



# KO'OLAU POKO

## SUSTAINABLE COMMUNITIES PLAN



City and County of Honolulu • Department of Planning and Permitting | August 2017



**CITY COUNCIL**  
CITY AND COUNTY OF HONOLULU  
HONOLULU, HAWAII

17-42  
ORDINANCE \_\_\_\_\_  
BILL 57 (2016), CD2, FD1

**A BILL FOR AN ORDINANCE**

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TO ADOPT THE REVISED KOOLAU POKO SUSTAINABLE COMMUNITIES PLAN  
FOR THE CITY AND COUNTY OF HONOLULU.

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 Poko, Article 6, Chapter 24, Revised Ordinances of Honolulu 1990, and to adopt a new Article 6 incorporating the revised Koolau Poko Sustainable Communities Plan.

This development plan ordinance adopts a revised sustainable communities plan for Koolau Poko that presents a vision for Koolau Poko'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 Article 6 of Chapter 24, Revised Ordinances of Honolulu 1990 ("Koolau Poko"), is repealed.

SECTION 3. Chapter 24, Revised Ordinances of Honolulu 1990, is amended by adding a new Article 6 to read as follows:

**"Article 6. Koolau Poko**

**Sec. 24-6.1 Definitions.**

Unless the context otherwise requires, the definitions contained in this section will govern the construction of this article.

"Charter" or "Revised Charter" means the Revised Charter of the City and County of Honolulu.

"City" means the City and County of Honolulu.

"City Council" or "Council" means the council of the City and County of Honolulu.

"County" means the City and County of Honolulu.



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"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 that consists of conceptual schemes for implementing and accomplishing the development objectives and policies of the general plan for the several parts of the City and County of Honolulu.

"Director" means the director 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 environmental council's procedural rules and regulations implementing Hawaii Revised Statutes 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 Poko Sustainable Communities Plan.

"General plan" means the general plan of the City and County of Honolulu as defined by Section 6-1508 of the Charter.

"Hawaii Revised Statutes" or "HRS" means the Hawaii Revised Statutes.

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



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"Planning commission" means the planning commission of the City and County of Honolulu.

"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 Poko, 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 five 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 Poko SCP area that requires more detailed planning efforts beyond what is contained in the Koolau Poko 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 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 Poko region extending out to the year 2035 and beyond that seek to adapt the concept of ahupuaa in land use management; preserve the region's scenic, recreational, and cultural features; protect and enhance residential character, and existing commercial and civic districts; and retain the community growth boundary to protect agricultural, open space, and natural resources.



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**Sec. 24-6.2 Applicability and intent.**

- (a) The Koolau Poko SCP area encompasses the windward coastal and valley areas of Oahu from Makapuu Point to Kaoio Point at the northern end of Kaneohe Bay, and is bound by the Koolau mountain range and the sea. It includes the rural communities of Waiahole, Waikane, Kahaluu, Heeia, and Waimanalo and the urban fringe communities of Ahuimanu, Kaneohe, and Kailua.
- (b) The Koolau Poko SCP is intended to provide a guide for orderly and coordinated public and private sector development in a manner that is consistent with applicable general plan provisions, recognizing the region's urban fringe and rural areas as areas where growth will be managed to prevent an undesirable spreading of development.
- (c) The provisions of this article and the Koolau Poko 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 Poko. This article will guide public investment in infrastructure, zoning and other regulatory procedures, and the preparation of the City's annual capital improvement program budget.

**Sec. 24-6.3 Adoption of the Koolau Poko Sustainable Communities Plan.**

- (a) This article is adopted pursuant to the Revised Charter Section 6-1509 and provides a self-contained development plan document for Koolau Poko. Upon enactment of this article, all proposed developments will be evaluated against how well they fulfill the vision for Koolau Poko enunciated in the Koolau Poko SCP and how closely they meet the policies and guidelines selected to implement that vision.
- (b) The plan entitled, "Koolau Poko 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 Poko SCP area. This article and the Koolau Poko SCP, as adopted by reference by this ordinance, supersede any and all common provisions previously applicable to the Koolau Poko SCP area.



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**Sec. 24-6.4 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 enactment of this ordinance.
- (b) Subdivision and zoning ordinances applicable to the Koolau Poko SCP area enacted prior to the effective date of this ordinance continue to regulate the use of land within demarcated zones of the Koolau Poko SCP area until such time as the subdivision and zoning ordinances may be amended to be consistent with the Koolau Poko SCP.
- (c) Notwithstanding adoption of the revised Koolau Poko 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. 24-6.5 Consistency.**

- (a) The performance of prescribed powers, duties and functions by all city agencies shall conform to and implement the policies and provisions of this article and the Koolau Poko SCP. Pursuant to Revised Charter Section 6-1511.3, public improvement projects and subdivision and zoning ordinances must be consistent with the Koolau Poko SCP, as adopted.
- (b) The council shall ultimately resolve any questions of interpretation regarding the consistency of a proposed development with the provisions of the Koolau Poko SCP and the objectives and policies of the general plan.
- (c) In determining whether a proposed development is consistent with the Koolau Poko 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 Poko SCP.
- (d) Whenever there is a question regarding consistency between existing subdivision or zoning ordinances, including any unilateral agreement, and the Koolau Poko SCP, the existing subdivision or zoning ordinances will prevail until such time as they may be amended to be consistent with the Koolau Poko SCP.



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**Sec. 24-6.6 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 Poko 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 Poko 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 Poko SCP.

**Sec. 24-6.7 Zone change applications.**

- (a) All zone change applications relating to land in the Koolau Poko SCP area will be reviewed by the department of planning and permitting for consistency with the general plan, the Koolau Poko 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 will become part of the zone change report that 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 Poko 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 will 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 will not be required for the development.
- (b) Projects that involve a significant zone change will be required to submit an EA 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), ROH Chapter 25, or the provisions of this article, and for which a FONSI has been filed or a required



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EIS has been accepted, will not be subject to further EA or EIS requirements under this chapter unless otherwise required by NEPA or HEPA.

- (c) The department shall review the EA. 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 must be processed in accordance with this section, Section 5.6 of the Koolau Poko SCP, and Chapter 21.

**Sec. 24-6.8 Annual capital improvement program review.**

Annually, the director shall work jointly with the director of the department of budget and fiscal services and the 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 Poko SCP and other development plans, any applicable special area plan provisions, and the appropriate functional plans. The director of planning and permitting shall prepare a written report of findings to be submitted to the council in accordance with Revised Charter Section 6-1503.

**Sec. 24-6.9 Five- year review.**

- (a) The department of planning and permitting shall conduct a comprehensive review of the Koolau Poko SCP, adopted by reference in Section 24-6.3(b), every five years subsequent to the plan's adoption and shall report its findings and recommended revisions to the council.
- (b) The Koolau Poko 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 prohibits the processing of a revision to the Koolau Poko SCP in the event either the biennial report of the director of planning and permitting or council recommends consideration of such a revision, pursuant to the Revised Charter.



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**Sec. 24-6.10 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 Poko SCP pursuant to the Revised Charter and the above procedures.

**Sec. 24-6.11 Severability.**

If any provision of this article or the application thereof to any person or property or circumstances is held invalid, such invalidity will not affect 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. 24-6.12 Conflicting provisions.**

Any provision contained in this article will prevail should there be any conflict with the common provisions or any other provisions under Chapter 24."

**SECTION 4. Insertion of Effective Date.** The Revisor of Ordinances is hereby directed to date the Koolau Poko Sustainable Communities Plan with the effective date of this ordinance.



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SECTION 5. This ordinance takes effect upon its approval.

INTRODUCED BY:

Ernest Martin (br)

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DATE OF INTRODUCTION:

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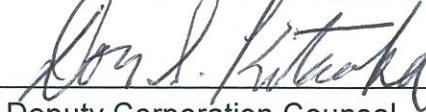
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September 15, 2016

Honolulu, Hawaii

Councilmembers

APPROVED AS TO FORM AND LEGALITY:

  
Deputy Corporation Counsel

DON S. KITAOKA

APPROVED this 24<sup>th</sup> day of August, 2017.



