks and utility systems, primarily due to the influx of non-residents and visitors stressing the community's infrastructure. The provision of adequate infrastructure systems and public facilities and services is a fundamental component of the safe and healthy environment envisioned for Koʻolau Loa. It is important that the design of infrastructure systems – including transportation, water, and wastewater treatment systems – reflect the rural qualities of the region and preserve the natural environment, with particular emphasis on how such systems are sized and designed. As a corollary concern, the impacts that development proposals may have on Koʻolau Loa's infrastructure systems are important considerations when analyzing entitlement and permit requests. For example, while a proposal may provide a number of positive economic and social benefits, the additional traffic generated by the project may have potential adverse impacts to Kamehameha Highway and the region's quality of life that outweigh the positive impacts. Planning for long-term health of the community should be comprehensive, considering the cumulative impacts of development and not the incremental effects of individual actions.

Chapter 4 is organized under the following headings:

SECTION
4.1 TRANSPORTATION SYSTEMS
4.2 WATER SYSTEMS
4.3 WASTEWATER TREATMENT
4.4 ELECTRICAL SYSTEMS
4.5 SOLID WASTE HANDLING AND DISPOSAL
4.6 DRAINAGE SYSTEMS
4.7 SCHOOL FACILITIES
4.8 CIVIC AND PUBLIC SAFETY FACILITIES

4.1 TRANSPORTATION SYSTEMS

This section describes the existing road, transit, and bikeway network in Koʻolau Loa as well as plans for future improvements. These elements are shown on the Public Facilities Map in

Appendix A. This section concludes with policies and guidelines to guide future transportation system development in Koʻolau Loa.

Act 54 (Session Laws of Hawaiʻi, 2009) requires State and County transportation departments to adopt and implement a complete streets policy and establishes a task force to determine necessary standards and guidelines. The intent of a complete streets policy is to create and configure a connected street system that provides for all users, including but not limited to, pedestrians, bicyclist and transit passengers of all ages and abilities.

Roadway System. The only arterial highway in Koʻolau Loa is Kamehameha Highway (State Highway 83). It is also the only roadway linking the northerly windward Oʻahu coastline communities to the North Shore to the west and Koʻolau Poko to the southeast. Kamehameha Highway is a State-designated scenic highway, passing directly along the shoreline in several sections, providing dramatic ocean and coastal vistas and *mauka* views of the Koʻolau Mountains.

Kamehameha Highway is a two-lane highway for its entire length in Koʻolau Loa. In recent years, modest improvements have been made along this 19-mile section of coast highway, including paved shoulders, drainage improvements, lighting, bus turn-outs and left-turn lanes at busy intersections. There are two existing traffic signals in Koʻolau Loa located at the Lāʻie Shopping Center and the entrance to Kahuku High School.

Other significant roadways in Koʻolau Loa are generally oriented *mauka-makai* serving the inland residential areas of Kaʻaʻawa, Punaluʻu, Hauʻula, Lāʻie and Kahuku. Key intersections along this coast highway include Polinalina Road in Kaʻaʻawa, Kanaka Niāo Road in Kahana Valley, Haleaha Road and Punaluʻu Valley Road in Punaluʻu, Kukuna and Hauʻula Homestead Roads in Hauʻula, Naniloa Loop and Hale Laʻa Boulevard in Lāʻie, Pualalea Road in Kahuku, and Kuilima Drive in Kawela. There are few parallel connector roads within the communities.

Planning and development of major roadways is the shared responsibility of the State Department of Transportation (DOT), the City Department of Transportation Services (DTS), and the City Department of Planning and Permitting (DPP). Planning and use of federal transportation funds is coordinated through the Oʻahu Metropolitan Planning Organization (OMPO), a joint City-State agency.

According to the Oʻahu Regional Transportation Plan (ORTP) 2030 (OMPO, April 2006), there are no major improvement projects which would involve increasing the capacity of Kamehameha Highway. Planned highway improvements involve a long-term bridge replacement program, shoreline reinforcement in areas such as Kaʻaʻawa, Punaluʻu and Hauʻula where coastal erosion has impacted Kamehameha Highway, and safety and operational

improvements such as the installation of turn lanes, guardrails, signage, and crosswalks at key intersections.

The community has stated a priority need for safety improvements to the narrow, winding Kamehameha Highway through Koʻolau Loa. These improvements include widening travel surface and shoulder pavement in critical areas where it would not adversely impact private property rights and cultural and historical sites, lighting and drainage systems, and pedestrian and bicycling facilities to improve safety for such users. Desired pedestrian and bicycling safety improvements may include linking various bikeway segments to improve connectivity, and providing safer bridge crossings and wider shoulders. Improvements to increase highway capacity and accommodate more cars (such as adding additional travel lanes) are not desired, unless considered necessary for safety reasons. There is growing concern over the effects of coastal erosion on Kamehameha Highway, and also strong desire for a secondary/emergency access route to facilitate movement into and out of the region when Kamehameha Highway is affected by high surf, flooding or road closures resulting from major accidents. Driver safety awareness programs, adequate signage, and minimizing the number of driveway and roadway connections along the highway are other important considerations for highway safety.

The frequency of organized bicycling races that use Kamehameha Highway is a concern for area residents, primarily due to the typical traffic interruptions and delays associated with such events. Detailed planning, event staffing, and traffic control is necessary to ensure participant safety, and minimize traffic delays and conflicts between highway users.

Transit System. TheBus provides bus service island-wide, including the Koʻolau Loa community. On a normal weekday, nearly 40 percent of transit trips on TheBus are between home and work. More than 40 percent of the weekday trips are for other home-based trips, such as to school or shopping. The remainder are non-home based trips and trips made by visitors. According to the ORTP 2030 (April 2006), TheBus system provides 93 numbered bus routes island-wide with a fleet of 525 buses, including two bus routes that service the Koʻolau Loa region.

There are no formal park and ride facilities serving Koʻolau Loa as a central access point for buses and autos. The State discontinued operation of a vanpool program that made federal tax credits available to participating employers and employees. Vanpools work like an express bus on a smaller scale providing door to door service, and they can be effective for outlying areas, particularly when vanpools are arranged by groups with the same employer.

There are no plans to extend or expand the number of bus routes, but the frequency and capacity of transit service will be increased by additions to the island-wide bus fleet. DTS is in the process of reviewing island-wide bus service using a Bus Service Improvement Plan completed in July 2008. It is anticipated that the vehicles assigned to the windward coast will be

higher capacity vehicles. Service will also be enhanced by making roadway and bus facility improvements (i.e., bus turn-outs, bus stop shelters) designed to make bus travel more efficient, convenient and comfortable.

Bikeway System. Bike Plan Hawai‘i (2003) is the State DOT's master plan for bicycle facilities. Bike Plan Hawai‘i identifies 145.7 miles of existing bikeways on O‘ahu, and 258.9 miles of proposed bikeways island-wide, which would bring O‘ahu's total bikeway network to 394.6 miles. A signed shared roadway along Kamehameha Highway through Ko‘olau Loa is proposed as a future project. The timetable for development will depend upon construction feasibility, including right-of-way acquisition and funding. Bike Plan Hawai‘i defines the various types of bikeways:

- **Signed Shared Roadway.** A signed shared roadway is any street or highway specifically designated by signs for the shared use of bicycles and motor vehicles or pedestrians. Such facilities are of two types: a) a widened curb lane in an urban-type area; and b) a paved right shoulder in a rural-type area.

- **Bicycle Lane.** A bicycle lane is a portion of a roadway designated by striping, signing, and/or pavement markings for the preferential or exclusive use of bicycles. The right-of-way assigned to bicyclists and motorists are delineated to provide for more predictable movements of each. Only crossflow by motorists to gain access to driveways or parking facilities, and pedestrian crossflows to gain access to parked facilities, bus stops, or associated land use, are allowed.

- **Shared Use Path.** This is a right-of-way that is physically separated from motorized vehicular traffic by an open space or barrier, and is either within the highway right-of-way or has an independent right-of-way, often shared with pedestrians, skaters, joggers and other non-motorized users.

A bikeway plan for bicycle routes along private streets throughout the community of Lā‘ie has also been proposed by the Lā‘ie Citizens' Advisory Group. Through a collaborative effort of various community groups and residents, an eight-foot wide shared use path was constructed between Lā‘ie and Mālaekahana along Kamehameha Highway in 2011. The shared use path, which is nearly 1-1/2 miles long and about 15 feet *mauka* of the highway, provides a safer route for bicyclists and pedestrians traveling along the highway.

The City DTS is in the process of updating the 1999 Honolulu Bicycle Master Plan. While the scope of the 1999 Plan is limited to Honolulu's urban core between Kahala and Pearl City, the updated plan will cover the entire island of O‘ahu.

4.1.1 POLICIES

The following policies support the vision for a multimodal transportation system for Koʻolau Loa:

- To retain Koʻolau Loa as a predominantly rural area with limited future growth, its transportation system should provide:
  - Adequate and safe access for all communities, shopping and recreation areas in Koʻolau Loa.
  - Roadway improvements, developed in consultation with Koʻolau Loa communities, which emphasize highway safety as the highest priority while providing efficient, pleasant travel experiences for all users.
  - Adequate capacity for peak travel to and from community centers.
- Promote travel demand management measures (e.g., carpool and vanpool programs) for both commuting and local trips.
- Provide an integrated system of bikeways for work, school, shopping trips, and recreation, including rides to playgrounds, beach parks, and other recreational areas.
- Support a multi-modal transportation system to reduce automobile dependency. Provide more opportunities and support facilities for convenient and safe alternative modes of transportation, including bus, pedestrian and bicycle travel, and other modes of personal transportation.

4.1.2 GUIDELINES

- ***Commuter Travel.*** For commuter trips, the objective is to ensure that travel time and peak periods do not lengthen commensurate with growth in population.
  - Provide improved services and facilities for express buses, such as more frequent, larger-capacity and more comfortable vehicles and park-and-ride facilities.
  - Locate public bus stops to be convenient and accessible to residential areas and hubs of community activity. Use architectural design elements that complement the natural setting and generously shelter passengers.
  - Promote the use of transportation demand management strategies, including measures such as ridesharing (car and vanpooling), improved bus service and routes, non-vehicular travel modes (both motorized and non-motorized modes), and modified work hours, as well as work-from-home options to reduce commutes.

- Provide safety improvements along Kamehameha Highway.
- Identify and establish an emergency/secondary access routes to provide for the safe and efficient evacuation of residents and the movement of emergency response personnel (e.g., fire, police, ambulance) in the event that Kamehameha Highway is impassable due to natural disasters or other emergency incidents.
- Work with the responsible State and City agencies and private landowners to develop a regional pedestrian/bikeway system linking parks, schools and commercial areas with residential communities.

- ***Local Travel.*** For local trips, the objective is to promote alternative modes of travel and less automobile travel.
  - Modify right-of-way design in selected areas, particularly along principal pedestrian routes and street crossings, and near bus stops to improve pedestrian and bicyclist safety and enhance the users' experience – e.g., change travelway widths, pavement widths or texture, introduce signage, and more generous landscape planting.
  - Provide convenient pedestrian paths within commercial and other high-activity areas to encourage people to walk short distances for multi-purpose trips instead of moving the vehicle to another parking facility.
  - Implement traffic calming measures appropriate for residential areas to reduce speeding in excess of posted limits and discourage use of local streets for bypass or shortcut, thereby sustaining overall safety and enjoyment for pedestrians and bicyclists. The community and the City will work together to identify streets where there are speeding or cut-through traffic concerns to develop viable mitigative measures.
  - Design off-street parking facilities more efficiently to encourage joint use of parking and less pavement area dedicated to parking.
  - Provide safe pedestrian walkways on bridges.
  - Establish rural streetscape design and development standards within residential areas consistent with the rural character of the region. Allow for rural elements that reduce the amount of impervious surfaces, such as minimum pavement widths to support traffic demands and emergency vehicle access, shared driveways, reduced parking requirements, more landscaping, and grassed swales as an alternative to sidewalks with curbs and gutters.

4.2 WATER SYSTEMS

Groundwater, which is water found beneath the earth's surface, is one of Hawai'i's most important natural resources. Used for agricultural, industrial, and domestic purposes, groundwater is the principal source of O'ahu's municipal water supply. Statewide, groundwater provides about 99 percent of Hawai'i's domestic water and about 50 percent of all the freshwater used in the State.[14] Consequently, protecting the quality and quantity of groundwater resources is essential to Hawai'i's future well-being.

In keeping with the rural character of Ko'olau Loa, allocation of water is an important issue that should be governed by the Ko'olau Loa Watershed Management Plan (2009). Water management strategies include water conservation, groundwater development, surface water development, and effluent water reuse, without adversely impacting stream flow or nearshore water quality. In the development of water resources, it is important that the needs of Ko'olau Loa be met first, and that the transmission of water out of Ko'olau Loa will not be detrimental to Ko'olau Loa. Hence, the availability of Ko'olau Loa water for the island-wide water supply needs will first account for all in-district agricultural and urban needs, while balancing the environmental and cultural value of the area's stream systems.

The State enacted the Water Code (HRS Chapter 174C) in 1987 to protect, control and regulate the use of the State's water resources for the benefit of its people and the environment. Under the Code, the City is responsible for preparing the water use and development plan for the City and County of Honolulu. This plan, called the O'ahu Water Management Plan (OWMP), is prepared by the Department of Planning and Permitting with the assistance of the State Commission on Water Resource Management (CWRM) and the Board of Water Supply, and approved by the City Council following extensive public review and comment. The OWMP was adopted by the CWRM and the City Council in 1990. The most recent revision of the Technical Reference Document for the OWMP (December 1998) includes updated supporting data, analyses, and conclusions, which reflect the closing of O'ahu Sugar Company and Waialua Sugar Company and the most recent data and analytical review. Future revisions to the OWMP shall be submitted to the City Council for its review and approval.

The OWMP is currently being updated using the watershed approach to water resource management to account for water shed protection and water use and development. To improve the integration of land use and water resources, the OWMP has been divided into eight watershed management plans (WMP), which coincide with the eight Development Plan and Sustainable Communities Plan areas. The goal of the WMP for each planning area is to formulate an environmentally holistic, community-based, and economically viable WMP

[14] U.S. Geological Survey. "Groundwater in Hawai'i: Fact Sheet 126-00." Prepared by Gingerich, S.B. and Oki, D.S.

balancing: (1) the preservation and management of Oʻahu's watersheds; and (2) sustainable ground and surface water use and development to serve present users and future generations. Each WMP shall be submitted to the City Council for adoption by ordinance.

The Board of Water Supply OWMP overview section of the WMP, 2009, evaluated available water supplies and the water development needs of the existing and new residential and commercial development (including retail, office, resort, recreational, and industrial) likely by 2030 as a result of implementation of the City's Development Plans and Sustainable Communities Plans. There is available water supply to accommodate projected water needs through the 2030 planning horizon. The Koʻolau Loa Watershed Management Plan (2009) provides guidance for the sustainable management and use of all water resources in the watershed (both surface and ground water resources). The Board of Water Supply and the Koʻolau Loa community worked together since 2005 to prepare the Koʻolau Loa Watershed Management Plan. The Plan was adopted by the City Council in 2010 (Ordinance 10-18).

The three main sources of water in Koʻolau Loa are ground, surface, and recycled water. Groundwater supplies most of the Koʻolau Loa residential, commercial and agricultural needs and provides water for Koʻolau Poko. Surface water provides agricultural irrigation water for Punaluʻu and Kahana Valleys in Koʻolau Loa. Recycled water supplies some of the district's irrigation water needs in Lāʻie and at Turtle Bay Resort.

CWRM has adopted sustainable yields to protect groundwater resources and regulate water use by water use permits. Based on CWRM's 2005 basal permitted uses of groundwater on Oʻahu (estimated at about 295 million gallons per day (mgd)), there is approximately 112 mgd of unallocated sustainable yield remaining in the island-wide groundwater supply that could be developed.[15] (This estimate accounts for interim instream flow standards.)

Table 4-1 summarizes the available water in aquifers underlying the Koʻolau Loa area. The sustainable yield of the Koʻolau Loa and Kahana aquifer systems in 2005 was about 51 mgd. In 2005, water use permit allocations for the two aquifer systems accounted for about 23 mgd, while water withdrawals were estimated at about 10 mgd.