KIRK W. CALDWELL, Mayor  
City and County of Honolulu

CITY COUNCIL  
CITY AND COUNTY OF HONOLULU  
HONOLULU, HAWAII  
CERTIFICATE

ORDINANCE 17 - 42

BILL 57 (2016), CD2, FD1

Introduced: 09/15/16 By: ERNEST MARTIN – BY REQUEST

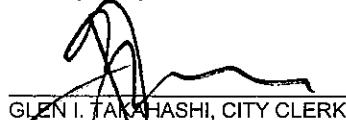
Committee: TRANSPORTATION AND PLANNING

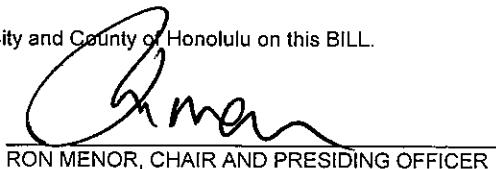
Title: A BILL FOR AN ORDINANCE TO ADOPT THE REVISED KOOLAU POKO SUSTAINABLE COMMUNITIES PLAN FOR THE CITY AND COUNTY OF HONOLULU.

Voting Legend: \* = Aye w/Reservations

10/05/16	COUNCIL	BILL PASSED FIRST READING AND REFERRED TO COMMITTEE ON ZONING AND PLANNING.  8 AYES: ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MARTIN, MENOR, OZAWA, PINE. 1 ABSTAIN: ANDERSON.
01/04/17		CC-7(17) MENOR - BILL RE-REFERRED FROM COMMITTEE ON ZONING AND PLANNING TO COMMITTEE ON TRANSPORTATION AND PLANNING.
02/01/17	TRANSPORTATION AND PLANNING	CR-46(17) – BILL REPORTED OUT OF COMMITTEE FOR PASSAGE ON SECOND READING AND SCHEDULING OF A PUBLIC HEARING AS AMENDED IN CD1 FORM.
02/11/17	PUBLISH	PUBLIC HEARING NOTICE PUBLISHED IN THE HONOLULU STAR-ADVERTISER.
02/22/17	COUNCIL/PUBLIC HEARING	CR-46(17) ADOPTED. BILL PASSED SECOND READING AS AMENDED, PUBLIC HEARING CLOSED AND REFERRED TO COMMITTEE ON TRANSPORTATION AND PLANNING.  8 AYES: ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MARTIN, MENOR, OZAWA, PINE. 1 ABSTAIN: ANDERSON.
03/01/17	PUBLISH	SECOND READING NOTICE PUBLISHED IN THE HONOLULU STAR-ADVERTISER.
07/29/17	PUBLISH	PUBLIC HEARING NOTICE PUBLISHED IN THE HONOLULU STAR-ADVERTISER.
08/01/17	TRANSPORTATION AND PLANNING	CR-301(17) – BILL REPORTED OUT OF COMMITTEE FOR PASSAGE ON THIRD READING AS AMENDED IN CD2 FORM.
08/09/17	COUNCIL	BILL AND FINDINGS OF FACT AMENDED TO HAND-CARRIED FD1 (OCS2017-0826/8/8/2017 3:32 PM).  8 AYES: ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MARTIN, MENOR, OZAWA, PINE. 1 ABSTAIN: ANDERSON.  CR-301(17) ADOPTED, BILL 57 (2016), CD2, FD1 PASSED THIRD READING AND FINDINGS OF FACT ADOPTED.  8 AYES: ELEFANTE, FUKUNAGA, KOBAYASHI, MANAHAN, MARTIN, MENOR, OZAWA, PINE. 1 ABSENT: ANDERSON.

I hereby certify that the above is a true record of action by the Council of the City and County of Honolulu on this BILL.

  
GLEN I. TAKAHASHI, CITY CLERK

  
RON MENOR, CHAIR AND PRESIDING OFFICER

17-42

## EXHIBIT A

17-42



# KO'OLAU POKO SUSTAINABLE COMMUNITIES PLAN



City and County of Honolulu • Department of Planning and Permitting | August 2017

Prepared by:  
PlanPacific and Department of Planning and Permitting

AUTHOR	Department of Planning and Permitting
TITLE	Ko'olau Poko Sustainable Communities Plan
PUBLISHER	City and County of Honolulu
DESCRIPT	160 pages
CONTENTS	This is the revised and updated version of the existing Ko'olau Poko Sustainable Communities Plan, in effect since August 2000, which it replaces. This revised Ko'olau Poko Sustainable Communities Plan, adopted on August 24, 2017 by Ordinance No. 17-42, is the results of a community-based comprehensive review program, is intended to guide public policy, land use decision-making, and infrastructure investment for the region through the 2035 planning horizon. It continues the vision to protect community resources, residential character, and the adoption of public improvement programs and development regulations that reflect a stable population.
NOTES	Prepared by PlanPacific and the Department of Planning and Permitting, this document is available online at <a href="http://www.honoluludpp.org/Planning.aspx">http://www.honoluludpp.org/Planning.aspx</a> or on compact disc from the Department of Planning and Permitting upon request.
KEYWORDS	Land use + Community development + Public infrastructure + Regional planning + Ko'olau Poko (O'ahu) + Honolulu Department of Planning and Permitting

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## **LIST OF ACRONYMS**

ADA	Americans with Disabilities Act
ALISH	Agricultural Lands of Importance to the State of Hawai'i
AFS	Air Force Station
BFS	Department of Budget and Fiscal Services
BLDG	Building Code and/or Fire Code
BLNR	State Board of Land and Natural Resources
BMPs	Best Management Practices
BPNAS	Barbers Point Naval Air Station
BWS	Board of Water Supply
CBO	Community-Based Organization (non-profits serving various purposes)
CGB	Community Growth Boundary
CIP	Capital Improvement Program
CWRM	Commission on Water Resource Management
CZM	Coastal Zone Management
DAGS	State Department of Accounting and General Services
DBEDT	State Department of Business, Economic Development and Tourism
DCS	Department of Customer Services
DDC	Department of Design and Construction
DEM	Department of Emergency Management

DES	Department of Emergency Services
DFM	Department of Facility Maintenance
DHHL	State Department of Hawaiian Home Lands
DLNR	State Department of Land and Natural Resources
DOA	State Department of Agriculture
DOE	State Department of Education
DOH	State Department of Health
DOT	State Department of Transportation
DPP	Department of Planning and Permitting
DPR	Department of Parks and Recreation
DTS	Department of Transportation Services
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENT	Department of Enterprise Services
ENV	Department of Environmental Services
FCC	Federal Communications Commission
FED	Federal Government Agency (other than military)
HFD	Honolulu Fire Department
HPD	Honolulu Police Department
HPHA	Hawai‘i Public Housing Authority
HRS	Hawai‘i Revised Statutes
IAL	Important Agricultural Lands
INF	Infrastructure System Plan (e.g., for regional wastewater, water, transportation systems)
KPWMP	Ko‘olau Poko Watershed Management Plan
LUC	State Land Use Commission
LUO	Land Use Ordinance
mgd	million gallons per day
MCB Hawai‘i	Marine Corps Base Hawai‘i
MCTAB	Marine Corps Training Area Bellows
MIL	Branch of the U.S. Military
OED	City Office of Economic Development
OMPO	O‘ahu Metropolitan Planning Organization
OPS	Operations
PHS	Public Health Standards (e.g., for noise, sanitation, occupational safety)
PRIV	Private Landowner or Developer
PUC	Public Utilities Commission
RF	radio frequency
SAP	Special Area Plan (e.g., for local towns, circulation, parks, beach management)
SCPA	Sustainable Communities Plan Area
SHPD	State Historic Preservation Division
SR&R	Subdivision Rules and Regulations (including street standards and planned widenings)

SWM	Stormwater Management Standards
TAX	Tax-Related Legislation, Rules or Practices
TBD	To Be Determined
TDM	Transportation Demand Management
UH	University of Hawai‘i
USFWS	U.S. Fish and Wildlife Service
UTIL	Utility Company (i.e., Hawaiian Electric, Hawaiian Telephone, Oceanic Cable, other communications providers)
WCDP	Windward Capital District Plan
WWPS	wastewater pump station
WWTP	wastewater treatment plant
WWTPF	wastewater preliminary treatment facility

## PREFACE

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The Ko'olau Poko 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 through the 2035 planning horizon. Each of these eight plans addresses one of eight geographic planning regions on O'ahu, responding to the specific conditions and community values of each region.