[15] City and County of Honolulu Board of Water Supply. Oʻahu Water Management Plan Overview.

Table 4-1
2005 Groundwater Use by Aquifer (mgd)

Aquifer Sector	Aquifer System	Sustainable Yield (SY)	2005 Water Permits Issued	Unallocated Sustainable Yield	Existing Water Use July 2005	SY Minus Water Use
Windward	Koʻolau Loa	36	21.508	14.492	9.738	26.262
	Kahana	15	1.101	13.899	0.085	14.915
Total Windward		**51**	**22.609**	**28.391**	**9.823**	**41.177**

Reference: Oʻahu Water Management Plan: Overview Section 2009

In Koʻolau Loa, municipal water is supplied by the Board of Water Supply and the Lāʻie Water Company (LWC). The Board of Water Supply supplies water to most of Koʻolau Loa, while the LWC provides water to approximately 700 residences as well as commercial and agricultural uses in Lāʻie, BYU-Hawaiʻi, and the Polynesian Cultural Center. Total potable water consumption by the Board of Water Supply in 2000 included 1.5 mgd consumed in-district, 8.2 mgd exported to Koʻolau Poko for urban uses in that district, and 0.3 mgd exported to the North Shore district. The LWC provided approximately 1 mgd to their customers in 2000. Agricultural water in Koʻolau Loa is supplied by stream diversions and groundwater wells. Existing and future agricultural water needs are accounted for in the Koʻolau Loa Watershed Management Plan (2009).

Potential potable and nonpotable sources of water to meet future demands are summarized in the following tables. BWS is proposing the increase of permitted use for the Mālaekahana and ʻŌpana Wells potable water sources, as part of the BWS's development and operation of an integrated island-wide water system.

Table 4-2
Potential Groundwater Resources of Potable Water for Koʻolau Loa

New Groundwater Source	Estimated Yield (mgd)	Additional Permitted Use Required (mgd)	CWRM Water Management Area	Potential Development Plan Area(s) Served
Mālaekahana	1.0	1.0	Koʻolau Loa	Koʻolau Loa
ʻŌpana Wells	1.0	1.0	Koʻolau Loa	Koʻolau Loa
Kaipapaʻu Well (1)	1.0		Koʻolau Loa	Koʻolau Poko
Kaluanui Wells * (1)	1.5		Koʻolau Loa	Koʻolau Poko
Maʻakua Wells * (1)	1.0		Koʻolau Loa	Koʻolau Poko
Total Potable Resources **	**5.5**	**2.0**		

(1) Potential transfer of existing permitted use from Punaluʻu Wells to optimize pumpage.

* Source already has an existing permitted use equal to or a portion of the estimated yield.

** Total does not include transfers of existing permitted use.

Table 4-3
Potential Nonpotable Water for Koʻolau Loa

Resource	Minimum Estimate (mgd)	Maximum Estimate (mgd)	Development Plan Area(s) Served
Recycled Water			
Kahuku, Turtle Bay Resort, Lāʻie Recycled Water	0.8	2.6	Koʻolau Loa
Nonpotable Water			
Koʻolau Loa Agricultural Wells (1)	6.3	12.6	Koʻolau Loa
Punaluʻu Stream Irrigation System (2)	2.0	7.0	Koʻolau Loa
Total Nonpotable Resources	**9.1**	**22.2**	

(1) Sustainable yield exists, but well sites have not been identified.

(2) Effects of Surface Water Diversion and Groundwater Withdrawal on Streamflow and Habitat, USGS Report 2006-5153.

4.2.1 Policies

The following policies seek to maintain an adequate supply of good quality water, retain sufficient acreage in watersheds to ensure infiltration into groundwater aquifers, and strengthen the protection of watersheds:

- Protect and preserve streams, wetlands' natural drainage systems, watershed areas and the shoreline and coastal areas. The high quality of the region's nearshore and coastal water should be maintained to benefit recreation, the economy, and the region's natural biological systems. Buffer zones around streams and wetlands should be provided to protect the ecological integrity of these features.

- Retain existing acreage in the State Conservation or the City Preservation Districts to protect watersheds. In addition, important watershed areas which are in designated but unused Agricultural or Urban Districts should be reclassified to the State Conservation or City Preservation Districts, in consultation with affected landowners, community and pertinent resource agencies.

- Integrate management of all potable and nonpotable water sources, including groundwater, stream water, storm water and effluent, following State and City legislative mandates.

- Adopt and implement water conservation practices in the design of new development and the modification of existing uses, including landscaped areas.

- Where feasible and appropriate, encourage use of nonpotable water for irrigation of landscaping and agricultural lands to conserve the supply of potable water. Consider the use of dual water lines to allow conservation of potable water and the use of nonpotable water for irrigation and other appropriate uses, where practical.

4.2.2 GUIDELINES

- ***Development and Allocation of Potable Water.*** While the State CWRM has final authority in all matters regarding administration of the State Water Code, the BWS coordinates development of potable water sources intended for urban use on O'ahu. The BWS and other public utilities confirms that adequate potable and nonpotable water is available for a new residential or commercial development to be approved. State and private well development projects should be coordinated and made consistent with the Ko'olau Loa Watershed Management Plan.

- ***Water Conservation Measures.*** Conserve the use of potable water by implementing the following measures, as feasible and appropriate:
  - Low flush toilets, flow constrictors and other water conserving devices in commercial and residential developments as required by ordinance.
  - Indigenous, drought-tolerant plant material and drip irrigation systems in landscaped areas, and use drip irrigation systems.
  - The use of recycled water for the irrigation of golf courses and other landscaped areas where this would not adversely affect potable groundwater supply.
- ***Streamflow and Nearshore Water Quality.*** Future water development should not adversely impact stream flow or nearshore water quality.

4.3 WASTEWATER TREATMENT

The majority of development in Koʻolau Loa is served by individual wastewater treatment systems. Parts of Koʻolau Loa are served by wastewater service areas, including the County wastewater service area in Kahuku and Lāʻie and the private wastewater service area at Turtle Bay Resort.

Kahuku Wastewater Treatment Plant. The Kahuku Wastewater Treatment Plant (WWTP) is one of two municipal wastewater treatment facilities in the Koʻolau Loa region. The facility is located to the north of Kahuku town, beyond the former sugar mill, near the Kiʻi Pond National Wildlife Refuge. The facility has a design capacity of 0.4 mgd average flow and is operating at approximately 30 to 40 percent of capacity. The plant receives residential wastewater from Kahuku Villages and the other residential and commercial uses in Kahuku town. The Kahuku WWTP system is designed as a gravity flow collection system from the *mauka* development areas. Disposal is via an injection well system into the brackish groundwater.

Kuilima Wastewater Treatment Plant. Turtle Bay Resort is served by a private wastewater treatment facility, involving a natural oxidation ponds treatment process. The Kuilima WWTP was designed for initial average flows of 0.66 mgd and can be expanded to 1.3 mgd. The resort currently uses less than half of the existing capacity. Reclaimed water from Turtle Bay Resort is used for golf course irrigation.

Lāʻie Water Reclamation Facility. The Lāʻie Water Reclamation Facility (WRF) operated by the City and County of Honolulu is located in the *mauka* portion of the community behind the BYU-H campus. The Lāʻie WRF provides 0.9 mgd of treatment capacity utilizing an activated sludge aeration/clarifier treatment process. Disposal of the treated effluent is through a combination of water reuse for irrigation (agriculture and landscaping) and subsurface disposal.

The Lāʻie wastewater collection system has been expanded to serve the entire existing community. The capacity of the Lāʻie WRF and collection system can accommodate the existing and proposed development in Lāʻie.

4.3.1 POLICIES

The following policies apply to wastewater treatment in Koʻolau Loa:

- Encourage coordination between public agencies and private landowners in addressing adequacy of wastewater treatment within the region.
- Support alternative technologies for wastewater treatment that reflect the community's values and rural character.
- Provide collection systems, where practical, to eliminate individual cesspools, and to protect aquifers, streams, estuaries and nearshore waters from contamination.
- Replace outdated individual cesspools with septic tanks and leaching fields.
- Encourage water recycling at Kahuku Wastewater Treatment Plant.
- Treat and beneficially use, where feasible, reclaimed water for irrigation as a water conservation measure and composted sewage sludge as a soil enhancement.

4.3.2 GUIDELINES

- ***Water Recycling.*** As feasible and appropriate, beneficially use reclaimed water for agriculture and landscaping irrigation, as well as other nonpotable water uses.
- ***Kahuku Wastewater Treatment Plant.*** Upgrade the Kahuku WWTP to allow for re-use of the treated effluent for irrigation purposes.
- ***Future Wastewater Facilities.*** Identify appropriate areas and technologies for future wastewater facilities that maintain the rural character and are proportionate to future population projections.
- ***Use of Buffer Zones and Landscape Elements.*** Establish and maintain a sufficient separation between wastewater treatment plants and any nearby urban uses to avoid significant adverse odor impacts, and provide sufficient screening which substantially block views of such plants from developed areas, parks and public rights-of-way.
- ***Adjacent Uses.*** Discourage new residential, commercial, resort, or school uses in close proximity to wastewater treatment plants where odors are present.

4.4 ELECTRICAL SYSTEMS

The Hawaiian Electric Company expects that increased island-wide electrical demand may create a need for additional facilities on Oʻahu before 2025. This includes additional power generation capacity, sub-stations and transmission lines. Growth policies in the General Plan of the City and County of Honolulu direct significant residential growth to the Primary Urban Center, ʻEwa and Central Oʻahu Development Plan Areas. Koʻolau Loa is designated as a rural area and is projected to have limited future population growth. As such, Koʻolau Loa will not be a major source of future island-wide power demand. However, private developers continue to explore the wind farm potential of sites in the Koʻolau Loa area. First Wind, an independent wind energy company, completed construction of the 30-megawatt, Kahuku Wind project in March 2011. The project, which is located *mauka* of Kahuku town, consists of 12 wind turbines and a battery energy storage system, and generates enough energy to power up to 7,700 Oʻahu homes each year.

Hawaiian Electric is committed to increasing its renewable energy portfolio, and is engaged in a broad spectrum of renewable energy-related initiatives and activities that will occur in Koʻolau Loa, including residential solar water heating, biofuels crop research, and photovoltaics.

Communications for Hawaiian Electric have become an increasingly important and integral part of the island's energy delivery system. Fiber optics and radio links improve operations, control, and service of the utility's electrical system. The utility's long-range plan is to further improve mobile radio communications, with the adaptation of mobile data, and completion of a microwave radio communications loop system around the island. Hawaiian Electric has proposed plans to improve the mobile radio coverage with the addition of new telecommunication sites and upgrades at existing sites throughout Oʻahu, including communications sites in the Koʻolau Loa area.

4.4.1 POLICIES

The following pertains to electrical systems in Koʻolau Loa:

- Provide adequate and reliable electrical service.
- Locate and design system elements such as renewable energy facilities (e.g., wind and solar), electrical sub-stations, communication sites, and transmission lines, including consideration of underground transmission lines, to avoid or mitigate visual impacts on scenic and natural resources, as well as public safety considerations.
- Discourage the use and installation of overhead utility lines and poles. Strong consideration should be given to placing replacement and new transmission lines

underground to enhance viewplanes, increase highway safety and improve utility service.

- Encourage the development and use of renewable energy sources and energy conservation measures.

4.5 SOLID WASTE HANDLING AND DISPOSAL

Solid waste collection, transport and disposal operations on the island are a consolidated responsibility of the City Department of Environmental Services, Refuse Division (for domestic curbside pickup) and private haulers (for commercial and multi-family pickup). In addition, individuals can haul their own trash to one of six City convenience centers around Oʻahu, where solid waste is separated and stored temporarily before being transferred to designated sites for further processing. The collected refuse is ultimately recycled or disposed of either in a waste incineration facility or sanitary landfill.

The City's Solid Waste Integrated Management Plan Update (October 2008) outlines a comprehensive, unified approach to such vital issues as landfill and disposal facility siting, expansion of existing services and facilities, specialized waste disposal, waste reduction and recycling strategies. Refuse generated by non-household sources is delivered to the H-POWER facility in ʻEwa. There is only one active landfill for Oʻahu (Waimānalo Gulch) in the ʻEwa area which accepts municipal solid waste and H-POWER ash. The Waimānalo Gulch Sanitary Landfill is operating on a limited term permit, and the City is moving ahead with plans to extend the term of the permit. Island-wide recycling and other waste diversion programs are being instituted in an effort to extend the useful life of this landfill.

In Koʻolau Loa, the City operates a drop-off convenience center in Lāʻie where residents can dispose of household rubbish, green waste, and large items. The Lāʻie Water Reclamation Facility has a sewage sludge and green waste composting facility. The next closest facilities are the City's Kawailoa Refuse Transfer Station north of Hāleʻiwa and the Kapaʻa Transfer Station in Kailua. There are no plans to create an additional convenience center, transfer station or landfill operation in Koʻolau Loa.

As waste management and technological innovations occur, Koʻolau Loa can and should play a part in the City's long-term efforts to establish more efficient waste diversion and collection systems. However, it would be inappropriate to consider the region as a potential site for future landfills for the following reasons:

- the region is not expected to contribute significantly to future increases to Oʻahu's solid waste management demands;

- the region is not centrally located to service the entire island; and
- the region does not contain sites suitable for the processing or disposal of solid waste on an island-wide scale.

4.5.1 POLICIES

The following policies apply to solid waste handling and disposal in Koʻolau Loa:

- Support implementation of the Solid Waste Integrated Management Plan Update.
- Provide adequate resources for trash removal, clean up of illegal dumps, and enforcement of antidumping laws.
- Promote recycling and other source reduction programs dedicated to minimizing the amount of solid waste generated.

4.5.2 GUIDELINES

- ***Recycling Programs and Facilities.*** Expand recycling collection facilities and services, and public outreach and education programs that promote responsible waste management and source reduction.
- ***Green Waste Recycling.*** Continue recycling of regional green waste at the Lāʻie Convenience Center and the Lāʻie Water Reclamation Facility composting operation.
- ***Efficient Solid Waste Collection.*** Expand the use of automated refuse collection in residential areas.

4.6 DRAINAGE SYSTEMS

The major streams that drain the valleys of Koʻolau Loa include: Kaʻaʻawa Stream, Makaua Stream, Kahana Stream, Punaluʻu Stream, Maʻakua Stream, Kaluanui Stream, Waipuhi Stream, Kaipapaʻu Stream, Lāʻie Maloʻo Stream, Wailele Stream, Kahawainui Stream in Kahana and Lāʻie, Mālaekahana Stream, Kawela Stream, and ʻŌʻio Stream. These streams originate in the Koʻolau Range and eventually discharge into the ocean along the Koʻolau Loa coast. There are also many natural gulches and drainage ways in the region, such as Koloa Gulch in Lāʻie and "Hospital Ditch" in Kahuku. The drainage basins vary in size, some being long and narrow, and others including significant collection areas in the agricultural lowlands.

Floods resulting from intense rainfall events are a significant hazard for homes and other structures built near streams and drainage ways in almost every *ahupuaʻa*. Heavy rainfall at the

head of the valleys, combined with debris clogging the lowland channels, has on occasion overwhelmed the capacity of these drainage ways. In many areas of Koʻolau Loa, the elevated grade of Kamehameha Highway diverts or detains the overland flow of stormwater runoff toward the ocean. This condition can cause localized flooding of the highway and properties abutting the highway.

Kahawainui Stream channel improvements were made in the mid-1990s, which helped alleviate flooding problems in Lāʻie. A federal reconnaissance study examined options for flood control along the Wailele Stream. Construction of flood control improvements including a berm is being considered, with the design of the project being jointly funded by the federal government, City and County of Honolulu, and Hawaiʻi Reserves, Inc.