Two of the eight planning regions, 'Ewa and the Primary Urban Center, are the areas to which major growth in population and economic activity will be directed over the next 20 years and beyond. The plans for these regions continue to be titled "Development Plans" and will serve as the policy guides for the development decisions and actions required to support that growth.

The remaining six planning regions, including Ko'olau Poko, are envisioned to remain relatively stable. The plans for those regions have been titled "Sustainable Communities Plans" and are focused on serving as policy guides for public actions in support of that goal. The vision statement and supporting provisions of the Ko'olau Poko Sustainable Communities Plan are oriented toward maintaining and enhancing the region's ability to sustain its unique character and lifestyle.

### **P.1 THE SUSTAINABLE COMMUNITIES PLAN PROCESS**

This document is the culmination of a planning effort led 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 various community members and organizations, three community-wide meetings, four focus group meetings, and interested government agencies.

### **P.2 THE 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, providing a broad statement of objectives and policies to guide the City's future. 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 Development Plans, which are adopted and revised by ordinance and are required to implement objectives and policies set forth in the General Plan. These plans address eight geographic regions of the island: the Primary Urban Center, East Honolulu, Central O'ahu, 'Ewa, Wai'anae, North Shore, Ko'olau Loa and Ko'olau Poko. The Ko'olau Poko Development Plan was first adopted in 1983. The Development Plans for East Honolulu, Central O'ahu, Wai'anae, North Shore, Ko'olau Loa, and Ko'olau Poko are now referred to as Sustainable Communities Plans.

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 principle means for implementing the City's plans. These ordinances are required to be consistent with, and carry out the purposes of, the General Plan, the Development Plans (or Sustainable Communities Plans), and each other.

In addition to these three Charter-mandated tiers, the Development 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 the water system, 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 PLANS AND SUSTAINABLE COMMUNITIES PLANS**

The authority for the Development Plans and Sustainable Communities Plans (hereinafter 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.

The 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 and require implementing ordinances (the "third tier" discussed in Section P.2 above), they guide the regulators and decision-makers who are the implementers. 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 decisions made by the private sector. Consistent with the Charter's description of the Development Plans

as “conceptual schemes” and “a policy guide,” the language, maps, and illustrations of the Development Plans should not be deemed to be regulatory.

#### **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.

#### **P.5 SUSTAINABILITY**

There has been a recent surge in wide-spread community discussions, actions and laws to address sustainability. In 2005, the State Legislature convened a state-wide group to draft a Hawai‘i 2050 Plan, whose primary purpose is to provide policy recommendations for creating a sustainable Hawai‘i. In 2007, greenhouse gas emissions goals for 2020 were enacted. 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 current Development Plans and Sustainable Communities Plans were first 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 below, the General Plan sets long term goals for the City and County of Honolulu, across 11 major elements. Perhaps its most substantive chapter deals with population, and hence land development. It sets the growth management strategy for O'ahu. 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 O'ahu.

## **P.6 INTEGRATING PRINCIPLES OF SUSTAINABILITY INTO DECISION-MAKING PROCESSES**

A community that can successfully manage change will flourish and prosper in the future. For this Plan, this means ensuring that planned growth and development respects and adheres to the principles of sustainability.

The following principles of sustainability are intended to promote the long-term health of O'ahu, its people, and its community resources for current and future generations:

- Protect agricultural lands, physical and biological resources, and where appropriate, open spaces and view planes.
- Use resources so they are not depleted, permanently damaged or destroyed.
- Require planning, development, and construction technologies that minimize negative environmental impacts.
- Respect the cultural, social and physical resources that shape and reinforce residents' sense of community and quality of life.
- Guide the process of change. Strive to make decisions based on an understanding of the effects such decision will have on the land and community resources.
- Strive for balance between economic prosperity, social and community well-being, and environmental stewardship.

- As an integral part of the planning process, consider the long-term impact of proposed actions and prepare plans that can accommodate the needs of future generations accordingly.

## **EXECUTIVE SUMMARY**

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

- Chapter 1: Ko'olau Poko's Role in O'ahu's Development Pattern defines the region's role and identity within the overall framework of islandwide planning and land use management.
- Chapter 2: The Vision For Ko'olau Poko's Future describes the vision for the future of the region and lists important elements of that vision.
- Chapter 3: Land Use Policies and Guidelines presents the Plan's policies, and provides policy guidance for the region's various land use elements.
- Chapter 4: Public Facilities and Infrastructure Policies presents policies and actions needed 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 POKO'S ROLE IN O'AHU'S DEVELOPMENT PATTERN**

In carrying out the purposes of the General Plan, Ko'olau Poko is expected to experience essentially no growth over the 25 year projection horizon of this Plan. Policies in support of this goal limit the potential for expansion of the region's housing stock, commercial centers and economic activity, and are focused on maintaining the patterns of development characteristics of its urban fringe and rural areas.

### **E.2 CHAPTER 2: THE VISION FOR KO'OLAU POKO'S FUTURE**

This vision is shaped around two principal concepts. The first of these calls for protection of the communities' natural, scenic, cultural, historic and agricultural resources. The second principal concept addresses the need to improve and replace, as necessary, the region's aging infrastructure systems

### **E.3 CHAPTER 3: LAND USE POLICIES AND GUIDELINES**

This chapter presents policies and guidelines for the principal types of land uses in Ko'olau Poko. The vision for Ko'olau Poko's future described in Chapter 2 is to be implemented through the application of these policies and guidelines. Policies related to each land use type are:

#### E.3.1 OPEN SPACE PRESERVATION:

- Protect scenic views, provide recreation and promote access to shoreline and mountain areas.
- Define the boundaries of communities and provide buffers between agricultural uses, residential neighborhoods and other uses.
- Create a system of linear greenways along roadways and drainage ways.

#### E.3.2 PARKS AND RECREATION:

- Employ appropriate screening and siting.
- Ensure environmental compatibility in the design and construction of park facilities.
- Integrate recreational opportunities with the characteristics of the surrounding community.
- Establish the Kāne'ohe area as the top priority for creating new shoreline access and/or beach parks in Ko'olau Poko.
- Take steps to make future beach accretion public land in perpetuity.
- Increase the inventory of community-based parks to provide appropriately located sports and recreation facilities.
- Provide for more intensive use of some existing facilities serving areas in which expansion of site area is constrained.
- Require developers of new residential projects to provide land for open space and recreation purposes, rather than paying the park dedication fee.
- Pursue installation of greenways along streams and drainage channels where feasible.

#### E.3.3 HISTORIC AND CULTURAL RESOURCES:

- Emphasize physical references to Ko'olau Poko's history and cultural roots.
- Protect existing visual landmarks and support creation of new, culturally appropriate landmarks.
- Preserve significant historic features.
- Retain significant vistas associated with archaeological features.

#### E.3.4 AGRICULTURE:

- Encourage small-lot agricultural uses and prevent conversion of agricultural lands to non-agricultural uses.

- Adopt development and public works standards that are appropriate and cost-effective for rural, agricultural areas.
- Provide supporting infrastructure, services and facilities to foster and sustain agricultural operations.
- Implement policies and incentives to promote active, long-term agricultural uses.

**E.3.5 RESIDENTIAL USES:**

- Modify residential street design to provide emphasis on safe, accessible, convenient and comfortable pedestrian routes, bus stops and bike routes.
- Maintain the predominantly low-rise, low-density, single-family character of the region.
- Protect the integrity of existing residential neighborhoods.
- Establish average density guidelines of 2-6 units maximum per acre in urban fringe areas and 0.2 – 4 units per acre in rural areas.

**E.3.6 COMMERCIAL AND INDUSTRIAL USES:**

- Identify and define commercial and industrial uses in various categories appropriate to the character and needs of Ko'olau Poko's communities, including: rural commercial centers; suburban commercial centers; community commercial centers; regional town centers; and areas supporting light and extractive industries.
- Limit the area devoted to commercial and industrial centers to current sites.
- Expand the use of mixed-use commercial-residential designations, and apply mixed-use industrial-commercial designations to existing industrial sites in Kailua and Kāne'ohe.