Drainage problems exist in Kahuku in the lowland floodplains of Ōhia, Kalaeo Kahipa, and Mālaekahana Streams. As existing drainage facilities are inadequate during major storm events, the runoff from *mauka* areas floods the campus of Kahuku High and Intermediate School, as well as portions of the commercial area and the Walkerville residential area. Agencies from the City, State Department of Land and Natural Resources, and the U.S. Army Corps of Engineers are coordinating their efforts in a regional drainage assessment that provides alternative solutions. Other coastal areas in Koʻolau Loa have experienced major flooding and studies to alleviate these impacts should be undertaken.

4.6.1 POLICIES

Policies pertaining to Koʻolau Loa's drainage areas are:

- Ensure that the maintenance and use of drainage areas are consistent with the Koʻolau Loa Watershed Management Plan.
- Improve drainage systems in the region to provide adequate protection from flooding to protect the quality of nearshore waters.
- Emphasize control and minimization of non-point source pollution and the retention of storm water on-site and in wetlands in the design of drainage systems in accordance with existing City, State and Federal regulations while maintaining the existing habitat capability and water quality of streams and nearshore waters.
- View storm water, where appropriate, as a potential irregular source of water for recharge of the aquifer that should be retained for absorption rather than quickly moved to coastal waters.

- When drainage ways must be modified for flood control purposes, select approaches and solutions which, to the extent possible:
  - Improve existing habitat capability;
  - Maintain existing rural and aesthetic qualities and enhance the regional open space network;
  - Avoid degradation of existing coastline and estuarine areas or nearshore water quality;
  - Avoid degradation of the quality of water entering nearshore waters; and
  - Avoid increase in the volume or rate of freshwater intrusion into nearshore waters.
- Design drainage ways for flood control to accommodate a 100-year flood.
- Encourage abutting property owners along streams and/or drainage ways to stabilize the banks with vegetation where erosion potential is high.
- Encourage coordination between public agencies and private landowners on needed drainage improvements with community input, and develop a phased plan for improvements.
- Keep drainage ways clear of debris to avoid flooding problems.
- Encourage the State to assess areas of Kamehameha Highway where the roadway diverts or detains storm water runoff causing localized flooding of the highway and abutting properties.

4.6.2 GUIDELINES

Guidelines for the maintenance and improvement of Ko‘olau Loa’s drainage systems include:

- ***Retention and Detention.*** Emphasize retaining or detaining storm water for gradual release into the ground as an alternative strategy for management of storm water.
- ***Stream Channel Improvements.*** Integrate planned improvements to the drainage system into a regional open space network by creating retention basins, passive recreation areas and recreational access for pedestrians and bicycles. Drainage system design should emphasize control and minimization of non-point source pollution. Where the hardening of stream channels is unavoidable, make the improvements in a manner which maintains and protects natural resources and aesthetic values of the stream, and

avoid degradation of coastline and of stream and near-shore water quality, consistent with guidelines expressed in Section 3.1.2.4.

- ***Maintenance.*** Regularly maintain and clean drainage ways and flood mitigation structures of debris to ensure that they achieve the purpose for which they were designed.

- ***Surface Runoff Improvements.*** Employ best management practices to minimize runoff exiting from conservation and agricultural land uses, and other areas that may generate sediment and debris.

- ***Floodplain Management.*** Any future work performed within the 100-year floodplain will have to adhere to the requirements of the Federal Emergency Management Agency (FEMA) and meet all flood-proofing requirements.

- ***Systematic Approach.*** Develop a comprehensive drainage master plan to address drainage, flood protection and erosion concerns in coastal areas.

- ***Education.*** Conduct public outreach and education programs that explain the potential for flooding and how the efforts of individual property owners can minimize the effects of flooding.

4.7 SCHOOL FACILITIES

Public schools in Koʻolau Loa are part of the State Department of Education's (DOE) Windward District. There are five elementary schools, and one intermediate/high school within DOE's Kahuku Complex: Hauʻula Elementary, Kaʻaʻawa Elementary, Kahuku Elementary, Lāʻie Elementary, Sunset Elementary and Kahuku High and Intermediate School. (Sunset Elementary School is in the North Shore Sustainable Communities Plan area, and contributes to the enrollment of Kahuku High and Intermediate School.) The Kahuku Public and School Library is located on the Kahuku High and Intermediate School campus, and is a branch of the Hawaiʻi State Public Library System managed by the DOE.

The 2007-2008 enrollment capacity, and 2013-2014 projected enrollment for the DOE schools are shown in Table 4-4. Recent enrollment figures and projected enrollments for these schools show that all six schools are operating below capacity, and have additional capacity to accommodate more students. School facilities planning must account for existing and additional demand that could be generated by future residential developments.

Table 4-4
Public School Enrollment and Capacity, Koʻolau Loa

School	2007-2008 Enrollment	2007-2008 Capacity	2013-2014 Projected Enrollment
Elementary			
Sunset	387	466	381
Kaʻaʻawa	147	158	141
Hauʻula	275	436	248
Lāʻie	609	924	575
Kahuku	501	587	480
Intermediate & High School			
Kahuku	1,736	1,802	1,650

Source: Department of Education, Facilities and Support Services Branch, 2008.

Kahuku Intermediate and High School student enrollment in the 2007-2008 school year was under the facility capacity for the same year. Likewise, DOE projections indicate that the school's future enrollment will be below capacity. The existing campus (21 acres) is less than half the size of a standard DOE high school (50 acres), and continues to experience drainage problems due to its location within a flood plain. A master plan was completed in June 2005 to address future campus expansion and facility improvements and mitigate the threat of flood events. Due to changes in the ownership of adjacent lands identified for campus expansion, the master plan is no longer viable.

Any new housing development in Lāʻie or Kahuku would have to consider the potential impact that the residential growth could have on Lāʻie Elementary School, Kahuku Elementary School, and Kahuku Intermediate and High School. For any future housing developments, the developer will need to work closely with the DOE to ensure that adequate school facilities would be in place to meet additional demand generated.

4.7.1 POLICIES

Policies relating to school facilities are:

- Provide and maintain quality school facilities that serve the needs of the community.
- Integrate school facilities with other community uses.
- Support facility and drainage improvements at Kahuku High and Intermediate School.

4.7.2 GUIDELINES

The following guidelines should be followed in planning and operating schools in Koʻolau Loa.

- ***Adequate Facilities.*** Confirm the adequacy of school facilities before approving new residential development. Approve new residential developments only after the State DOE confirms that adequate school facilities, either at existing schools or new sites, will be available when the development is occupied.
- ***Shared Facilities.*** Coordinate the development and use of athletic facilities such as playgrounds, playfields and courts, swimming pools, and gymnasiums with the DOE where the joint use of such facilities would maximize utilization and reduce duplication of functions without compromising the schools' athletic programs.
- ***Hurricane Shelters*.** Promote facility design and construction that allows for school buildings to be used as public hurricane shelters.
- ***Safe and Efficient Access.*** Support efforts to develop safe and efficient access to schools, emphasizing the importance of secondary routes and pathways other than Kamehameha Highway.
- ***School Impact Fees.*** Support the DOE's requests for school impact fees from developers of residential projects to ensure that adequate school facilities are in place at the time new residential units are occupied.
- ***Kahuku Intermediate and High School.*** Support resolution of the flooding issues that affect the Kahuku Intermediate and High School campus.
- ***Library Facilities.*** Support the development of a regional library for Koʻolau Loa.

4.8 CIVIC AND PUBLIC SAFETY FACILITIES

The City and County of Honolulu Customer Services Department operates a number of Satellite City Halls island-wide. These facilities offer many government services for residents, including bus pass sales, bicycle and vehicle registrations, and driver's license renewals. There are no permanent Satellite City Hall facilities in Koʻolau Loa. The closest facilities are in Kāneʻohe and Wahiawā, and the City has no plans to build a permanent facility in Koʻolau Loa. In the event that the City is able to establish a permanent facility, Hauʻula and Lāʻie should be considered as appropriate locations.

Police Protection. The Honolulu Police Department (HPD) services Koʻolau Loa out of the Kahuku Police Substation. Currently, 27 staff and officers (over three watches) are assigned to the area from Kaʻaʻawa to Waialeʻe Stream.

Fire Protection. The Honolulu Fire Department (HFD) operates fire stations in Kaʻaʻawa, Hauʻula and Kahuku. The Kaʻaʻawa Fire Station #21 is equipped with a five-person engine company, an inflatable rescue boat, and two bays that could accommodate an ambulance or other equipment. The Hauʻula Station #15 is equipped with a five-person engine company and a one-person tanker truck. The Kahuku Station #13 is equipped with a five-person engine. The HFD has previously proposed a new fire station in Kawela as a long-range project, if and when additional growth in the area justifies construction of a new facility. HFD is also planning the relocation of the Hauʻula Fire Station out of the flood area. HFD has no other plans for new stations in Koʻolau Loa nor do they anticipate increasing personnel at either of the existing stations.

Emergency Services. Emergency care for the region is provided by the Kahuku Medical Center (KMC). The KMC is a non-profit, civic and public safety facility which provides emergency services and a physician base for primary medical services to the Koʻolau Loa community. The KMC is affiliated with Hawaiʻi Health Systems Corporation, a public benefit corporation of the State of Hawaiʻi that operates the state's community hospital system. Designated as a critical access hospital, the KMC is outfitted with modern equipment and facilities, and a medical staff of 15 physicians and 75 employees. Re-establishing emergency air transport services at the KMC to transfer critical care patients to better-equipped facilities is strongly supported by the community.

Civil Defense. Koʻolau Loa is susceptible to natural hazards such as flooding, tsunami, tropical storms, hurricanes and high surf conditions. In the event of these hazardous conditions, residents need to evacuate to shelter facilities. There are three hurricane emergency shelter facilities in the Koʻolau Loa area, located at Brigham Young University-Hawaiʻi, Kahuku Elementary, and Kahuku High/ Intermediate School (Department of Emergency Management,

August 2009). Outside of Koʻolau Loa, the closest emergency shelters on the Windward coast are located at Waiāhole Elementary School and Kahaluʻu Elementary School in Koʻolau Poko. Flooding is the most common and recurring hazard, and there are other shelters designated for flooding and other disasters requiring evacuation. Under heavy, continuous rain and flooding conditions, Department of Emergency Management (DEM) plans are in place to evacuate endangered residents as required, and include additional evacuation options in the event of other emergencies.

As of 2009, there are 13 outdoor warning sirens within Koʻolau Loa, including eight sirens which have been upgraded to new solar-powered public address capable sirens and one new siren installed at Punaluʻu. The remaining four will be upgraded as funds become available from the State. There are other areas that need siren coverage which are currently covered by emergency response vehicle public address systems. These areas will be provided with sirens in the future by either the State or new project developers, as appropriate.

4.8.1 POLICIES

The following pertains to civic and public safety facilities:

- Support adequate staffing and facilities to ensure effective and efficient delivery of basic governmental service, emergency and primary medical services, and protection of public safety.
- Promote an integrated approach to public safety which will enable police, fire, ocean safety, civil defense, and emergency medical efforts to share resources and information, as appropriate.
- Provide emergency shelters in Koʻolau Loa.

4.8.2 GUIDELINES

- ***Satellite City Hall.*** Consider the establishment of a permanent Satellite City Hall in Koʻolau Loa at Hauʻula or Lāʻie, either of which could serve as a gathering place for activities and services.
- ***Better Utilization of Facilities.*** Support the planning and programming of public facilities to create maximum usage flexibility. In addition, encourage interagency coordination in better utilization of existing facilities to provide a more integrated approach to delivering services in the region. Examples could include using school facilities as emergency shelters, requiring that all new public buildings serve a secondary

function as an emergency shelter, and establishing satellite city halls as multi-purpose facilities with expanded hours and services for area residents.

- ***Maintain Police and Fire/Ambulance Stations.*** The only anticipated need for new locations for either police or fire stations is the planned relocation of the Hauʻula Fire Station outside of the flood plain. Accommodate any other necessary improvements through renovation or minor expansion of existing facilities for fire/ambulance and police protection.

- ***Adequate Police and Fire/Ambulance Protection.*** Provide adequate staffing and facilities for fire/ambulance and police protection.

- ***Emergency and Primary Medical Services.*** Support adequate staffing and facilities to ensure the continued operation and maintenance of Kahuku Medical Center and the Koʻolau Loa Community Health and Wellness Center. Allow for the possible development of other health related facilities that will support the continued viability of the existing facilities.

- ***Creation of Safe Environments.*** Promote the creation of safe, crime-deterrent public and private environments by encouraging the use of crime-preventive principles in the planning and design of communities, open spaces, circulation networks, and buildings.

- ***Outdoor Warning Sirens.*** Install outdoor warning sirens as needed to provide advance warning of impending disaster events for the people residing and working in Koʻolau Loa communities.

4.9 OTHER COMMUNITY FACILITIES

Antennas have been around as long as we have had radio and television services. Antennas associated with communication purposes have grown tremendously since the introduction of mobile communication devices in the early 1980s. While the telecommunication industry has provided more convenient communication capabilities for individuals, it has also increased public agencies' ability to provide faster and more efficient response to those in need, particularly during times of emergency.

While the benefits of the telecommunications industry cannot be disputed, communities have opposed new antennas due to aesthetic impacts, especially related to public views and neighborhood character. Their visibility has increased, particularly where antennas are mounted on free-standing towers.

The public has also raised concerns about the environmental effects of electromagnetic field exposure associated with radio transmission, as evidenced by the presence of antennas.

However, the Federal Communications Commission (FCC) is responsible for evaluating the human environmental effects of radio frequency emissions, assuming that the provider is in compliance with the Commissions radio frequency rules.

4.9.1 POLICIES

The following are policies governing the utilization of antennas.

- Encourage co-location of antennas; towers should host the facilities of more than one service provider to minimize their proliferation and reduce visual impacts.

- Mount antennas onto existing buildings or structures so that public scenic views and open spaces will not be negatively affected. However, except for the occupant's personal use, antennas on single-family dwelling roofs in residential districts are not appropriate.

- Use "stealth" technology (e.g., towers disguised as trees) especially on free-standing antenna towers in order to blend in with the surrounding environment and minimize visual impacts.

This page intentionally left blank.

5. IMPLEMENTATION

Implementation of the City's Development and Sustainable Communities Plans is a challenge for the City's planners, engineers, and other technical and policy-level personnel, as well as elected officials who determine the allocation of City resources. The plans seek to implement a vision for the future by providing wider guidance for decisions and actions related to land use, public facilities, and infrastructure as well as for zoning matters. As a result, many of their provisions reflect the consultations which occurred throughout the planning process with pertinent implementing agencies and community representatives. It should be noted that implementation will depend on each department's priorities and availability of resources.

Many municipal jurisdictions throughout the United States have instituted comprehensive planning programs that emphasize a proactive community-based planning and implementation process. These local governments seek to establish a strong link between planning policies and guidelines, and specific organization, funding, and actions needed to implement a variety of public and private projects and programs. The following sections of this Chapter are intended to strengthen the linkage to implementation to realize the vision of the future presented in this Plan.

Implementation of the Koʻolau Loa Sustainable Communities Plan will be accomplished by:

- Initiating zoning map and development code amendments to achieve consistency with the policies and guidelines of the Sustainable Communities Plan;
- Guiding public investment in infrastructure through Functional Plans and Special Area Plans which support the vision of the Sustainable Communities Plan;
- Reviewing zoning and other development applications based on how well they support the vision for Koʻolau Loa;
- Incorporating Sustainable Communities Plan priorities through the Public Infrastructure Map and the City's annual budget process; and
- Conducting a review of the vision, policies, guidelines, and capital improvement program (CIP) priority investments of the Koʻolau Loa Sustainable Communities Plan every five years and recommending revisions as necessary.

Chapter 5 is organized under the following headings:

SECTION
5.1 PUBLIC FACILITY INVESTMENT PRIORITIES
5.2 DEVELOPMENT PRIORITIES
5.3 SPECIAL AREA PLANS
5.4 FUNCTIONAL PLANNING
5.5 REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS
5.6 FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW
5.7 IMPLEMENTATION MATRIX

5.1 PUBLIC FACILITY INVESTMENT PRIORITIES

The vision for Koʻolau Loa requires the cooperation of both public and private agencies in planning, financing, and constructing infrastructure. The City must take an active role in working with the State, private landowners, and the community in planning infrastructure improvements. The priority public facility investments for Koʻolau Loa include drainage improvements in Kahuku, Lāʻie, Punaluʻu and Kaʻaʻawa; highway safety improvements along Kamehameha Highway; and full development of regional and neighborhood parks in the region.