**E.3.7 INSTITUTIONAL USES:**

- Retain the open space character of existing institutional campuses.
- Site and design campus facilities to respect the scenic context and adjacent residential areas.

**E.3.8 MILITARY USES:**

- Assume Marine Corps Base Hawai'i (MCB Hawai'i) and Bellows Air Force Station (AFS) will remain under military control.
- Encourage the State to continue to pursue the release of unused military lands for civilian uses, with special attention to securing permanent civilian

use of all Bellows shorefront areas and provision of greater civilian shoreline access at MCB Hawai‘i.

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

This chapter presents policies and guidelines for the major concerns related to public facilities and infrastructure in Ko‘olau Poko. Policies related to each facility type are summarized below:

##### **E.4.1 TRANSPORTATION SYSTEMS:**

- Reduce reliance on the private passenger vehicle by promoting transportation system management and travel demand management measures for both commuting and local trips.
- Provide adequate and improved mobility between communities, shopping, and recreation centers by enhancing all forms of travel including pedestrian, bicycle, transit, and personal mobility vehicle.
- Maintain adequate capacities for peak-period commuting to and from the Primary Urban Center.

##### **E.4.2 WATER SYSTEMS:**

- Integrate management of all potable and non-potable water sources, including groundwater, stream water, storm water, and effluent, following State and City legislative mandates.
- To protect watersheds, retain existing acreage that is designated Preservation in that land use designation.
- Design and locate new water supply facilities to be compatible with the scenic environment.
- Adopt and implement water conservation practices in the design of new developments and the modification of existing uses, including landscaped areas and as a major element in integrated water resource planning.
- Encourage all new development to install and use dual water systems.

##### **E.4.3 WASTEWATER MANAGEMENT:**

- Direct all wastewater produced within the Community Growth Boundary area to sewer service systems to protect the environment.
- Treat and recycle, where feasible, wastewater effluent as a water conservation measure.
- Delay further sewer connections in Kailua, Kāne‘ohe and Kahalu‘u, except for areas with existing cesspools or septic tanks that need to be sewered for

public health reasons, until flow equalization/wet weather surge protection has been provided for the Kailua Regional WWTP, as described in the Kaneohe/Kailua Wastewater Conveyance and Treatment Facilities Final Environmental Impact Statement (May 2011).

- Mitigate visual, noise, and odor impacts associated with wastewater collection and treatment systems, especially when they are located adjacent to residential designated areas.

#### E.4.4 ELECTRICAL AND COMMUNICATIONS SYSTEMS:

- Design system elements and incrementally replace facilities such as substations, transmission lines and towers to avoid or mitigate any potential adverse impacts on scenic and natural resource values and residential neighborhoods, and to enhance system reliability.
- Place new utility lines underground and develop a long-range program for systematically relocating existing overhead lines underground.
- 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 (i.e. towers disguised as trees) especially on free-standing antennas towers in order to blend in with the surrounding environment and minimize visual impacts

#### E.4.5 SOLID WASTE HANDLING AND DISPOSAL:

- Continue efforts to establish more efficient waste diversion and collection.
- Promote waste reduction, re-use and recycling.
- Analyze and approve siting and/or expansion of sanitary landfills based on island-wide studies and siting evaluations.

#### E.4.6 DRAINAGE SYSTEMS:

- Promote drainage system design that emphasizes control and minimization of polluted run-off and the retention of storm water on-site and in wetlands.
- Develop a comprehensive study of local flooding and drainage problems, including a phased plan for improvements.

- Design and construct modifications needed for flood protection in a manner that maintains habitat and aesthetic values, and avoids and/or mitigates degradation of stream, coastline and nearshore water quality.
- Integrate planned drainageway improvements into the regional open space network by providing access for pedestrians and bicyclists where feasible.
- View storm water as a potential source of water for recharge of the aquifer that should be retained for absorption rather than quickly moved to coastal waters.
- Select natural and man-made vegetated drainageways and retention basins as the preferred solution to drainage problems wherever they can promote water recharge, help control non-point source pollution, and provide passive recreation benefits.
- Keep drainageways clear of debris to avoid flooding problems.

#### **E.4.7 SCHOOL AND LIBRARY FACILITIES:**

- Approve new residential developments only after the State Department of Education certifies that adequate school facilities will be available when the development is completed.
- Have developers pay their fair share of costs needed to ensure provision of adequate school facilities.
- Consider schools as community resources for learning about specialized environmental, cultural and historic subjects related to Ko'olau Poko.

#### **E.4.8 CIVIC AND PUBLIC SAFETY FACILITIES AND COMMUNITY RESILIENCE:**

- Provide adequate staffing and facilities to ensure effective and efficient delivery of basic governmental services and protection of public safety.
- Locate civic facilities in or adjacent to the Regional Town Centers of Kāne'ohe and/or Kailua.
- Encourage the development of more emergency shelters.
- Encourage disaster resilient communities

### **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 5.8 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 plans and/or codes, and public and private entities responsible for implementation.

## **E.6 APPENDIX A**

This appendix includes three maps used to graphically depict components of the plan for the future of Ko'olau Poko. The maps include: Map A-1: Open Space; Map A-2: Land Use; Map A-3: Public Facilities. These maps show the long-range vision of the future of the plan area and the major land use, open space, and public facilities policies that are articulated in the plan. In examining these maps the reader should keep in mind that: 1) The maps are intended to supplement the textual descriptions herein; and 2) The maps are intended to be illustrative of the plan's policy statements. The maps are intended to complement the text. Both the text and the maps are to be considered in interpreting this plan.

## **1. KO'OLAU POKO'S ROLE IN O'AHU'S DEVELOPMENT PATTERN**

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The Ko'olau Poko region spans from Ka Lae O Ka 'Ō'io (Ka 'ō'io Point) in the north to Makapu'u Point in the south and is further defined by the peaks of the Ko'olau Range and the shoreline. The Ko'olau Poko Sustainable Communities Plan Area (SCPA) includes the rural communities of Waikāne, Waiāhole, Kahalu'u, He'eia, and Waimānalo. It also includes the more populated suburban communities of Kāne'ohe and Kailua.

The region also includes Kāne'ohe Bay, a unique open space resource known for its beauty, rich cultural heritage, and recreational value. It is the largest sheltered body of water in the main Hawaiian Islands. This reef-embayment dominates the majority of Ko'olau Poko's northeastern coastal areas and is a significant scenic and recreational feature along the coast. Kāneohe Bay and its stream tributaries is an important ecosystem due to its combination of multiple stream estuaries influenced by runoff from the watershed, the offshore barrier reef and open ocean waters beyond. Beginning in the early 1900's, stream waters entering Kāne'ohe Bay was diverted to Central O'ahu and the 'Ewa Plains by the construction of the Waiāhole Ditch. The diversion negatively affected diverted stream habitats and the nearshore estuarine waters and associated fisheries of Kāne'ohe Bay. Challenges to the CWRM decision resulted in the Supreme and Appellate courts increasing the flow to 14.43 mgd back to windward streams including 2.43 mgd of unpermitted water which could be used off-stream if the need arises.

The central portion of the bay accommodates many recreational activities due to the ease of access from He'eia Kea Harbor, the only major public boat ramp and harbor. The central barrier reef and sand flat is popular among locals and visitors and is heavily used by many commercial and recreational boaters during weekends and holidays. Two navigable channels cut across the northern and southern ends of the barrier reef. The northeastern portion is the most rural in both land and water. Activities in this portion of the bay are more reserved and quieter. The south and southeastern portions of the bay are bordered by urban uses and military uses of the Marine Corps. Several commercial fishponds provide seafood products and a source for cultural education.