5.2 DEVELOPMENT PRIORITIES

Projects to receive priority in the approval process are those which:

- Involve publicly funded improvements that are consistent with the Koʻolau Loa Sustainable Communities Plan vision, policies and guidelines;
- Involve applications for zoning and other regulatory approvals which are consistent with the Koʻolau Loa Sustainable Communities Plan vision, policies and guidelines; and
- Are located on vacant usable parcels within the Community Growth Boundary as shown on the Koʻolau Loa Sustainable Communities Plan Land Use Map in Appendix A.

5.3 SPECIAL AREA PLANS

For areas requiring particular attention, Special Area Plans provide more detailed policies and guidelines than the Sustainable Communities Plans. The form and content of Special Area Plans depend on what characteristics and issues need to be addressed in greater detail in planning and guiding development or use of the Special Area.

Special Area Plans can be used to guide land use development and infrastructure investment in special districts, redevelopment districts, or resource areas. Plans for special districts provide guidance for development and infrastructure investment in areas with distinct historic or design character or significant visual and scenic resources. Plans for redevelopment districts provide strategies for the revitalization or redevelopment of an area. Plans for resource areas provide resource management strategies for areas with particular natural or cultural resource values.

5.4 FUNCTIONAL PLANNING

Functional planning is the process through which various City agencies determine needs, assign priorities, establish timing and phasing, and propose financing for projects within their areas of responsibility that will further the implementation of the vision articulated in the Sustainable Communities Plan. This process may take a variety of forms, depending upon the missions of the various agencies involved, as well as upon requirements imposed from outside the City structure, such as federal requirements for wastewater management planning. Typically, functional planning occurs as a continuous or iterative activity within each agency.

The functional planning process involves annual reviews of existing functional planning documents and programs by the City agencies responsible for developing and maintaining infrastructure and public facilities or for provision of City services. As a result of these reviews, the agencies then update, if required, existing plans or prepare new long-range functional planning documents that address facilities and service system needs. Updates of functional planning documents are also conducted to assure that agency plans will serve to further implement the Sustainable Communities Plans as well as to provide adequate opportunity for coordination of plans and programs among the various agencies.

The number and types of functional planning documents will vary from agency to agency, as will the emphases and contents of those documents. A typical agency may develop a set of core documents such as:

- A resource-constrained long-range capital improvement program. A “resource-constrained” program is one which identifies the fiscal resources that can be reasonably expected to be available to finance the improvements.
- A long-range financing plan, with identification of necessary new revenue measures or opportunities.
- A development schedule with top priority to areas designated for earliest development.

- Service and facility design standards, including level of service guidelines for determining adequacy.

Other documents may also be developed as part of an agency's functional planning activities, such as master plans for provision of services to a specific region of the island. In some cases, functional planning activities will be undertaken in cooperation with agencies outside the City structure, such as transportation planning activities that are conducted in association with the Oʻahu Metropolitan Planning Organization.

Functional planning is intended to be a proactive public involvement process which provides public access to information about infrastructure and public facility needs assessments, alternatives evaluation, and financing. Outreach activities should involve the Neighborhood Boards, community organizations, landowners, and other parties who may be significantly affected by the public facilities and infrastructure projects or programs to be developed.

The functional planning process should be characterized by opportunities for early and continuing public involvement, timely public notice, public access to information used in the evaluation of priorities, and the opportunity for the public to suggest alternatives and to express preferences. The functional planning process provides the technical background for the Capital Improvements Program and related public policy proposals which are subject to review and approval by the City Council.

5.5 REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS

A primary way in which the vision for the Koʻolau Loa Sustainable Communities Plan will guide land use is through the review of applications for zone change and other development approvals. Approval for development projects should be based on the extent to which the project supports the vision, policies and guidelines of the Sustainable Communities Plan.

Projects which do not involve "significant" zone changes will be shared with the community and reviewed by the Department of Planning and Permitting for consistency with the vision, policies, and guidelines of the Koʻolau Loa Sustainable Communities Plan during the zone change application process. Projects which meet the criteria of a "significant" zone change are required to prepare an environmental assessment or environmental impact statement following the provisions of Hawaiʻi Revised Statutes, Chapter 343. The criteria to establish a zone change as "significant" in need of HRS, Chapter 343 environmental review is defined in the Koʻolau Loa Sustainable Communities Plan adopting ordinance.

5.5.1 ADEQUATE FACILITIES REQUIREMENT

All projects requesting zone changes will be reviewed to determine if adequate public facilities and infrastructure are or will be available to meet the needs created as a result of the development. Level of Service Guidelines to define adequate public facilities and infrastructure requirements are established as part of the Capital Improvements Program process.

In order to guide development and growth in an orderly manner as required by the City's General Plan, zoning and other development applications for new developments should be approved only if the responsible City and State agencies confirm that adequate public facilities and utilities will be available at the time of occupancy, or if conditions the functional agency indicates are necessary to assure adequacy are otherwise sufficiently addressed.

The Department of Planning and Permitting will review the project for consistency with the Ko'olau Loa Sustainable Communities Plan vision, and summarize any individual agency's findings regarding public facilities and utilities adequacy which are raised as part of the Environmental Assessment or Environmental Impact Statement (EA/EIS) process. The Department will address these findings and any additional agency comments submitted as part of the agency review of the zone change application and recommend conditions that should be included in the Unilateral Agreement or Development Agreement to insure adequacy of facilities.

5.6 FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW

The Department of Planning and Permitting shall conduct a comprehensive review of the Ko'olau Loa Sustainable Communities Plan and report its findings and recommended revisions to the Planning Commission and the City Council five years after adoption and every five years thereafter. It is intended that the Community Growth Boundary will remain fixed through the 2035 planning horizon.

5.6.1 ADOPTION OF THE SUSTAINABLE COMMUNITIES PLAN AND EXISTING LAND USE APPROVALS

This Sustainable Communities Plan will go into effect upon adoption by ordinance. Land use approvals granted under existing zoning, Unilateral Agreements, and approved Urban Design Plans will remain in force and guide entitlement decisions until any new zoning action to further implement the vision and policies of the Ko'olau Loa Sustainable Communities Plan is initiated. If an EA/EIS was accepted in the course of a Sustainable Communities Plan land use approval

for a project, it should be acceptable to meet the requirement for an initial project EA/EIS when zone change applications are submitted for subsequent phases of the project, unless the project scope and land uses are being significantly changed from that described in the initial EA/EIS.

5.7 IMPLEMENTATION MATRIX

This section provides a summary of the specific physical improvements and actions identified in Chapters 3 and 4 of this Plan to help organize and facilitate plan implementation.

Table 5-1 Implementation Matrix presents the implementing actions, the related plans, regulatory code or action, and the public or private entities responsible for implementing the action. The purpose of the table is to identify the improvements and actions that are needed to realize the long-term future vision of Ko‘olau Loa, and help coordinate and organize roles and responsibilities of agencies and stakeholders. It is not an exhaustive or complete list of actions, and is intended to be a supporting tool for DPP and the community. The table is organized by land use category, with the categories listed according to the order of Chapters 3 and 4.

- The first column of the table – Policies and Guidelines – is comprised of the guideline statements for each land use category. Policy statements are used if the land use category does not include guidelines (e.g., Electrical Systems).

- The second column – Program – relates each statement to a specific regulatory code, functional plan or other action. The term “project review” indicates the review of discretionary land use approvals, such as State land use, County zoning and County special management area use permits. In some instances, To Be Determined (TBD) was used to indicate that the related code/plan/action was not clear. TBD actions are intended to be identified and developed by the agencies responsible for implementation.

- The third column – Agency – identifies the public and/or private entities responsible for implementing the policy or guideline. Although many of the implementing actions fall under DPP’s jurisdiction, some actions are the responsibility of other Federal, State or City departments or public agencies, while a few have been assigned to private entities or individual landowners.

- The fourth column identifies the role of the agencies involved in implementation. The three categories identified include implementation, regulation or advocacy.

Table 5-1
Implementation Matrix

Policies and/or Guidelines	Program	Agency	Role
Open Space and Natural Environment – Mountain Areas and Trails			
1. Maintain, protect, and/or restore native forests in the State Conservation District.	- Koʻolau Mountains Watershed Partnership Program - Conservation District Management Plan - Koʻolau Loa Watershed Management Plan	DLNR BWS	Implementer Advocate
2. Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and human activity.	- Koʻolau Mountains Watershed Partnership Program - TBD	DLNR	Implementer
3. Avoid the establishment of utility corridors and other uses that would disturb areas with high concentrations of native or endangered species.	- TBD	DLNR	Regulator
4. Maintain and enhance *mauka* trail systems, including sufficient parking areas and signage at trailheads.	- Nā Ala Hele	DLNR	Implementer
5. Support State efforts to seek opportunities for cooperative agreements with private landowners to gain access to trails leading to public lands.	- Nā Ala Hele	DLNR	Implementer
Open Space and Natural Environment – Shoreline Areas			
6. Maintain and, where possible, enhance the physical integrity and habitat value of shoreline areas.	- Coastal Zone Management Program - Special Management Area and Shoreline Setback Rules	State CZM Program DLNR DPP	Implementer/Regulator Regulator Regulator
7. Preserve rare and sensitive coastal resources including coastal strand vegetation, sand dunes, and anchialine pools. Establish buffer zones around these resources where necessary.	- TBD	DLNR DPP	Regulator Regulator
8. Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and inappropriate human activity.	- TBD	DLNR	Implementer/Regulator

Policies and/or Guidelines	Program	Agency	Role
9. Maintain existing *makai* view openings along the coastal highway. Avoid obstructions, such as walls and heavy landscaping which block views, except where necessary for safety reasons. Maintain public beach parks to avoid unnecessary landscape screening or the placement of park structures within the view corridor. Recommendations of the Coastal View Study (1987) should be incorporated.	- Park Maintenance Program - Land Use Ordinance - Project Review	DFM DLNR DOT DPP	Implementer Regulator Implementer Regulator
10. To the extent possible, acquire shallow developed beach-front lots which would be impractical to redevelop given existing zoning standards or wave hazard considerations in order to improve public access and lateral shoreline views along Kamehameha Highway.	- Park Facilities Functional Plan	DPR DFM	Implementer Implementer
11. Maintain and enhance public access to the shoreline and lateral access along the coast, including the provision of parking areas. Public access should be provided at approximately 1/2-mile intervals in rural areas, or at closer intervals when justified by public demand, traditional use patterns, the quality of the recreational resources, or natural barriers that impede shoreline access.	- Park Facilities Functional Plan - Project Review	DPR DPP	Implementer Regulator/Advocate
12. Establish additional minimum setbacks for structures near the shoreline in erosion hazard areas, and implement other management strategies to protect unstable sandy beach areas that impact Kamehameha Highway along the Kaʻaʻawa, Punaluʻu and Hauʻula shorelines.	- Coastal Zone Management Program - Special Management Area and Shoreline Setback Rules	State CZM Program DLNR DPP	Implementer/Regulator Regulator Regulator
13. Adopt development standards that require new structures along the shoreline to incorporate structural and design elements compatible with coastal hazards such as coastal erosion, tsunami and hurricane overwash.	- Land Use Ordinance - Building Code	DPP	Regulator
14. Evaluate emerging policies relating to climate change and sea level rise.	- TBD	TBD	TBD
15. Prohibit off-road vehicular and motorcycle use in shoreline areas, including but not limited to the placement of barriers to prevent vehicular access along the beachfront.	- TBD	DLNR DPP DPR	Implementer Regulator Implementer
16. Maintain the untamed landscape quality of the Kahuku shoreline.	- Land Use Ordinance	DLNR DPP	Regulator Regulator/Advocate
17. Implement management practices that protect nearshore coral reefs from damaging activities such as soil erosion, non-point source pollution, dredging, and alterations to near-shore water circulation.	- Hawaiʻi Coastal Nonpoint Pollution Control Program Management Plan - Storm Drainage Standards - Grading Ordinance	DLNR State CZM Program DPP DDC	Regulator Regulator Regulator Advocate

Policies and/or Guidelines	Program	Agency	Role
18. Minimize the adverse effects of artificial lighting on wildlife and human health by balancing the need of outdoor lighting for night utility, security, and desire for reasonable architectural expression with the need to conserve energy and protect the natural environment.	- Land Use Ordinance - Project Review	DPP	Regulator
19. Adopt outdoor night lighting standards that encourage efforts to minimize glare and stray light, and reinforce the differences between urban and rural communities.	- Land Use Ordinance	DPP	Implementer
Open Space and Natural Environment – Wildlife Sanctuaries			
20. Respect and establish an appropriate balance between natural habitats and human uses in the management of wildlife sanctuaries. Appropriate buffers between uses should be established wherever necessary.	- Habitat Conservation Plan - Land Use Ordinance	USFWS DLNR DPP	Implementer Implementer Regulator
21. Retain existing Preservation zoning in the vicinity of Kahuku's Punahoʻolapa Marsh, Punamanō and Kiʻi Pond National Wildlife Refuges.	- Land Use Ordinance	DPP	Regulator
22. Encourage landowners to establish additional sanctuaries in other areas within the region that provide habitats for endangered wildlife, flora and fauna.	- TBD	USFWS DLNR	Implementer Implementer/Advocate
Open Space and Natural Environment – Natural Gulches, Streams and Drainage Ways			
23. Preserve the aesthetic and biological values of natural gulches, streams and drainage ways as part of the open space system. Restore and protect ecologically sensitive areas and ecosystems which should be maintained and enhanced as open space elements. Any activities in the vicinity of these areas need to ensure that the open space system will not be significantly impacted or that biological values will not be significantly degraded.	- Land Use Ordinance - Project Review - Storm Drainage Standards - Grading Ordinance - Koʻolau Loa Watershed Management Plan	DPP DDC DLNR BWS	Regulator Implementer Regulator/Implementer Advocate
24. Identify and protect endangered species habitats and other important ecologically sensitive areas from such threats as fire, alien species, feral animals and incompatible human activity.	- TBD	DLNR DOA	Implementer Regulator/Implementer
25. Minimize soil erosion, runoff of pesticides, fertilizers and other non-point source contaminants into streams, wetlands and marine habitats with strategies such as stream setbacks, erosion control devices, integrated pest management plans, and revegetation of disturbed areas. Incorporate erosion control measures and best management practices as recommended in the State of Hawaiʻi Coastal Non-point Pollution Control Program Management Plan, Volume I (June 1996), to prevent pollution of wetlands, streams, estuaries, and nearshore waters.	- Hawaiʻi Coastal Non-point Pollution Control Program Management Plan - Grading Ordinance - TBD	DLNR State CZM Program DOA DOH TMDL Program DPP	Regulator/Implementer Regulator Implementer Regulator Implementer

Policies and/or Guidelines	Program	Agency	Role
26. Where feasible, establish setbacks along rivers, streams, and shoreline areas to preserve these resources and protective buffer zones around biologically sensitive areas to minimize habitat disturbance. Where possible, provide access as part of the open space network.	- Koʻolau Loa Watershed Management Plan - Land Use Ordinance - Project Review	DLNR BWS DPP DPR	Regulator/Implementer Advocate Regulator Implementer
27. Restrict uses in these areas to conservation uses, compatible recreational uses such as walking and bicycling, traditional and customary rights of Native Hawaiian practitioners, and controlled surface water diversion for agricultural purposes. Avoid development in ecologically sensitive areas; if activities are allowed, minimize impacts and implement mitigative measures that will fully offset any loss of resources.	- Land Use Ordinance - Project Review	DLNR LUC DPP	Regulator Regulator Regulator
28. Restore, protect and maintain stream habitat values along the entire stream length, from the headwaters through the *muliwai* (nearshore marine zone created when freshwater streams flow into the ocean) to the marine reef system, to avoid degradation or interruption of habitat for native organisms and to provide for the health of the entire ecosystem.	- Koʻolau Loa Watershed Management Plan - Land Use Ordinance - Project Review - TBD	DLNR BWS DPP	Regulator Advocate Regulator
29. To the extent possible, limit any modifications to natural gulches and streams, except for measures necessary for flood protection. If modifications are needed, minimize impacts on biological habitats and natural resources, complement the existing rural character and aesthetic quality, and maintain existing water quality and the rate and volume of freshwater run-off into near-shore waters. Drainageway modifications may include stream-side vegetation and rip-rap boulder lining of stream banks; channelization should be a last resort and limited to v-shaped bottom channels and/or other measures that preserve environmental habitat qualities and capabilities to maintain a stream flow during low rainfall periods.	- Koʻolau Loa Watershed Management Plan - Land Use Ordinance - Storm Drainage Standards - Project Review	DLNR BWS DPP ENV DDC	Regulator Advocate Regulator Implementer Implementer
30. Enhance, restore and preserve streams while providing public access for recreational and cultural purposes.	- Koʻolau Loa Watershed Management Plan - Land Use Ordinance - Project Review - TBD	DLNR BWS DPP DPR	Implementer Advocate Regulator/Advocate Implementer/Advocate
31. Develop an implementation schedule with input from community and public agencies to establish permanent instream flow standards that support sound watershed management. The setting of instream flow standards should weigh the benefits of instream and non-instream uses of water resources, including the economic impact of restrictions of such uses.	- Instream Flow Standard Assessment Report	CWRM	Regulator

Policies and/or Guidelines	Program	Agency	Role
32. Support the implementation of the Ko‘olau Loa Watershed Management Plan.	- Ko‘olau Loa Watershed Management Plan	BWS DPP	Implementer Advocate
Open Space and Natural Environment – Golf Courses			
33. Optimize and maintain the function of golf courses as passive drainage ways to maximize their potential to serve as drainage retention areas, as well as wildlife habitats.	- Project Review	LUC DPP	Regulator Regulator
34. Maintain golf course designs to provide view amenities for adjacent developed areas, including public rights-of-way, parks and vista points.	- Project Review	LUC DPP	Regulator Regulator
35. Provide safe access through golf courses, as necessary, for regional continuity of shoreline access.	- Project Review	LUC DPP	Regulator Regulator
36. When necessary for safety reasons, use screening, landscape treatment, setbacks and modifications to the course layout rather than fencing or solid barriers.	- Project Review	LUC DPP	Regulator Regulator
37. Maintain golf courses to minimize environmental impacts such as siltation, pesticide and fertilizer runoff and disturbance to coastal, riparian and wetland habitat.	- Project Review	LUC DPP	Regulator Regulator
38. Expand the existing Kahuku public golf course in conjunction with flood control measures.	- Facility Master Plan	DES DDC	Implementer Implementer
39. Encourage the use of nonpotable water resources for golf course irrigation.	- Project Review	LUC DPP BWS	Regulator Regulator Advocate
Open Space and Natural Environment - Kahuku Training Area			
40. Encourage the U.S. Army to manage its training area lands to minimize potential adverse drainage impacts to adjacent lowland areas. Storm water runoff from the Kahuku Training Area should not be increased from existing conditions, and long-term measures should be considered to reduce runoff.	- Kahuku Training Area Standard Operating Procedures	U.S. Army	Implementer
41. Discourage live-fire training in the area. This is consistent with the Army’s stated position that the Kahuku Training Area will continue to be used for tactical maneuver training with no live-firing of weapons.	- Kahuku Training Area Standard Operating Procedures	U.S. Army	Implementer

Policies and/or Guidelines	Program	Agency	Role
42. Encourage the U.S. Army to conduct training exercises in a manner that will not significantly disturb the natural vegetation and wildlife; alter the landform that contributes to runoff; and affect the flow of natural streams and drainage ways. For example, the Army's current policy of restricting or prohibiting blanks and pyrotechnic use during the dry seasons to minimize any fire hazard should be maintained as long as this area is used for training purposes.	- Kahuku Training Area Standard Operating Procedures	U.S. Army	Implementer
Agriculture			
43. Discourage subdivision of Agricultural designated and zoned lands for residential uses.	- Land Use Ordinance - Subdivision Rules and Regulations - Project Review	DPP DOA	Regulator Advocate
44. Cluster agricultural subdivisions that include farm dwellings to avoid the inefficient use of more productive agricultural lands and to reduce infrastructure costs.	- Land Use Ordinance - Project Review	DPP DOA	Regulator Advocate
45. Maintain adequate buffers between agricultural lands and new residential development, with consideration given to prevailing winds and the noise or air-borne emissions associated with the type of agricultural operation. Allow for appropriate economic uses of buffer zones and if the buffer zone must remain vacant, provide for it to be assessed at a lower property tax rate than productive agricultural land.	- Land Use Ordinance - Project Review - Chapter 205A, HRS - Real Property Tax Law	DPP LUC DOA TAX	Regulator Regulator Advocate Regulator
46. Design and locate buildings and other facilities that are accessory to an agricultural operation in a way that minimizes the impact on nearby community and residential areas, and the road system.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
47. Enforce permitted uses on agricultural lands to ensure that the use is contributing to meaningful and credible agricultural production on the same or nearby properties.	- Land Use Ordinance - Project Review - Chapter 205A, HRS	DPP LUC	Regulator/Advocate Regulator/Advocate
48. Allow facilities necessary to support intensive cultivation of arable agricultural lands to be located in agricultural areas.	- Chapter 205, HRS - Land Use Ordinance	LUC DPP	Regulator Regulator
49. Allow recreational or educational programs or other activities which provide supplemental income necessary to sustain the primary agricultural activity, as long as they are compatible with the character of the rural agricultural area, and are accessory to the primary agricultural use of the site.	- Project Review (Special Use Permits) - Land Use Ordinance	LUC DPP	Regulator Regulator

Policies and/or Guidelines	Program	Agency	Role
50. Use best management practices and conservation procedures to reduce soil erosion, siltation, and nonpoint source runoff.	- Hawai‘i Coastal Nonpoint Pollution Control Management Plan - Windward O‘ahu Soil and Water Conservation District	State CZM Program DOA DOH TMDL Program Hawai‘i Association of Conservation Districts	Regulator Implementer Regulator Advocate
51. Expand the use of alternative and renewable water resources for agricultural use, as appropriate.	- Ko‘olau Loa Watershed Management Plan	BWS	Advocate
52. Support conservation initiatives of the Windward O‘ahu Soil and Water Conservation District and encourage farmers to apply for, maintain and implement conservation plans.	- Windward O‘ahu Soil and Water Conservation District	Hawai‘i Association of Conservation Districts	Advocate
53. Establish economic and tax incentives to provide for long-term agricultural leases.	- TBD	DOA TAX	Advocate Regulator
54. Identify and protect Important Agricultural Lands in accordance with Act 183 (2005).	- IAL, Act 183 (2005)	DOA TAX DPP private entities	Advocate Advocate Implementer Implementer
55. Encourage governmental agencies and landowners to upgrade and maintain adequate agricultural infrastructure networks, including roadways and irrigation systems.	- TBD	DOA BWS	Advocate Advocate
Parks and Recreation			
56. Continue coordination efforts between the City DPR and the State DOE to co-locate neighborhood or community parks with elementary or intermediate schools. Facilities should be designed and operated to achieve efficiencies and reduce duplication in the development and use of athletic, recreation, meeting and parking facilities, wherever possible, either by dedication, or upon agreements between the developer, DOE, and DPR. Co-located parks should be ready for public use upon opening.	- School Master Plan - Park Master Plan - Project Review	DOE DPR DDC DPP	Implementer Implementer Implementer Regulator/Advocate
57. Where feasible, site community and neighborhood parks at the center of neighborhoods to maximize accessibility.	- Park Facilities Functional Plan - Park Master Plan - Project Review	DPR DDC DPP	Implementer Implementer Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
58. Provide for accessible pathways from surrounding streets to facilitate pedestrian and bicycle access to parks in master plans for development of new parks or redevelopment of existing parks.	- Park Facilities Functional Plan - Park Master Plan - Project Review	DPR DDC DPP	Implementer Implementer Regulator/Advocate
59. Link parks and recreational areas with the surrounding community using connecting roadways, bikeways, walkways and landscape features or architectural design.	- Bicycle Master Plan - Project Review	DOT DTS DPP	Implementer Implementer Regulator/Advocate
60. Develop a new community park in Lāʻie with a community center facility.	- Park Facilities Functional Plan - Park Master Plan	DPR DDC	Implementer Implementer
61. Expand the Hauʻula Community Park to include a multi-purpose recreational facility.	- Park Facilities Functional Plan - Park Master Plan	DPR DDC	Implementer Implementer
62. Provide neighborhood parks in Kaʻaʻawa, Punaluʻu, and Kahuku (Adams Field) to serve the residential population of these communities.	- Park Facilities Functional Plan - Park Master Plan	DPR DDC	Implementer Implementer
63. Expand Kahuku District Park to support the development of a multi-purpose recreational building and swimming pool complex.	- Park Facilities Functional Plan - Park Master Plan	DPR DDC	Implementer Implementer
64. Acquire and/or improve additional shoreline areas for public recreational uses, including adjacent areas at Kaluanui and Lāʻie Beach Park.	- Park Facilities Functional Plan	DPR	Implementer
65. Encourage continued public access and use of Hukilau Beach Park to provide beach-goers a safer alternative than other nearby public beaches.	- TBD	DPR Hawaiʻi Reserves	Advocate Implementer
66. Establish community gardens to expand gardening opportunities for area residents.	- Community Recreational Gardening Program	DPR	Implementer
67. Establish management strategies that minimize overcrowding and prevent the negative consequences of overuse.	- Parks Rules and Regulations	DPR	Implementer
68. Locate bus stops or loading areas at principal entries and adjacent to convenient pedestrian access to main activity areas within the park.	- Bus Facility and Systems Plans - Project Review	DTS DPP	Implementer Regulator/Advocate
69. Use generous landscaping or other appropriate visual screens to minimize the visibility of perimeter fencing and maintenance facilities from surrounding areas.	- Park Master Plan - Project Review	DPR DPP	Implementer Regulator/Advocate
70. Provide landscaping along major roadways to serve as linear open space features and create an inviting environment for walking, jogging and biking.	- Park Master Plan - Project Review	DPR DPP	Implementer Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
71. Incorporate natural features of the site and native landscaping materials when designing park improvements.	- Park Master Plan - Project Review	DPR DPP	Implementer Regulator/Advocate
Historic and Cultural Resources			
72. Implement *in situ* preservation and appropriate protection measures for sites that have high preservation value because of their good condition or unique, historic, cultural and archaeological features, and for which the State Historic Preservation Officer has recommended such treatment in conjunction with the community.	- Chapter 6E HRS - TBD	DLNR	Regulator/Advocate
73. Consider the particular qualities of a site and its relationship to its physical surroundings when determining the appropriate treatment. Determine the following on a site-by-site basis in consultation with the SHPO, O‘ahu Island Burial Council, local Hawaiian cultural organizations, and the owner of the land on which the site is located, and the community: (1) appropriate preservation methods; (2) appropriate delineation of site boundaries and setbacks; (3) appropriate restrictions on uses and development of adjacent lands; and (4) appropriateness of public access and interpretation.	- Chapter 6E HRS	DLNR DPP	Regulator/Advocate Regulator/Advocate
74. Include sight lines and view planes that are significant to the original purpose and value of the site in any restrictions placed on adjacent uses and development.	- TBD	DLNR DPP	Implementer Regulator/Advocate
Residential Communities – Rural			
75. Use rural development standards to establish building height limits and lot coverages, roadway and setback widths, infrastructure requirements, and architectural design guidelines.	- Land Use Ordinance - Project Review	DPP	Implementer/Regulator
76. Encourage alternative development layouts that promote residential clustering and open space preservation.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
77. Ensure compatibility between uses in rural areas and adjacent agricultural lands, natural resources, views and cultural features.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Residential Communities – Rural Residential			
78. Use rural development standards to determine appropriate scale and character, limit building heights and lot coverages, reduce current requirements for the paving width of residential streets and infrastructure systems, and encourage appropriate architectural design guidelines and ample native, natural landscaping forms.	- Land Use Ordinance - Subdivision Rules and Regulations - Project Review	DPP	Implementer/ Regulator

Policies and/or Guidelines	Program	Agency	Role
79. Housing development generally should not be sited on areas where the slope exceeds 20 percent. Where this does occur, housing should be developed to avoid adverse visual impacts, potential slope stability problems and increased runoff. Soils engineering and view studies may be necessary to determine the appropriate density and site design for such locations.	- Land Use Ordinance - Subdivision Rules and Regulations - Project Review	DPP	Regulator/Advocate
80. Building scale, roof form, and the quality of materials for infill and new development, as well as future modifications to existing homes, should be generally compatible with the predominant form and character of existing homes on adjacent properties and with the neighborhood as a whole. Building heights generally should not exceed two stories, but may vary according to required flood elevation, protection of natural features, slope, and roof form. Modification of zoning standards for residential development, such as provisions for building scale or spacing, roadway widths, or sidewalks, and/or changes in existing zoning district categories, may be necessary to promote rural character.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
81. Sites on level terrain with fewer development constraints may have overall site densities approaching the higher end of the range for Rural Residential use. To achieve higher density while providing an attractive living environment, optional design or rural development standards for clusters and planned unit developments should be promoted in lieu of conventional subdivision provisions.	- Land Use Ordinance - Subdivision Rules and Regulations - Project Review	DPP	Regulator/Advocate
82. Avoid monotonous rows of garages and driveways along neighborhood street frontages by employing features such as varied building setbacks and shared driveways.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
83. Use plantation architectural features such as pitched roofs with varied forms, exterior colors and finishes, building orientation, floor plans and architectural details to provide visual interest and individual identity and accentuate the rural setting.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
84. Support affordable housing initiatives in areas designated for new housing development.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Residential Communities – Low Density Apartment			
85. Limit building heights to three stories or 40 feet, including roof form, with heights above 40 feet allowed only when warranted due to the required flood elevation, steep slope of the site, or the desire to protect important natural features. Gabled or similar roof forms should be used to reflect a primarily rural residential design character.	- Land Use Ordinance - Project Review	DPP	Regulator