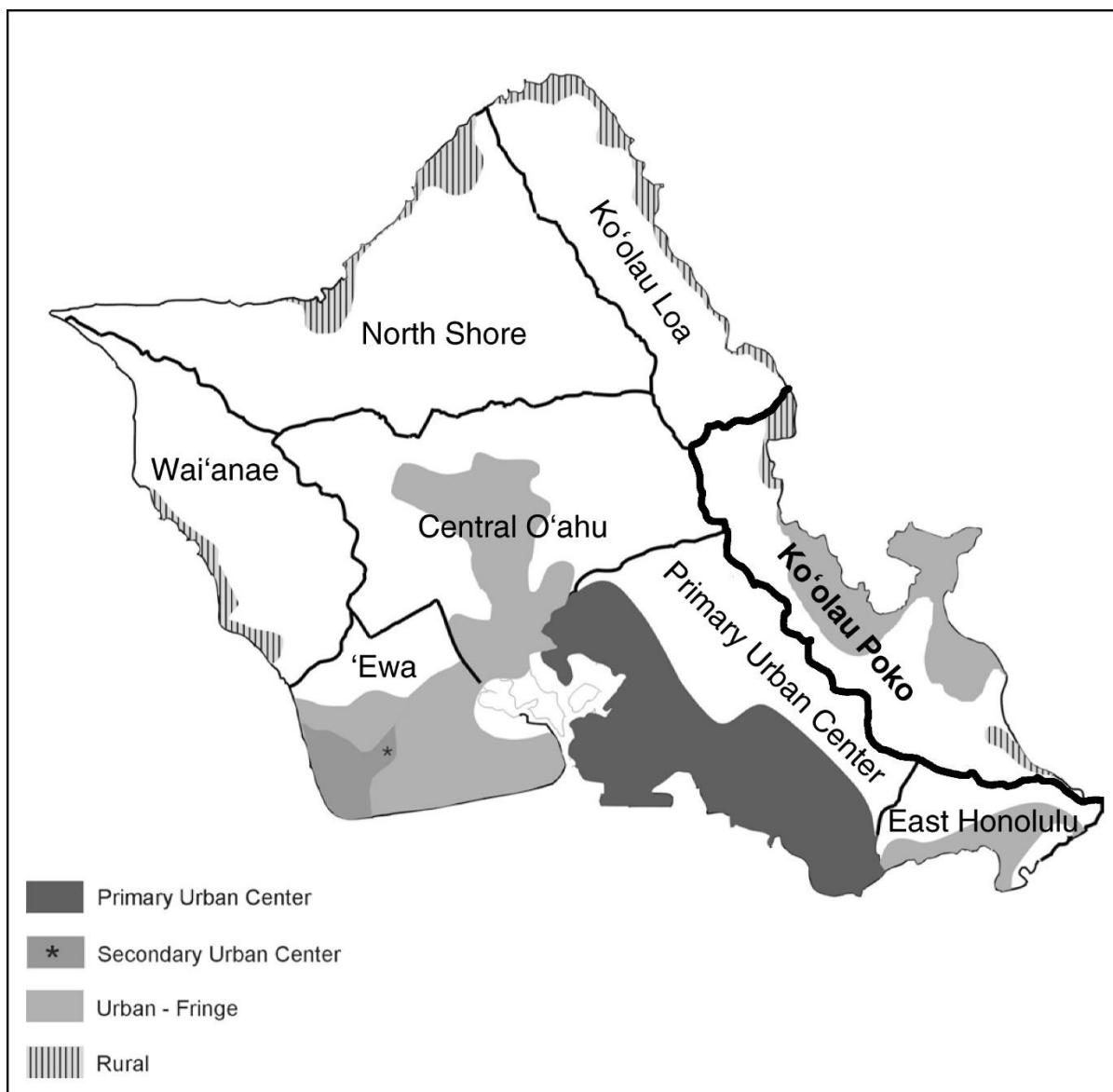
The General Plan of the City and County of Honolulu designates the central portion of the SCPA, shown in Exhibit 1.1, as an urban fringe area to remain a predominantly residential suburb with limited future population growth. The northern and southern portions of Ko'olau Poko are designated rural areas to remain in predominately agricultural and preservation land uses.

The present land use pattern in Ko'olau Poko began to take shape in the 1940's during World War II. There was rapid growth in suburban development in the following three decades, due largely to the opening of trans-Ko'olau highways which made the region more accessible to Honolulu. In the 1960's, Kāne'ohe was the proposed site of a deep-draft harbor and major new power generating plant, which would have spurred an even faster pace of regional urban development. By the mid-1970's, however, environmental concerns, focused especially on the quality of Kāne'ohe Bay, led to the abandonment of these proposals and a shift in public policy, as expressed in the 1977 General Plan, toward slower population growth and urban development in the district. The 2010 resident population in Ko'olau Poko was 115,164 persons, 2,835 persons fewer than the 2000 Census figure of 117,999 people. The region experienced an average annual population decline of approximately 0.2 percent, in contrast to an estimated island-wide annual population increase of 0.9 percent. Consequently, the region's share of O'ahu's total population has declined from about 13 percent to about 12 percent. This declining trend is projected to continue through 2035.

The Ko'olau Poko Sustainable Communities Plan reaffirms the region's role in O'ahu's development pattern as intended by the General Plan by establishing the following policies for future land use and development in Ko'olau Poko:

- Limit the potential for new housing in the region so that significant residential growth is directed instead to the Primary Urban Center and 'Ewa Development Plan Areas, as well as the Central O'ahu Sustainable Communities Plan Area, in accordance with the population distribution policy set forth in the General Plan, which currently provides that Ko'olau Poko's share of the 2025 distribution of O'ahu's resident population is to be about 11.6 percent.
- Revitalize existing commercial centers and limit the expansion of commercial centers and economic activity in the region to promote the development and growth of employment in the Primary Urban Center, and the designated secondary urban center at Kapolei.
- Maintain the predominantly low-rise, low-density, single-family form of residential development in the urban fringe and rural communities depicted on Exhibit 1-1.
- Maintain and promote small-scale agricultural uses in the *mauka* areas of Waimānalo and from Kahalu'u north to Kualoa.
- Encourage continuation of small-scale agricultural uses in urban areas, provided that there are standards for compatibility between adjacent uses.
- Avoid urbanization of flood- and erosion-prone areas and seek to restore the natural filtering, flood control, recreational, biological and aesthetic values of streams, fishponds and wetlands.

- Preserve scenic views and the scenic beauty of the ocean, bays and beaches.
- Preserve scenic views of ridges, upper-valley slopes, shoreline areas from trans-Ko'olau and coastal highways; from coastal waters looking *mauka*; and from popular hiking trails that extend toward the Ko'olau Mountain Range and *mauka* from Kawainui Marsh.



### Exhibit 1.1 General Plan Development Pattern

- Discourage the use of shore armoring structures.
- Promote access to mountain and shoreline resources for recreational purposes and traditional hunting, fishing, gathering, religious, and cultural practices.
- Promote restoration of fish population in near-shore waters.

## **2. THE VISION FOR KO'OLAU POKO'S FUTURE**

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This chapter expresses and describes the vision for Ko'olau Poko's future and the key elements of the vision.

The vision and plan for Ko'olau Poko focuses on the long-term protection of community resources, residential character, and the adoption of public improvement programs and development regulations that reflect a stable population. The following vision statement describes the desired future conditions in the year 2035 and beyond. This section is therefore written from the perspective of the year 2035 looking back into the past.

"Ko'olau Poko's natural, cultural, historic, agricultural, and aquacultural/fishpond resources are protected and enhanced.

Significant scenic views of ridges, upper valley slopes, shoreline areas from major public parks highways, coastal waters and hiking trails are protected. Access to shoreline areas and mountainous regions are improved and provided for all to use and enjoy.

Cultural and historical resources are preserved through the protection of visual landmarks and significant views, protected access rights relating to traditional cultural practices, and the protection of significant historic, cultural, and archaeological features.

Ko'olau Poko contains productive and potentially productive agricultural lands that are preserved by adopted protective regulatory policies and implemented incentives and programs that promote active agricultural use of these lands.

Consistent with the General Plan of the City and County of Honolulu, Ko'olau Poko's share of O'ahu's population declined from 12.1 percent in 2010, to 10.7 percent in 2035. The region's population also declined over this period from 115,164 to about 112,000 persons.

Although Ko'olau Poko is nearly built-out, it is essential to continue to improve and replace, as necessary, the district's aging infrastructure systems to maintain adequate capacity, improve operational performance or extend the useful life of facilities. Infrastructure modifications are also made to enhance the quality of the urban, rural, neighborhood, or natural environment.

There continues to be a modest increase in new dwellings and modifications to the region's existing housing stock because, while the number of residents is declining, the number of persons per household has also continued to decline over the past several decades. As in other parts of O'ahu, the proportion of elderly in the population is growing, which induces changes in housing and service needs in various ways. These changes to infrastructure systems and housing have been and will continue to be incremental.

## 2.1 KEY ELEMENTS OF THE VISION

The vision for Ko'olau Poko's future is implemented through the following key elements:

- Adapt the concept of *ahupua'a* in land use and natural resource management;
- Preserve and promote open space and agricultural uses;
- Preserve and enhance scenic, recreational and cultural features that define Ko'olau Poko's sense of place;
- Emphasize alternatives to the private passenger vehicle as modes for travel;
- Protect and enhance residential character while adapting to changing needs;
- Define and enhance existing commercial and civic districts; and,
- Maintain the Community Growth Boundary to protect agricultural, open space, and natural resources.

Each of the above key elements is described in the following sections.

### 2.1.1 ADAPT THE CONCEPT OF AHUPUA'A IN LAND USE AND NATURAL RESOURCE MANAGEMENT

Prior to Western contact, Hawaiians managed the environment and organized their society through a land division system known as *ahupua'a*. *Ahupua'a* boundaries are similar to those of watersheds. Pukui and Elbert provide the following definition of *ahupua'a*:

*Land division usually extending from the uplands to the sea, so called because the boundary was marked by a heap (ahu) of stones surmounted by an image of a pig (pua'a)<sup>1</sup>.*

The *ahupua'a* has also been described as follows:

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<sup>1</sup> Pukui and Ebert, Hawaiian Dictionary, 1986.

*A principle very largely obtaining in these divisions of territory was that a land should run from the sea to the mountains, thus affording to the chief and his people a fishery residence at the warm seaside, together with the products of the high lands, such as fuel, canoe timber, mountain birds, and the right of way to the same, and all the varied products of the intermediate land as might be suitable to the soil and climate of the different altitudes from sea soil to mountainside or top.<sup>2</sup>*

The *ahupua'a* system recognizes the interconnected relationship between land-based and marine-based natural resources, focusing on streams as the connecting element between ridge and reef, especially in an island environment. The *ahupua'a* concept is still a useful concept for managing the natural environment and fostering desirable community development, adapted to the context of today's community needs and technology. It also serves as a logical foundation for sub-planning areas. Adapting and implementing the concept requires significant cooperation and integration of efforts among the various units of government whose jurisdictions encompass all or part of each *ahupua'a*.

In Ko'olau Poko, for example, natural wetlands and Hawaiian-built fishponds preserve wildlife habitat, filter pollutants from stormwater runoff, and provide flood protection. Over the years, the function of these wetlands and fishponds had become impaired by accelerated siltation and polluted runoff from urban development and agricultural activities. Some had vanished entirely due to deliberate filling. The filling of wetlands and fishponds has been restricted for decades, and regulatory and management practices have been improved to promote more effective maintenance of these resources and deter land-based activities which contribute to their degradation. Wetlands and fishponds existing in 2010 have been successfully preserved and restored. In addition, new wetlands to detain and retain stormwater have been created to protect flood-prone areas, increase infiltration, and reduce polluted runoff into streams, estuaries and nearshore waters.

As applied to Ko'olau Poko's drainage system, the *ahupua'a* management concept involves the retention of natural stream beds and, as feasible, partial or full restoration of drainageways that have been altered by concrete-lined channels. A streamside management zone or "buffer area" along natural streambeds defines where uses or activities are controlled or modified to protect water quality and aquatic resources. Revised or new public works standards have allowed the dedication of passive stormwater drainage systems and minimal channel modifications to provide flood protection for improved or developed properties.

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<sup>2</sup> In Re: Boundaries of Pulehunui, 4 Haw. 239, 241 (1879).

Most of Ko'olau Poko's native forests and other significant wildlife habitats are located within the State Conservation District. Nevertheless, the State Urban District and State Agricultural District contain many natural habitats, such as stream segments and small wetlands. In the State Urban District, urban development in areas susceptible to land movement, soil erosion, and sediment loss has been avoided and performance standards have been applied for the retention of sediment onsite during and after development activities. In the State Agricultural District, best management practices in agricultural land use and operations have been implemented.

The transition area between the Ko'olau Mountain Range and the urban and agricultural uses in the valleys and on the coastal plain are preserved as a permanent greenbelt to serve as a natural, recreational and scenic resource conservation area; to prevent inappropriate development or use which may cause hazards or other undesirable environmental consequences downstream; and to provide opportunities for environmental and cultural research and education.

### **2.1.2 PRESERVE AND PROMOTE OPEN SPACE AND AGRICULTURAL USES**

The preservation, continuation, and potential expansion of agricultural land use provides jobs and economic activity; promotes food security; offers the choice of a rural lifestyle proximate to a major metropolitan area; and maintains open space and a rural ambience in a section of the island that is famed for its natural beauty. In Ko'olau Poko, agricultural use is sustained by both commercially successful operations and subsistence or culturally-based farming. There is a good understanding of the region's strengths, future opportunities and challenges for commercially viable agriculture. Land development, public works and environmental codes and standards have been designed to prevent the gradual conversion of agricultural areas into large-lot residential neighborhoods.

It is recognized that Ko'olau Poko has traditionally been one of O'ahu's principal regions for wetland taro cultivation and aquaculture because of its wet climate and abundant perennial streams. Restored fishponds and ancient irrigation systems continue to be maintained to build upon the past and provide modern day utility. Permanent instream flow standards have been established to maintain sufficient quantity and quality of surface water to support fishpond operations and taro cultivation. Educational tours of taro lo'i and fishponds help support these traditional agricultural activities.

Research facilities such as the University of Hawai'i's Waimānalo Agricultural Experiment Station, Windward Community College, and a fruit fly laboratory, also in Waimānalo, provide technical advice to farmers in the region. State and federal

agricultural agencies also lend technical, financial and marketing support. The financial viability of commercial agricultural activity have been strengthened by providing appropriately located centers for minor composting and supplies, designated places for roadside vending and farmers' markets, and information and referral centers for potential customers and visitors.

Other appropriate accessory uses including recreational or educational programs, or other uses consistent with the character of a rural, agricultural area provide supplemental income necessary to sustain the primary agricultural activity. There are direct connections between these activities and the maintenance of agricultural uses on the same properties.

### **2.1.3 PRESERVE AND ENHANCE SCENIC, RECREATIONAL AND CULTURAL FEATURES THAT DEFINE Ko'OLAU POKO'S SENSE OF PLACE**

Ko'olau Poko's striking topographic features, outstanding beaches and bays, lush valleys, perennial streams and other natural features and landmarks continue to visually define the "windward" sense of place. Views of ridgelines or upper slopes of coastal headlands and mountains from the vantage point of coastal waters, major roads, parks and other public places, are kept free from land disturbance or the encroachment of structures or other projects that would affect the scenic viewplanes.

Historic site restoration and interpretive programs are integrated into the development of parks, shoreline, and mountain access systems in order to increase awareness of the role of the natural environment in Ko'olau Poko's cultural history, especially the importance of the *ahupua'a* in defining activities and communities.

In addition, *na wahi pana* (the special and significant places) and *na malae* (cultural complexes) of Ko'olau Poko are appropriately identified and interpreted. Community-based organizations are encouraged to develop and maintain programs that heighten appreciation for Ko'olau Poko's *na wahi pana* as *na malae* for Ko'olau Poko *na ahupua'a*.

Streams have been made more physically and visually accessible as routes for pedestrians or bicyclists, especially in urbanized areas. Maintenance easements or rights-of-way along several streams and drainage channels have become public greenways where feasible.

Physical access to the shoreline has been increased and enhanced, especially along Kāne'ohe Bay between MCB Hawai'i and He'eia Fishpond; along Kailua Beach between Kailua Road and Kawainui Channel; and to beaches within the Marine Corps Base Hawai'i – Kāne'ohe. To maintain lateral access along public

beaches the challenges of long-term and seasonal erosion of the shoreline are being addressed. Accreted beaches remain as public land in perpetuity. Adaptation to sea level rise is progressing.

Improved access to mountain areas has been achieved by developing the Ko'olau Poko Trail Complex and the Waikāne Trail. Complementary to this is the public acquisition and development of cultural and nature parks in Ha'ikū Valley and Waikāne Valley, where interpretive centers, vehicular parking and other facilities are provided near the trailheads.