Policies and/or Guidelines	Program	Agency	Role
86. Employ building form and orientation, location of entries and landscape screening, etc., to maintain the existing residential scale and provide greater privacy and individual identity for housing units.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
87. Ensure compatibility of building scale, roof form and the quality of materials with those of adjacent low-density residential areas.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Residential Communities – Special Needs Housing			
88. In general, apply Low Density Apartment building height and density guidelines to special needs housing sites, as described in Section 3.5.2.4.	- Land Use Ordinance - Project Review	DPP	Regulator
89. Special needs housing, as an exception to standard density situations, may have densities up to 30 units per acre if it consists primarily of smaller dwelling units with residential scale and character. Special needs housing may have congregate living facilities, and is for individuals who, for the most part, do not rely on or require personal automobiles for travel.	- Land Use Ordinance - Project Review	DPP	Regulator
90. Whenever possible, locate special needs housing close to public transit, community services and commercial activities.	- Land Use Ordinance - Project Review - Housing Development Programs	DPP HPHA private entities	Regulator Implementer/Advocate Implementer/Advocate
91. Require proposals for special needs housing to be permitted subject to community and agency review to maintain flexibility in the location of special needs housing and promote flexible site design that preserves natural features and scenic elements.	- Land Use Ordinance - Project Review	DPP	Regulator
92. Allow heights above 40 feet, subject to community and agency review, only when warranted due to the required flood elevation, steep slope of the site, or the desire to protect important natural features. Gabled or similar roof forms should be used to reflect a primarily rural residential design character.	- Land Use Ordinance - Project Review	DPP	Regulator
93. Ensure compatibility of building scale, roof form, and materials with adjacent residential uses.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Commercial Areas – General			
94. Utilize building forms and details which reflect the region's rural character and incorporate the style and any desirable distinctive features of buildings in the community in which they are located.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
95. Encourage the use of building façades, sloped roofs, and breaks in the roof line to reduce the apparent scale of large roof plates in commercial buildings with multiple storefronts.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
96. Avoid blank façades on portions of buildings visible from the street. Provide articulation through the use of building materials, finishes and fenestration.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
97. Reflect a more residential scale and character in the portions of commercial buildings that are adjacent to or readily visible from residential areas.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
98. Limit commercial buildings to a maximum 50,000 square feet of retail space, and a 40-foot height limit, including roof form. In general, buildings should maintain a low-rise, rural scale.	- Land Use Ordinance - Project Review	DPP	Regulator
99. Avoid the use of large, continuous buildings in new commercial developments. Commercial buildings adjacent to residential areas should be designed to recognize the balance between commercial needs and residential concerns. In general, the physical composition of height, size, and massing of commercial buildings in these locations should be compatible with adjacent residential development.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
100. Provide for the general visibility from Kamehameha Highway of buildings within commercial centers, and employ adequate and appropriately designed signage at entries.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
101. Provide access to parking and loading areas primarily from Kamehameha Highway for the shopping areas in Kahuku and Lāʻie, and exclusively for the Rural Community Commercial Centers (Hauʻula and Kaʻaʻawa) and country store establishments that front the highway. Alternative access should be considered when appropriate and feasible.	- Land Use Ordinance - Project Review	DOT DPP private entities	Regulator/Advocate Regulator/Advocate Implementer
102. Employ site design practices and provide facilities which promote pedestrian, bicycle and public transit access.	- Capital Improvement Program - Project Review	DOT DTS DPP	Implementer Implementer Regulator/Advocate
103. Improve bus stops in front of commercial centers, including pull-out bus stop lanes and shelters for waiting passengers.	- Capital Improvement Program	DTS private entities	Implementer/Advocate Implementer
104. Provide racks for bicycle parking at all commercial centers and locate them where they are secure and visible from entry points or other heavy circulation areas.	- Project Review	DPP	Regulator/Advocate
105. Emphasize that existing commercial space should be occupied before the development of new commercial properties is considered.	- Project Review - Zone Change	DPP	Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
106. Use existing commercial space and the planned future expansion of the existing Lāʻie rural regional commercial center to accommodate future commercial needs.	- Project Review	DPP	Regulator/Advocate
107. Plant a landscape screen consisting of trees and hedges along streets fronting parking lots.	- Land Use Ordinance - Project Review	DPP	Regulator
108. Provide shade trees throughout parking lots.	- Land Use Ordinance - Project Review	DPP	Regulator
109. Visually screen service areas from public and residential areas.	- Land Use Ordinance - Project Review	DPP	Regulator
110. Require indirect illumination for signage visible from residential areas.	- Land Use Ordinance - Project Review	DPP	Regulator
Commercial Areas – Kahuku Country Town			
111. Incorporate architectural themes and details in new buildings and building renovations which reflect the traditional built forms and cultural heritage of Kahuku and other plantation communities in Hawaiʻi.	- Project Review	DPP	Regulator/Advocate
112. Promote the development of two-story as well as one-story buildings to accommodate and encourage the desired mix of uses. The sugar mill theme should be continued.	- Project Review	DPP	Regulator/Advocate
113. Keep buildings relatively small in size and distinctive in character, and avoid the development of long "shopping center"-type structures.	- Project Review	DPP	Regulator/Advocate
114. Group buildings and related public spaces in a way which fosters a pedestrian orientation and encourages travel on foot between different establishments.	- Project Review	DPP	Regulator/Advocate
Commercial Areas – Lāʻie Rural Regional Commercial Center			
115. Employ architectural design strategies, forms, and details in new building design which reduce the sense of building mass of the center. Incorporate architectural forms and details in future renovations of existing buildings which visually reduce their apparent size.	- Project Review	DPP	Regulator/Advocate
116. Incorporate architectural themes and details in new buildings and building renovations which are appropriate to the region's rural character.	- Project Review	DPP	Regulator/Advocate
117. Maintain the existing center's low-rise building scale consistent with the character of surrounding residential development.	- Project Review	DPP	Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
118. To the extent possible, site new buildings in a manner which emphasizes a pedestrian orientation and encourages travel on foot between new and existing establishments. Future renovation, redevelopment or expansion of the Rural Regional Commercial Center should take or create opportunities to implement a primarily pedestrian-oriented, village-like setting, in contrast to its current linear form.	- Project Review	DPP	Regulator/Advocate
Commercial Areas – Hau‘ula and Ka‘a‘awa Rural Community Commercial Center			
119. Encourage and support new building construction, existing building renovation or site redevelopment in a manner which complements and conveys the surrounding area's rural character.	- Project Review	DPP	Regulator/Advocate
120. Utilize landscaping within the parking lot and along the center's highway frontage in order to soften its appearance and improve its compatibility with the community's rural character.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Commercial Areas – Country Stores			
121. Encourage renovations to existing establishments which maintain or, where appropriate, improve upon the traditional stand-alone "country store" architectural style found in Hawai‘i's rural communities.	- Project Review	DPP	Regulator/Advocate
122. Require the architectural character of any redeveloped buildings to be harmonious with adjacent developments and setting in form, material, finishes and color.	- Project Review	DPP	Regulator/Advocate
123. Retain the existing stand-alone, small-scale, limited setback, one-story height building form in the redevelopment of any existing establishments.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
Business/Light Industrial Areas			
124. Minimize the visibility of large building volumes and tall building or machinery elements from residential areas, commercial and civic districts, resort areas, and parks through careful site planning and use of ample landscaping.	- Land Use Ordinance - Project Review	DPP	Regulator
125. Locate and buffer operations that discharge air or water pollutants, even when treated, in areas where they would impose the least potential harm on the natural environment, in case the treatment process fails to perform adequately. Uses that generate high noise levels should be located and operated in a way that will keep noise to an acceptable level in existing and planned residential areas.	- Project Review	DPP	Regulator

Policies and/or Guidelines	Program	Agency	Role
126. Provide mostly small lots within the Lāʻie Industrial Park to accommodate small business service uses.	- Subdivision Rules and Regulations - Project Review	DPP	Regulator
127. No buildings should be primarily used for offices or business services.	- Project Review	DPP	Regulator
128. Building heights should convey the area's rural character and generally not exceed 40 feet.	- Land Use Ordinance - Project Review	DPP	Regulator
129. Buildings should maintain a low-rise, rural character and be compatible with surrounding land uses which include agricultural lands, open space, and residential areas.	- Project Review	DPP	Regulator/Advocate
130. Employ building coverage that is appropriate to the rural environment and minimize visibility of structures with careful site planning and ample landscaping.	- Project Review	DPP	Regulator/Advocate
131. Minimize the visibility of parking, storage, industrial equipment and operations areas from the street by planting a landscape screen.	- Project Review	DPP	Regulator/Advocate
132. Encourage the use of native plants in landscaping.	- Project Review	DPP	Regulator/Advocate
Technology Park			
133. The character of the technology park should be relatively low in scale and visibility. The form of the structures should be modeled on campus-like business parks, but the architectural style should be in keeping with and blend into the rural character of the technology park's setting and adjacent uses. Buildings should not be visible from off-site scenic viewpoints looking *mauka*, and the site should be carefully planned and ample landscaping used so the development is integrated into its surroundings.	- Project Review	DPP	Regulator
134. The technology park is primarily intended for emerging and technology-oriented industries and support services. Uses that should not be permitted in the technology park include uses that: produce noise and noxious emissions; uses connected with agricultural production and processing; large-scale retailing/wholesaling commercial operations; dwelling units or overnight accommodations of any kind.	- Land Use Ordinance - Project Review	DPP	Regulator
135. Uses are intended to be emerging and technology-oriented industries, including but not limited to telecommunications, business education, and research and development facilities.	- Land Use Ordinance - Project Review	DPP	Regulator
136. Building heights should convey the area's rural character and generally not exceed 40 feet.	- Land Use Ordinance - Project Review	DPP	Regulator

Policies and/or Guidelines	Program	Agency	Role
137. Buildings should maintain a low-rise, rural character and be compatible with surrounding land uses which include agricultural lands, open space, and residential areas.	- Project Review	DPP	Regulator/Advocate
138. Employ building coverage that is appropriate to the rural environment; avoid use of large, continuous buildings; and minimize visibility of structures with careful site planning and ample landscaping.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
139. Soften the visual impacts of parking, storage, industrial equipment and operations areas from the street by planting a landscape screen.	- Project Review	DPP	Regulator/Advocate
140. Encourage the use of native trees and plant materials in landscaping.	- Project Review	DPP	Regulator/Advocate
Visitor Facilities – Turtle Bay Resort and Coastline			
141. Preserve public access to the shoreline.	- Project Review	DPP	Regulator/Advocate
142. Preserve and enhance existing features of topography, landscape and views unique to the area.	- Project Review	DPP	Regulator/Advocate
143 Protect cultural resources and practices within the area.	- Chapter 6E, HRS - TBD	DLNR DPP	Regulator Regulator/Advocate
Visitor Facilities – Polynesian Cultural Center			
144. Design and construction of new facilities or renovations should be consistent with existing architectural character or appropriate Polynesian themes expressed in the existing Center. PCC should continue to improve its overall design character and outward appearance as a Polynesian attraction, with emphasis toward tropical landscaping.	- Project Review	DPP	Regulator/Advocate
145. The architectural character of new facilities should respect the region's rural features.	- Project Review	DPP	Regulator/Advocate
146. Expansion areas should be low-rise in character and set back from the roadway and adjacent uses. The architectural character of new facilities should respect the region's rural features.	- Project Review	DPP	Regulator/Advocate
147. Impacts to Kamehameha Highway traffic flow should be minimized by focusing traffic through existing intersections without creating new driveway connections to the highway.	- Project Review	DOT DPP	Regulator Regulator/Advocate
148. Portions of the Center adjacent to residential areas should be organized and designed to relate compatibly in scale, materials, character, color, and function with existing residential structures and activity.	- Project Review	DPP	Regulator/Advocate
149. Where functionally practical and visually appropriate, use breaks in roof lines to reduce scale and apparent building mass.	- Project Review	DPP	Regulator/Advocate

Policies and/or Guidelines	Program	Agency	Role
150. Place any new parking and service areas behind the buildings or otherwise visually screen them from streets and residential areas.	- Project Review	DPP	Regulator/Advocate
151. Maintain and enhance view channels of the shoreline from Kamehameha Highway.	- Project Review	DPP	Regulator/Advocate
152. Include a landscape screen of trees and hedges in setbacks from street frontages and property lines.	- Project Review	DPP	Regulator/Advocate
153. Plant and maintain shade trees throughout parking lots.	- Land Use Ordinance - Project Review	DPP	Regulator/Advocate
154. Use native plants and landscaping materials that reflect PCC's Polynesian themes and complement the region's rural character.	- Project Review	DPP	Regulator/Advocate
155 Provide a public pedestrian easement to the shoreline.	- Project Review	DPP	Regulator/Advocate
Visitor Facilities - Visitor Accommodations in Lāʻie			
156. Maintain a rural character in any design or expansion. Any expansion is envisioned to blend into the surrounding community in form and materials and provide a feel of *kamaʻaina* simplicity and elegance.	- Project Review	DPP	Regulator/Advocate
157. Any redevelopment on the site should enhance the surrounding community by incorporating appropriate size, orientation and materials.	- Project Review	DPP	Regulator/Advocate
158. Lai`e Inn expansion or redevelopment should respect flooding constraints and cultural sensitivity of the site.	- Project Review	DPP	Regulator/Advocate
Visitor Facilities – Eco- and Agricultural-Tourism Operations			
159. Such uses should be low impact, appropriate to sound management of affected resources, compatible with other existing uses in the area, and reflective of community values.	- Project Review	DPP	Regulator
160. Eco- and agricultural-tourism uses should be compatible with the natural environment and adjacent uses. Activities should not significantly or negatively alter the natural state of the environment in which they take place or impact other uses.	- Project Review	DPP	Regulator
161. Facilities used for the assembly of participants and parking of vehicles should be low-rise and small in scale. They should also be sufficiently set back from public roadways and adjacent properties, and screened with landscaping, so that they are not visible from these locations.	- Project Review	DPP	Regulator
162. Eco-and agricultural-tourism operations should be reasonably accessible from Kamehameha Highway and should not adversely impact traffic on local streets.	- Project Review	DPP	Regulator

Policies and/or Guidelines	Program	Agency	Role
163. Visually screen parking areas from roadways, streets and residential areas.	- Project Review	DPP	Regulator/Advocate
164. Encourage the use of native plants in landscaping.	- Project Review	DPP	Regulator/Advocate
165. Use only low-level or indirect lighting which meets safety and security requirements.	- Project Review	DPP	Regulator
166. Ensure compatibility between the type, size, design, placement, and color of signage and the context of adjacent uses and the area's rural character.	- Project Review	DPP	Regulator/Advocate
Institutional Uses - Health and Wellness Facilities			
167. Health and wellness facilities should be low-density, residential-scale buildings. The visibility of buildings or outdoor activities should be minimized through site planning and landscaping.	- Project Review	DPP	Regulator/Advocate
168. Facilities should be sited so that the intensity of uses and hours of operation are compatible with adjacent uses. The built environment should avoid adverse impacts on natural resources. To retain a sense of place, facilities should incorporate natural features and landscape materials that are indigenous to the area.	- Project Review	DPP	Regulator/Advocate
169. Facilities should be easily accessible from a collector street or major roadway while minimizing negative impacts on residential streets. Sufficient on-site parking should be provided.	- Project Review	DPP	Regulator
170. Maintain a rural character in the height, size, and massing of buildings in order to be compatible with adjacent residential or commercial uses.	- Project Review	DPP	Regulator/Advocate
171. Minimize the visibility of parking areas from the street by planting a landscape screen along street frontages.	- Project Review	DPP	Regulator/Advocate
172. Encourage the use of native plants in landscaping.	- Project Review	DPP	Regulator/Advocate
Institutional Uses – Brigham Young University – Hawai'i			
173. Encourage the University to maintain its strong community-orientation and continue to serve the Ko'olau Loa region as a center of education and mutli-cultural exchange, as well as support community activities and services and provide adult educational opportunities.	- Project Review	DPP	Regulator
174. The design of new facilities should be environmentally sensitive and compatible with architectural character and culture of the existing campus and adjacent residential areas.	- Project Review	DPP	Regulator

Policies and/or Guidelines	Program	Agency	Role
Transportation Systems			
175. Provide improved services and facilities for express buses, such as more frequent, larger-capacity and more comfortable vehicles and park-and-ride facilities.	- Bus Service Improvement Plan - Capital Improvement Program	DTS OTS	Implementer Implementer
176. Locate public bus stops to be convenient and accessible to residential areas and hubs of community activity. Use architectural design elements that complement the natural setting and generously shelter passengers.	- Bus Facility and Systems Plans - Project Review	DTS	Implementer
177. Promote the use of transportation demand management strategies, including measures such as ridesharing (car and vanpooling), improved bus service and routes, non-vehicular travel modes (both motorized and non-motorized modes), and modified work hours, as well as work-from-home options to reduce commutes.	- TBD	DOT DTS	Implementer/Advocate Implementer/Advocate
178. Provide safety improvements along Kamehameha Highway.	- O‘ahu Transportation Improvement Program - Capital Improvement Program	OMPO DOT	Advocate Implementer
179. Identify and establish an emergency/secondary access route to provide for the safe and efficient evacuation of residents and the movement of emergency response personnel (e.g., fire, police, ambulance) in the event that Kamehameha Highway is impassable due to natural disasters or other emergency incidents.	- TBD - Capital Improvement Program	DOT DTS DEM	Implementer Implementer Implementer
180. Work with the responsible State and City agencies and private landowners to develop a regional pedestrian/bikeway system linking parks, schools and commercial areas with residential communities.	- Bicycle Master Plan	DOT DTS	Implementer Implementer
181. Modify right-of-way design in selected areas, particularly along principal pedestrian routes and street crossings, and near bus stops to improve pedestrian and bicyclist safety and enhance the users’ experience – e.g., change travelway widths, pavement widths or texture, introduce signage and more generous landscape planting.	- Subdivision Street Standards - Project Review	DOT DTS DPP	Advocate Advocate Regulator
182. Provide convenient pedestrian paths within commercial and other high-activity areas to encourage people to walk short distances for multi-purpose trips instead of moving the vehicle to another parking facility.	- Project Review - Capital Improvement Program	DOT DTS DPP	Implementer Implementer Regulator