#### **2.1.4 EMPHASIZE ALTERNATIVES TO THE PRIVATE PASSENGER VEHICLE AS MODES FOR TRAVEL**

Most of Ko'olau Poko's urban growth occurred since the 1950's in the form of suburban "bedroom" communities, so for many decades there had been heavy reliance on automobile travel for commuting and other trips. Trans-Ko'olau highways were built and expanded to accommodate this travel demand. The completion of the H-3 Freeway in 1997 further provided service for commuter traffic, although its main purpose is for military mobility. One highway improvement project, however, exacted environmental costs that diminished the quality of life in the region. The widening of Kahekili Highway resulted in increased volumes of polluted runoff; heat island effects and aesthetic impacts due to the loss of and absence of shade trees in the right-of-way; and visually obtrusive acoustical barrier walls to mitigate the impacts of higher levels of vehicular noise on adjacent residences.

Until the end of the previous century, transportation plans had called for additional highway widenings and interchange construction to facilitate vehicular traffic flow. The beginning of the present century marked a significant shift in the transportation policy for Ko'olau Poko. First, State highway officials acknowledged that the H-3 Freeway had absorbed a much higher percentage of the peak period trans-Ko'olau commuter traffic than had been anticipated, thereby substantially relieving the other two trans-Ko'olau routes and the connections to them. Second, the congested Leeward corridor and proposed new roadway network in the island's more rapidly urbanizing regions began to have much higher priority for the use of limited highway improvement funds. Ko'olau Poko residents also found that unused road capacity resulted in more pressure to further urbanize the region. Finally, emphasis on automobiles as the principal means of transportation is inconsistent with other elements of the vision expressed in this Sustainable Communities Plan. Transportation system improvements in Ko'olau Poko have been directed instead towards alternative travel modes, including public transit and pedestrian and bicycle facilities.

## **2.1.5 PROTECT AND ENHANCE RESIDENTIAL CHARACTER WHILE ADAPTING TO CHANGING NEEDS**

As described in Chapter 1, Ko'olau Poko's modest increase in housing stock to accommodate a decreasing household size has been satisfied by developing small-scale "infill" sites or additions to existing dwellings. Paradoxically, while the average household size had been declining over many decades, there had been a concurrent trend toward multi-generational and "non-traditional" households and larger dwelling sizes on single-family residential lots as aging housing stock is replaced, expanded or remodeled. Recognizing that this incremental physical transformation can have adverse impacts on the character of mature residential neighborhoods, zoning and public works standards were amended, resulting in appropriate building scale and quiet, attractive, and safe streets.

New, expanded or remodeled dwellings in recent decades have been proportionate in size to their lot area and the district in which they are located. The prevailing building-to-lot size ratio was lowered in both urban and rural areas, but particularly in the latter. New single-family dwellings have pitched roofs with relatively wide overhangs in response to the warm, rainy climate of the region, as well as other design features that conserve natural resources and are compatible with the natural environment.

Design standards for streets and front yards define neighborhood identity and places for informal recreation and neighborly interaction. Landscaped front yards and pedestrian entries are visible from the street to promote a sense of neighborhood and a sense of security for residents and their homes.

Traffic calming measures have been installed along existing residential streets with wide roadways serving as through-routes, in order to reduce traffic speeds which threaten pedestrian and bicycle safety and increase traffic noise. Examples include the use of intersection narrowing, speed tables and similar measures to reduce traffic speed. Priority for such traffic calming has been given to those residential streets of Kāne'ohe and Kailua where more conventional traffic control measures, such as traffic signals and signage, had either failed to achieve the desired results or had been resisted by residents of the area or the responsible transportation agencies.

Some new housing has been developed as multi-family residential buildings to provide for a choice in living environments, especially for the elderly population and smaller households. Multi-family housing is located in the town core areas of Kāne'ohe and Kailua or in other appropriately designated areas in this Plan and designed to reflect the suburban residential character of the surrounding

neighborhood, with low building profiles, pitched roof forms and ample yard landscaping.

### **2.1.6 DEFINE AND ENHANCE EXISTING COMMERCIAL AND CIVIC DISTRICTS**

General Plan policy discourages major new employment growth in this region. Any significant retail and office expansion in this region would be inconsistent with the General Plan policy to direct job growth to the Primary Urban Center and Secondary Urban Center. Furthermore, given Ko'olau Poko's declining population, there has been only modest growth in the demand for commercial land uses to support the communities of this region. Nevertheless, the continued viability of existing commercial districts and institutions is an important part of the vision for Ko'olau Poko because they provide a significant number of jobs for residents within the region and play an integral part in the region's social and cultural life.

The older commercial areas of Ko'olau Poko, which were developed primarily in the 1950's through the early 1980's following the development of suburban housing, were typically oriented to the automobile. On larger lots, commercial developments tended to follow the shopping center model. On smaller lots fronting arterial highways, such as Kamehameha Highway in Kāne'ohe, the predominant development form was "strip commercial." In either case, commercial establishments were divorced from the sidewalk and the streets and highways that front them are congested with traffic as cars enter and exit from parking lots. There was no clear distinction between the central commercial districts of Kāne'ohe and smaller, outlying community shopping centers. In Kailua, the central business district had been fairly clearly defined. However, both business districts had clusters of civic uses on their edges that establish their identities as regional town cores. Also, there are pockets within both districts - especially in Kailua - where the development pattern resembles a traditional commercial street, with storefronts and entries facing the public sidewalk.

Current land use policy and public infrastructure investments continue to clearly define and enhance the roles and identities of the central business districts of Kailua and Kāne'ohe as the region's principal town centers. There is more efficient utilization of land resulting from redevelopment and building expansions, and more "walkable" districts. The town centers are confined to the areas that had already been zoned for commercial, light industrial and civic uses and treated as mixed-use zones. Although the commercial mixed-use areas allowed development of projects with both commercial and multi-family residential uses, this did not result in significant residential population increases beyond those set forth by the General Plan's population policies; nor did it significantly reduce areas available for commercial use.

Expansion of commercial or industrial zoning or new civic uses such as post offices, libraries, and government offices has not occurred in outlying areas of Kailua or Kāne'ohe, except for industrial park expansion within the Community Growth Boundary at Kapa'a. As civic buildings were added, expanded or remodeled, they were sited and designed in a manner which encouraged pedestrian and transit access and/or serves as hurricane resistant emergency shelters.

The pedestrian orientation of the town centers has been strengthened by implementing a circulation plan that improves public sidewalks, links them with through-block walkways and parking lots, and expands transit services and amenities.

Outside of the Kailua and Kāne'ohe central business districts, the smaller community-oriented shopping centers and environs of Temple Valley, Windward City, Aikahi, and Enchanted Lake retain their suburban character and are limited to their present land area and approximate floor area. Zoning for the light industrial area near Windward City allows a mix of commercial and industrial uses to reflect the actual pattern of development in that area and establish a more desirable streetscape.

In the commercial districts of Waimānalo and Kahalu'u, building scale and design character are appropriate to a rural area. They have a "village center" ambience where uses and activities such as farmers' markets and feed stores have a visible presence. Also, provisions are made for roadside vending, outside of the right-of-way, for the sale of agricultural products in a manner that is consistent with traffic safety and rural ambience.

To stimulate and continue the revitalization of the town centers of Kailua and Kāne'ohe, land use and zoning policies discourage the introduction of "big box" retail stores or shopping centers consisting predominately of discount or factory outlet stores within the region. This type of commercial development often results in inappropriate building scale, localized traffic and parking demand impacts, and the economic decline of existing businesses. Where "big box" stores have been built, their impact has been mitigated by retrofitting smaller retail stores and rental spaces along the street frontages of those large buildings in order to create a more pedestrian-oriented environment along the sidewalks.

Large-scale commercial development is directed to more favorable sites in Leeward and Central O'ahu, where there are large and readily-available parcels better situated to capture patronage from the island's major population growth area. The H-3 Freeway also makes these "value retail" stores more accessible to Ko'olau Poko's residents.