Policies and/or Guidelines	Program	Agency	Role
183. Implement traffic calming measures appropriate for residential areas to reduce speeding in excess of posted limits and discourage use of local streets for bypass or shortcut, thereby sustaining overall safety and enjoyment for pedestrians and bicyclists. The community and the City will work together in identifying streets where there are speeding or cut-through traffic concerns to develop viable mitigative measures.	- Project Review - Capital Improvement Program	DOT DTS DPP	Implementer Implementer Regulator
184. Design off-street parking facilities more efficiently to encourage joint use of parking and less pavement area dedicated to parking.	- Land Use Ordinance - Project Review	DPP	Regulator
185. Provide safe pedestrian walkways on bridges.	- Capital Improvement Program	DOT	Implementer
186. Establish rural streetscape design elements and development standards within residential areas consistent with the rural character of the region. Allow for rural elements that reduce the amount of impervious surfaces, such as minimum pavement widths to support traffic demand and emergency vehicle access, shared driveways, reduced parking requirements, more landscaping and grassed swales in place of curbs and gutters.	- Land Use Ordinance - Subdivision Rules and Regulations	DPP	Regulator
Water Systems			
187. State and private well development projects should be coordinated and made consistent with the Ko‘olau Loa Watershed Management Plan.	- Project Review	DPP BWS	Regulator Implementer
188. Conserve the use of potable water by implementing the following measures, as feasible and appropriate: (1) low flush toilets, flow constrictors and other water conserving devices in commercial and residential developments as required by ordinance; (2) indigenous, drought-tolerant plant material and drip irrigation systems in landscaped areas, and use drip irrigation systems; and (3) the use of recycled water for the irrigation of golf courses and other landscaped areas where this would not adversely affect potable groundwater supply.	- Uniform Plumbing Code - Project Review	DPP BWS ENV	Regulator/Advocate Advocate Implementer
189. Future water development should not adversely impact stream flow or nearshore water quality.	- Ko‘olau Loa Watershed Management Plan - Project Review	CWRM DPP BWS	Implementer Regulator Advocate

Policies and/or Guidelines	Program	Agency	Role
Wastewater Treatment			
190. As feasible and appropriate, beneficially use reclaimed water for agriculture and landscaping irrigation, as well as other non-potable water uses.	- Ko‘olau Loa Watershed Management Plan - Wastewater Management Plan	BWS ENV	Advocate Implementer
191. Upgrade the Kahuku WWTP to allow for re-use of the treated effluent for irrigation purposes.	- Wastewater Management Plan	ENV	Implementer
192. Identify appropriate areas and technologies for future wastewater facilities that maintain the rural character and are proportionate to future population projections.	- Wastewater Management Plan	ENV	Implementer
193. Establish and maintain a sufficient separation between wastewater treatment plants and any nearby urban uses to avoid significant adverse odor impacts, and provide sufficient screening which substantially block views of such plants from developed areas, parks and public rights-of-way.	- Wastewater Management Plan - Land Use Ordinance - Project Review	DPP ENV	Regulator Advocate
194. Discourage new residential, commercial, resort, or school uses in close proximity to wastewater treatment plants where odors are present.	- Project Review	DPP	Regulator/Advocate
Electrical Systems			
195. Provide adequate and reliable electrical service.	- Utilities Plan	HECO	Implementer
196. Locate and design system elements such as renewable energy facilities (e.g., wind and solar), electrical sub-stations, communication sites, and transmission lines, including consideration of underground transmission lines, to avoid or mitigate visual impacts on scenic and natural resources, as well as public safety considerations.	- Utilities Plan - Project Review	HECO Telecommunication service providers DPP	Implementer Implementer Regulator/Advocate
197. Discourage the use and installation of overhead utility lines and poles. Strong consideration should be given to placing replacement and new transmission lines underground to enhance view planes, increase highway safety and improve utility service.	- Utilities Undergrounding Plan	HECO Telecommunication service providers DPP	Implementer Implementer Regulator/Advocate
198. Encourage the development and use of renewable energy sources and energy conservation measures.	- State Energy Plan - Utilities Plan - Uniform Building Code	DBEDT HECO DPP	Advocate Implementer Regulator/Advocate
Solid Waste Handling and Disposal			
199. Expand recycling collection facilities and services, and public outreach and education programs that promote responsible waste management and source reduction.	- Solid Waste Management Plan	ENV	Implementer

Policies and/or Guidelines	Program	Agency	Role
200. Continue recycling of regional green waste at the Lāʻie Convenience Center and the Lāʻie Water Reclamation Facility composting operation.	- Solid Waste Management Plan	ENV	Implementer
201. Expand the use of automated refuse collection in residential areas.	- Solid Waste Management Plan	ENV	Implementer
Drainage Systems			
202. Emphasize retaining or detaining storm water for gradual release into the ground as an alternative strategy for management of storm water.	- Storm Drainage Standards - Project Review	DPP	Regulator
203. Integrate planned improvements to the drainage system into a regional open space network by creating retention basins, passive recreation areas and recreational access for pedestrians and bicycles. Drainage system design should emphasize control and minimization of non-point source pollution. Where the hardening of stream channels is unavoidable, make the improvements in a manner which maintains and protects natural resources and aesthetic values of the stream, and avoid degradation of coastline and of stream and near-shore water quality, consistent with guidelines expressed in Section 3.1.2.4.	- Storm Drainage Standards - Project Review	DPP DDC DFM	Regulator Implementer Implementer
204. Regularly maintain and clean drainage ways and flood mitigation structures of debris to ensure that they achieve the purpose for which they were designed.	- Facility Maintenance Plan	DFM private entities	Implementer Implementer
205. Employ best management practices to minimize runoff exiting from conservation and agricultural land uses and other areas that may generate sediment and debris.	- Storm Drainage Standards	DLNR DOA ENV	Regulator/Advocate Advocate Regulator
206. Any future work performed within the 100-year floodplain will have to adhere to the requirements of the Federal Emergency Management Agency (FEMA) and meet all flood-proofing requirements.	- Grading Ordinance - Subdivision Rules	DPP	Regulator
207. Develop a comprehensive drainage master plan to address drainage, flood protection and erosion concerns in coastal areas.	- TBD	DLNR ENV	Advocate Implementer
208. Conduct public outreach and education programs that explain the potential for flooding and how the efforts of individual property owners can minimize the effects of flooding.	- Hazard Mitigation Plan	DOH DEM	Implementer Implementer
School Facilities			
209. Confirm the adequacy of school facilities before approving new residential development. Approve new residential developments only after the State DOE confirms that adequate school facilities, either at existing schools or new sites, will be available when the development is occupied.	- Project Review	LUC DOE DPP	Regulator Advocate Regulator

Policies and/or Guidelines	Program	Agency	Role
210. Coordinate the development and use of athletic facilities such as playgrounds, playfields and courts, swimming pools, and gymnasiums with the DOE where the joint use of such facilities would maximize utilization and reduce duplication of functions without compromising the schools' athletic programs.	- School Master Plan - Park Master Plan	DOE DPR DDC	Implementer Implementer Advocate
211. Promote facility design and construction that allows for school buildings to be used as public hurricane shelters.	- School Master Plan - Project Review	DOE DAGS DPR DEM DPP	Implementer Implementer Implementer Advocate Advocate
212. Support efforts to develop safe and efficient access to schools, emphasizing the importance of secondary routes and pathways other than Kamehameha Highway.	- School Master Plan - Project Review	DOE DOT DTS DPP	Advocate Implementer/ Advocate Implementer/Advocate Regulator
213. Support the DOE's requests for school impact fees from developers of residential projects to ensure that adequate school facilities are in place at the time new residential units are occupied.	- Project Review - Zone Change	LUC DPP	Regulator/Advocate Regulator/Advocate
214. Support resolution of the flooding issues that affect the Kahuku Intermediate and High School campus.	- TBD	DOE	Implementer
215. Support the development of a regional library for Koʻolau Loa.	- TBD	DOE DAGS	Implementer Implementer
Civic and Public Safety Facilities			
216. Consider the establishment of a permanent Satellite City Hall in Koʻolau Loa at Hauʻula or Lāʻie, either of which could serve as a gathering place for activities and services.	- Operating Budget	CSD	Implementer
217. Support the planning and programming of public facilities to create maximum usage flexibility. In addition, encourage interagency coordination in better utilization of existing facilities to provide a more integrated approach to delivering services in the region. Examples could include using school facilities as emergency shelters, requiring that all new public buildings serve a secondary function as an emergency shelter.	- Facility Master Plans - Capital Improvement Program	All City Agencies	Implementer
218. The only anticipated need for new locations for either police or fire stations is the planned relocation of the Hauʻula Fire Station outside of the flood plain. Accommodate any other necessary improvements through renovation or minor expansion of existing facilities for fire/ambulance and police protection.	- Capital Improvement Program	HFD DES HPD	Implementer Implementer Implementer

Policies and/or Guidelines	Program	Agency	Role
219. Provide adequate staffing and facilities for fire/ambulance and police protection.	- Operating Budget	HFD DES HPD	Implementer Implementer Implementer
220. Support adequate staffing and facilities to ensure the continued operation and maintenance of Kahuku Medical Center and the Koʻolau Loa Community Health and Wellness Center. Allow for the possible development of other health related facilities that will support the continued viability of the existing facilities.	- Capital Improvement Program - Operating Budget	DOH Private entities	Implementer/Advocate Implementer
221. Promote the creation of safe, crime-deterrent public and private environments by encouraging the use of crime-preventive principles in the planning and design of communities, open spaces, circulation networks, and buildings.	- Uniform Building Code - Project Review	DPP	Regulator/Advocate
222. Install outdoor warning sirens as needed to provide advance warning of impending disaster events for the people residing and working in Koʻolau Loa communities.	- Capital Improvement Program	State Civil Defense DEM	Implementer Implementer
Other Community Facilities			
223. Encourage co-location of antennas; towers should host the facilities of more than one service provider to minimize their proliferation and reduce visual impacts.	- Land Use Ordinance - Project Review	DPP	Regulator
224. Mount antennas onto existing buildings or structures so that public scenic views and open spaces will not be negatively affected. However, except for the occupant's personal use, antennas on single-family dwelling roofs in residential districts are not appropriate.	- Land Use Ordinance - Project Review	DPP	Regulator
225. Use "stealth" technology (e.g., towers disguised as trees) especially on free-standing antenna towers in order to blend in with the surrounding environment and minimize visual impacts.	- Land Use Ordinance - Project Review	DPP	Regulator

This page intentionally left blank.

APPENDIX A:
OPEN SPACE, LAND USE, AND PUBLIC FACILITIES MAPS

The Koʻolau Loa Sustainable Communities Plan includes three color maps:

- Open Space Map
- Land Use Map
- Public Facilities Map

These maps illustrate the long-range vision of the future of the area and the major land use, open space, and public facility policies that are articulated in the plan. In examining them the reader should keep in mind that:

- These maps are general and conceptual.
- They are illustrative of the plan's policy statements, presented in the text of this report.

These policy statements, which appear in the preceding chapters, are considered to be the most important elements of the Plan. The maps are considered illustrations of the policies. However, it is recognized that the maps may be more accessible and more helpful in assisting the reader to comprehend the geographical context of the Plan's written policies and guidelines. This section of the Plan, therefore, presents a brief explanation of the contents of each of these maps.

Elements common to each of the three maps include an organizing boundary and four land use designations: "Preservation," "Agriculture," "Parks," and "Military." They are presented below. Common information particular to each map is presented under each map topic.

The maps which follow display a Community Growth Boundary. These maps are not parcel-specific, but illustrate generalized categories or group of land uses within the region.

Because they are not parcel-specific, the lines depicted by the Community Growth Boundary and land use designations do not indicate precise or abrupt demarcations. Rather, the geographic extent or actual magnitude of permissible or appropriate uses depicted within these areas should be evaluated and determined in concert with relevant sections of the plan's text and specific site characteristics. The extent or magnitude of land uses depicted within a boundary may be limited by actual onsite or adjacent conditions such as slope or other topographic constraints, soil type, existing drainage ways, flood or rockfall hazard, or the presence of natural or cultural resources. Conversely, the actual appropriate extent of uses

prescribed by a specific boundary may extend beyond the indicated boundary by virtue of appropriate physical characteristics, compatibility with adjacent land uses, and physical accessibility, including access to the site from existing roads. In such cases the physical extent of those uses would be defined by actual site constraints similar to those which would constrain uses within those boundaries.

COMMUNITY GROWTH BOUNDARY

The Community Growth Boundary defines, protects, and contains the intended extent of the "built-up" or "settled" areas of rural communities. Its purposes are to provide adequate lands to support established communities, to protect such communities from more intense forms of development, and to preserve lands outside the boundary for agriculture or other resource or open space values. Areas within this boundary characteristically consist of relatively small, dispersed residential communities and towns. In Koʻolau Loa, the Community Growth Boundary includes the built areas of Kahuku, Lāʻie, Hauʻula, Punaluʻu, Kahana, Kaʻaʻawa, and an approximate 50-acre area in north Lāʻie abutting the existing industrial area at the municipal solid waste transfer station.

At the area of Turtle Bay Resort, from west to east, the Community Growth Boundary generally follows Kamehameha Highway, encompassing the existing dwellings on the west side of Kawela Bay. Thereafter, it follows Kamehameha Highway towards the east, encompassing the Turtle Bay Resort, and then north to the shoreline. The boundary circumscribes the town of Kahuku and includes vacant areas for expansion of residential and industrial uses. On the *mauka* side of Kamehameha Highway, the boundary includes an approximate 50-acre vacant area in north Lāʻie adjacent to the existing industrial area at the municipal solid waste transfer station. Thereafter, it extends south, including the town of Lāʻie and the Brigham Young University-Hawaiʻi and vacant areas to support the expansion of Brigham Young University-Hawaiʻi and the Polynesian Cultural Center. Thereafter, the boundary heads east to the shoreline at Lāʻie Beach Park and includes the Lāʻie Town residential area *makai* of Kamehameha Highway. Thereafter, the boundary circumscribes the rural communities of Hauʻula, Punaluʻu, Kahana, and Kaʻaʻawa.

PRESERVATION

Preservation lands include those lands not valued primarily for agriculture, but which form an important part of a region's open space fabric. They possess natural, cultural, or scenic resource values, and include important wildlife habitat, cultural sites, significant landforms, views, or hazard areas. The Preservation land use designation may include golf courses and cemeteries not located within the Community Growth Boundary, provided they are predominantly free of roofed structures. Preservation lands include the following types of land:

- Land necessary for protecting watersheds, water resources and water supplies.
- Lands necessary for the conservation, preservation and enhancement of sites with scenic, historic, archaeological or ecologic significance.
- Lands necessary for providing and preserving park lands, wilderness and beach reserves, and for conserving natural ecosystems of endemic plants, fish and wildlife, for forestry, and other related activities to these uses.
- Lands having an elevation below the maximum inland line of the zone of wave action, and marine waters, fish ponds and tide pools of Oʻahu unless otherwise designated on the land use map.
- All offshore and outlying islands of Oʻahu unless otherwise classified.
- Lands with topography, soils, climate or other related environmental factors that may not be normally adaptable or presently needed for urban, rural or agricultural use.
- Lands with general slopes of 20 percent or more which provide for open space amenities and/or scenic values.
- Lands susceptible to floods and soil erosion, lands undergoing major erosion damage and requiring corrective attention by the State or Federal Government, and lands necessary to the protection of the health, safety and welfare of the public by reason of soil instability or the lands' susceptibility to landslides and/or inundation by tsunami and flooding.
- Lands used for national, state or city parks.
- Lands used for golf courses and cemeteries, provided they are not located within the Community Growth Boundary and are predominantly free of roofed structures.
- Lands suitable for growing of commercial timber, grazing, hunting, and recreation uses, including facilities accessory to such uses when said facilities are compatible with the natural physical environment.

AGRICULTURE

Lands with agricultural value by virtue of current agricultural use or high value for future agricultural use, including those areas identified as "Prime," "Unique," or "Other" Important lands on the Agricultural Lands of Importance to the State of Hawaiʻi (ALISH) maps.

Agricultural areas include lands suitable for crop growing, grazing and livestock raising, flower cultivation, nurseries, orchards, aquaculture, or similar activities.

PARKS AND GOLF COURSES

Public and private parks and recreational facilities, including beach parks, playgrounds, playfields, district parks, botanical gardens, and golf courses.

MILITARY

Lands for military and military support purposes, excluding military-owned lands that are leased or licensed to others on a full-time basis for non-military uses.

A.1 OPEN SPACE MAP

The Open Space Map is intended to illustrate the region's major open space patterns and resources as outlined in Chapter 3. It highlights major open space elements and resources, including agricultural and preservation lands, major recreational facilities, important "panoramic" views, natural stream corridors and drainage ways, and important boundaries.

Ahupuaʻa boundaries, based on the traditional *ahupuaʻa* method of land organization, have been adopted for use and displayed in the plan as a method of organizing land uses and enhancing community definition within the region.

A.2 LAND USE MAP

This map illustrates the desired long-range land use pattern for the Koʻolau Loa region. It supports the Plan's vision and policies. The map includes the following terms:

RURAL RESIDENTIAL

Single-family homes in country settings on medium-sized to large lots, on which rural development standards are employed and provisions for pedestrian circulation, landscaping, and open space are emphasized. Rural Residential also contains minor pockets of existing apartments in Punaluʻu and Turtle Bay, and some smaller-sized single-family lots and apartment lots in north Lāʻie, as well as additional apartments for faculty and student housing on the Brigham Young University-Hawaiʻi campus to support its planned expansion.

COUNTRY TOWN

A small-scale, low-rise, mixed-use center of commerce and community activity in rural character and setting in which principal establishments are oriented on the street. Land use mixtures may include retail, office, and dining establishments, compatible service businesses and light industry, and residential uses. Commercial activity is concentrated along street frontages in typically “Main Street” settings.

RURAL REGIONAL COMMERCIAL CENTER

A consolidated cluster of small-scale, low-rise retail, office, and dining establishments that serve the immediate and nearby communities. Its primary visual appearance is rural, pedestrian circulation and amenities are emphasized throughout the complex, and structures are compatible in scale and form with adjacent residential areas. While supermarkets are encouraged, “big box” retail is not.

RURAL COMMUNITY COMMERCIAL CENTER

A small cluster of small-scale, low-rise commercial and service businesses which serve primarily the immediate community. Its primary visual appearance is rural. Buildings are generally compatible in scale and form with adjacent residential areas.

RESORT

Principally full-service or specialty hotels and apartments, with accessory or supporting uses which enhance the viability of the principal use.

VISITOR FACILITIES

Entertainment-oriented visitor attractions with no overnight accommodations.

TECHNOLOGY PARK

Intended for light technology and science-oriented industries and businesses in a campus-like setting. Development intensity is low, while open space and landscaping are the predominant visual and physical elements.

INDUSTRIAL

Facilities for processing, construction, manufacturing, transportation, wholesaling, storage, or similar economic activities, and supporting facilities which directly enhance their viability.

INSTITUTIONAL

Facilities for public use or benefit, including schools, churches, hospitals, group living establishments, utilities and infrastructure production or support facilities, civic, public, and social services facilities, and government facilities.

A.3 PUBLIC FACILITIES MAP

The Public Facilities Map illustrates the major infrastructure needed to implement the vision for the Koʻolau Loa. It shows the location of existing facilities and conceptual location for some of the future required infrastructure facilities.

It is not meant to be amended between revisions of the Plan and should not be confused with the Public Infrastructure Map (PIM) used in the Capital Improvement Program budget process. Major public facilities which are to be funded through the City Capital Improvement Program budget appropriation must be shown on the PIM. The PIM is not part of the Koʻolau Loa Sustainable Communities Plan, and is adopted and amended by resolution.

Projects which are not listed in the Koʻolau Loa Sustainable Communities Plan or not shown on the Koʻolau Loa Sustainable Communities Plan maps can still be added to the PIM by Council resolution if the Council finds them to be consistent with the vision and policies of the Koʻolau Loa Sustainable Communities Plan.

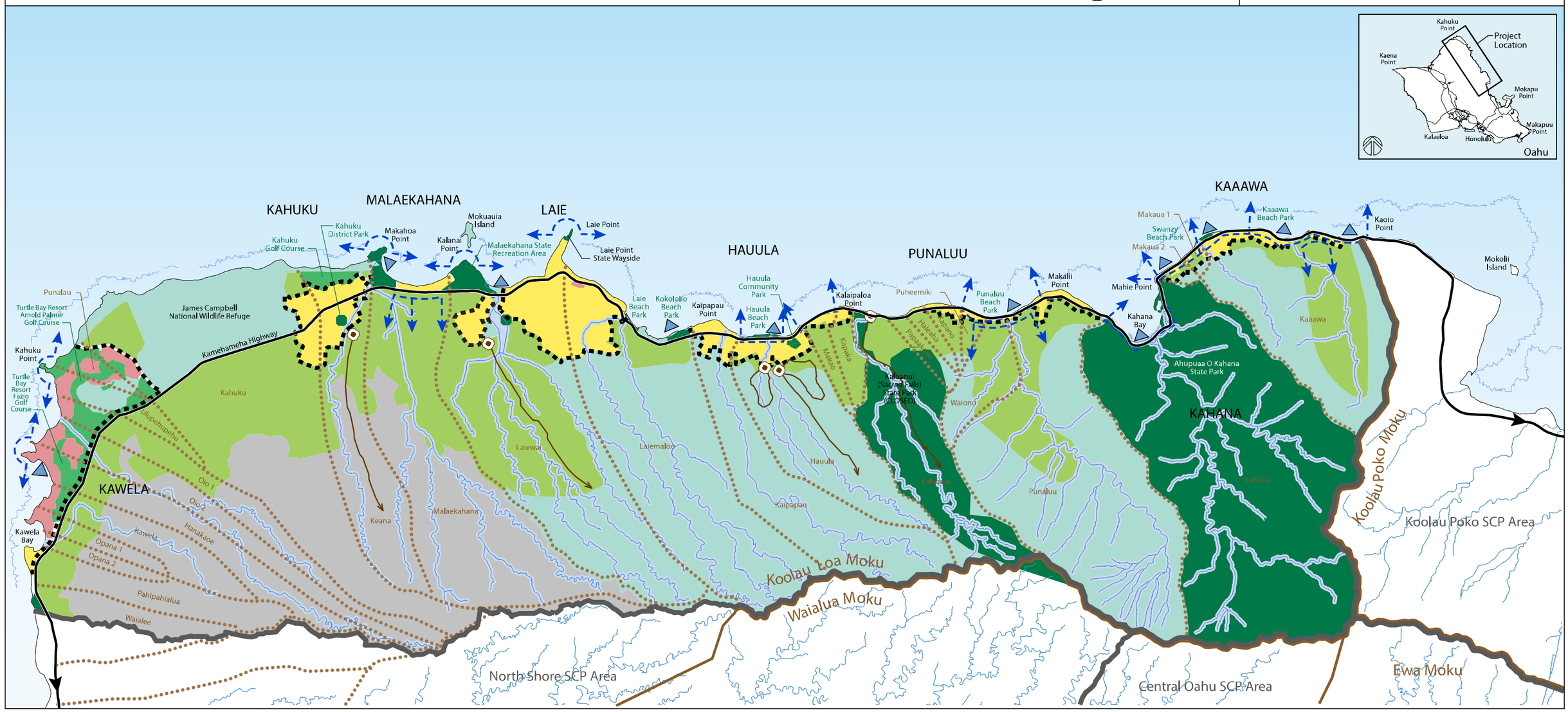
Rural Communities
Resort
Military
Agriculture
Preservation
Parks
Golf Courses
Natural Drainageways/Gulches
Panoramic Views
Mountain Access
Shoreline Access
Community Growth Boundary
SCP Boundary
Ahupuaa Boundary
Moku Boundary
Kamehameha Highway

0 1/2 1 Mile

KOOLAU LOA SUSTAINABLE COMMUNITIES PLAN

Open Space Map

Department of Planning and Permitting
City & County of Honolulu



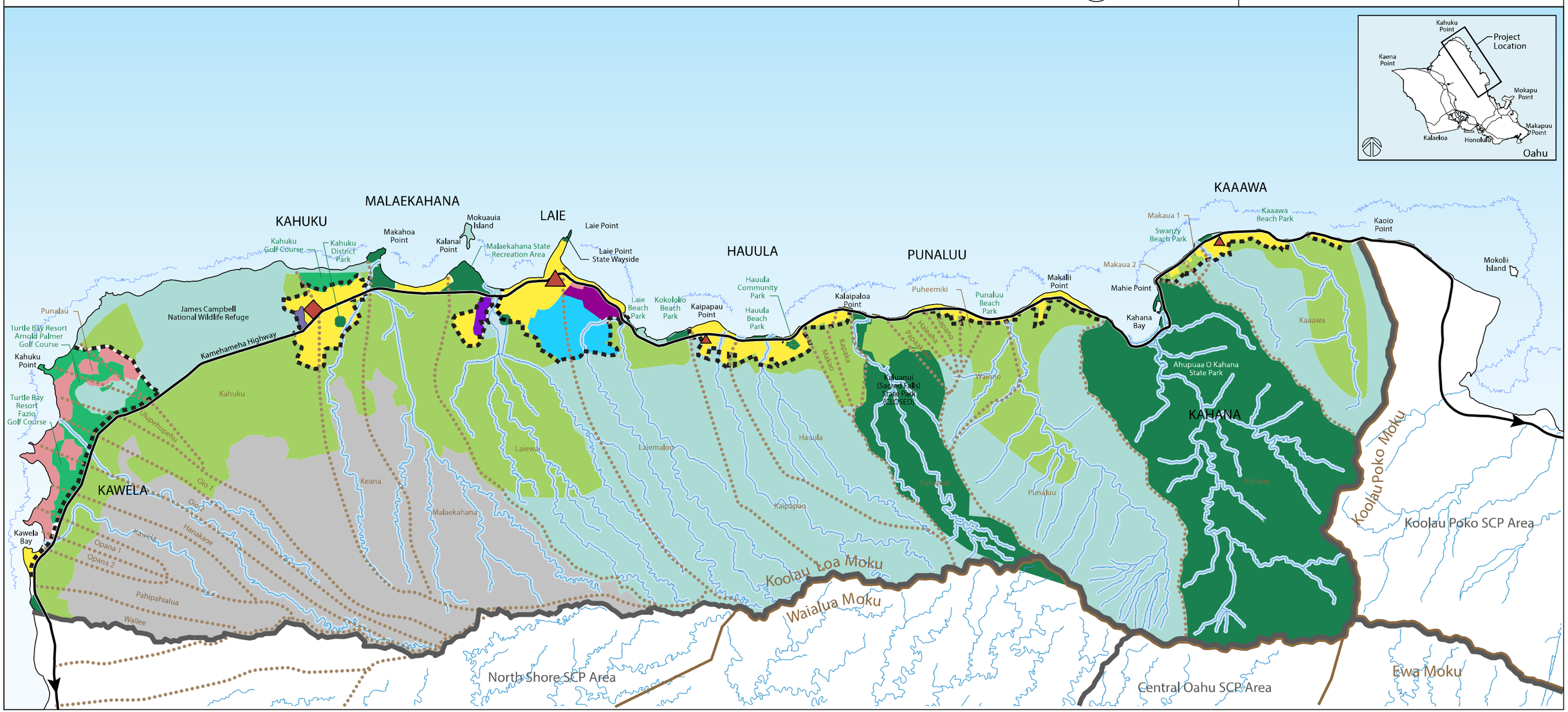
Rural Residential
Country Town
Rural Regional Commercial Center
Rural Community Commercial Center
Resort
Visitor Facilities
Industrial
Military
Institutional
Agriculture
Preservation
Parks
Golf Courses
Community Growth Boundary
SCP Boundary
Ahupuaa Boundary
Moku Boundary
Kamehameha Highway

0 1/2 1 Mile

KOOLAU LOA SUSTAINABLE COMMUNITIES PLAN

Land Use Map

Department of Planning and Permitting
City & County of Honolulu



Rural Communities
Resort
Military
Agriculture
Preservation

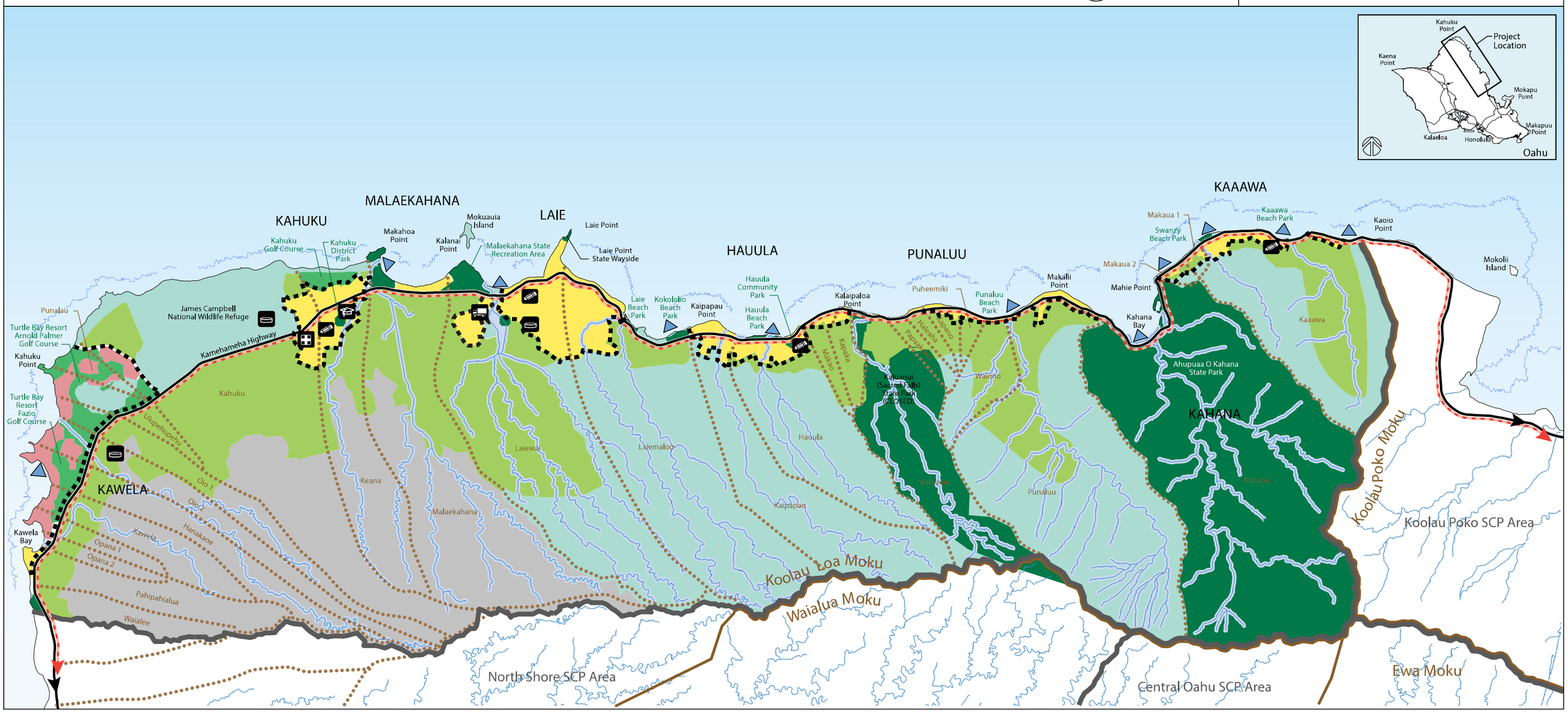
Parks
Golf Courses
Bike Route (Future)
Shoreline Access

Wastewater Treatment Plant
Elementary School (State)
Intermediate/High School (State)
Corporation Yard
Hospital

Community Growth Boundary
SCP Boundary
Ahupuaa Boundary
Moku Boundary
Kamehameha Highway

0 1/2 1 Mile

KOOLAU LOA SUSTAINABLE COMMUNITIES PLAN

Public Facilities Map

Department of Planning and Permitting
City & County of Honolulu