Ko'olau Poko maintains six major institutional campuses, including two colleges, two hospitals and two correctional facilities. No new institutional campuses are envisioned for Ko'olau Poko, but minor expansion and redevelopment within the existing grounds of the region's major institutions are expected to continue to occur.

### **2.1.7 MAINTAIN THE COMMUNITY GROWTH BOUNDARY TO PROTECT AGRICULTURAL, OPEN SPACE, AND NATURAL RESOURCES**

The Community Growth Boundary was established to define and contain the intended extent of urbanized or "built-up" areas within those districts designated as "urban fringe" and "rural" by the General Plan. The purpose is to accommodate modest increases in population, to provide adequate lands for facilities or other groupings of built uses needed to support established communities while protecting lands outside this boundary for agriculture and other resource and open space values. Areas within this boundary characteristically include extensive tracts of low-rise, low-density residential, commercial, industrial or mixed-use development clearly distinguishable from undeveloped or more "natural" portions of the region's environment. While the Community Growth Boundary includes some lands designated "park," "agriculture," "preservation," or areas with development-related hazards such as steep slopes or unstable soils, these areas have not been developed with uses unsuitable to their designations or in ways that may tend to exacerbate those hazards.

The Community Growth Boundary confined new urban and suburban development to "infill" sites within existing urbanized areas and prohibited continuous sprawl. This more compact form of development helped achieve relatively lower site development costs, more efficient utilization of existing urban infrastructure systems, and reduced reliance on the automobile and made transit ridership, walking, and bicycling more feasible and attractive modes of travel.

The Community Growth Boundary generally circumscribes the "urban fringe" suburban communities of Kāne'ohe, Kailua, Olomana subdivision, Mokapu Peninsula, Maunawili and 'Āhuimanu within the State Urban District boundary, including the following areas:

- Residential, apartment, commercial, industrial and mixed-use districts;
- Low-density built-up areas at Ha'ikū Plantations, adjacent to Kailua High School, and immediately adjoining the residential district;
- Hawaiian Memorial Park and the Hawai'i State Veterans Memorial Cemetery;
- Public schools serving these communities;

- The campuses of Windward Community College and the Hawai'i State Hospital;
- Bayview Golf Course, Mid-Pacific Country Club, and the Klipper Golf Course at MCB Hawai'i;
- Lands developed for the beneficiaries of the Department of Hawaiian Home Lands;
- Correctional and detention facilities *makai* of Kalaniana'ole Highway; and
- The industrial area at Kapa'a.

The following “urban fringe” areas are located outside of the Community Growth Boundary:

- Undeveloped parcels on the slopes of Ka‘iwa Ridge, Oneawa Hills and Pu‘u o ‘Ehu;
- Undeveloped lands within and directly adjacent to Kawainui Marsh, and the wetlands of He‘eia and Ka‘elepulu;
- Most of He‘eia Kea valley;
- The slopes of Mount Olomana;
- Areas within the State Conservation District;
- Military lands, except those at MCB Hawai'i developed with uses associated with the residential, apartment, commercial, industrial and mixed-use districts; and
- Portions of the slopes of Pu‘u Ma‘eli‘eli and the valleys of ‘Āhuimanu, Maunawili and Ha‘ikū where lots typically exceed one acre in size.

The “rural” areas within the Community Growth Boundary consist of smaller, more dispersed, less intensively developed residential communities and towns than those of Ko‘olau Poko’s “urban fringe” areas; namely, the sections of Waimānalo, Kahalu‘u, Wai‘āhole and Waikāne in the State Urban District where there are clusters of parcels that are less than two acres in size occupied by dwellings or buildings used for community or commercial purposes other than agriculture. Development character is generally low-density, low-rise, small scale, and reflective of a “country” setting.

Included within the “rural” portion of the Community Growth Boundary are the following areas:

- Residential, apartment, commercial, industrial and mixed-use districts;

- Areas developed for the beneficiaries of the Department of Hawaiian Home Lands;
- Public schools serving these communities;
- The campus of the Hawai'i Job Corps; and
- Areas not designated as Agricultural Lands of Importance to the State of Hawai'i that are directly adjacent to or surrounded by residential or other urban uses and are suitable for minor infill development for residential, community or commercial purposes.

The Community Growth Boundary excludes much of the State Urban District land in the vicinity of Kahalu'u where a predominately agricultural use pattern currently prevails.

### **3. LAND USE POLICIES AND GUIDELINES**

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The vision for Ko‘olau Poko, described in the preceding chapter, will be implemented through the application of the following land use policies and guidelines.

This chapter is organized under the following headings:

Section

- 3.1 Open Space Preservation
- 3.2 Parks and Recreation
- 3.3 Historic and Cultural Resources
- 3.4 Agriculture
- 3.5 Residential Use
- 3.6 Commercial and Industrial Uses
- 3.7 Institutional Uses
- 3.8 Military Uses

#### **3.1 OPEN SPACE PRESERVATION**

Ko‘olau Poko’s open space consists of lush forested valleys, sharply eroded ridges which extend from the interior valley floors to the summit of the Ko‘olau Mountains, with agricultural fields and rural communities in the northern portions of the region to urbanized communities of Kaneohe to Waimanalo toward its southern portions. This sharply contrasts with the Mokapu Peninsula whose dry climate and parched terrain is surrounded by the seashore, accompanying white sand beaches and the Kāne‘ohe Bay marine environments, all of which contribute to the region’s unique and intrinsic beauty. This natural beauty attracts residents and visitors to the area as well as the film industry.

Open space preservation is a key element of the vision for Ko‘olau Poko’s future. Long-term protection and preservation of scenic resources, agricultural areas, natural areas, and recreational areas are important to maintaining the character and attractiveness of Ko‘olau Poko for both residents and visitors. Open space also functions to provide access to shoreline and mountain areas, define community boundaries, prevent urban sprawl, provide buffers between agricultural uses and residential neighborhoods, create a system of linear greenways along roadways and drainage channels, provide flood storage and habitat where functionally necessary and feasible, and prevent development in areas susceptible to landslides and similar hazards.

### **3.1.1 POLICIES**

The following are policies for the preservation of open space and natural resources:

- Provide both active and passive open spaces. Active areas include community-based parks, golf courses, cemeteries and intensive agricultural uses. Passive areas include lands in the State Conservation District, drainage and utility corridors, nature parks, preserves and wetlands, and agricultural lands such as pastures, aquaculture ponds and fallow fields. Beach parks, which may be either active or passive, depending on the extent to which the landscape has been modified by grading and construction of facilities and the intensity of public use, are also part of the open space system.
- Improve the accessibility of recreational open space for public recreational use, especially in shoreline and mountain areas (as required by City ordinance and State law). Address the need for parking and emergency vehicle access.
- Protect endangered species and their habitats.
- Enhance the visual and physical definition of urban areas, particularly where topographic features are less pronounced, with contrasting forms of open space and landscaping.
- Promote the dual use of roadway and drainage corridors to create linear open space that is also a more inviting environment for walking, jogging and biking. Where physical modification of natural drainageways is necessary to provide adequate flood protection, design and construct such modifications to maintain habitat and aesthetic values, as well as to avoid degradation of the stream, coastline and nearshore water quality.
- Protect scenic beauty and scenic views and provide recreation.
- Promote access to shoreline and mountain areas.
- Define the boundaries of communities.
- Prevent urban sprawl.
- Provide buffers between agricultural uses and residential neighborhoods.
- Create a system of linear greenways along roadways and drainage channels.
- Prevent development in areas susceptible to landslides and similar hazards.

### **3.1.2 GUIDELINES**

- Require surveys to identify endangered species habitats and require appropriate mitigation measures to address impacts due to new developments.
- 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.
- Adopt outdoor night lighting standards that encourage efforts to minimize glare and stray light, and reinforce the difference between urban and rural communities.

### **3.1.3 ELEMENTS OF OPEN SPACE RESOURCES**

The following provides a brief description of the elements of open space resources in Koʻolau Poko, followed by guidelines for each element, to carry out the policies for the region’s open space resources.

#### **3.1.3.1 Mountain Areas**

Mountainous regions in Koʻolau Poko are in the State Conservation District and thus the State Board of Land and Natural Resources (BLNR) oversees uses in these areas. Limited public access to upper reaches of valleys and mountain areas is presently available via the hiking trails described below.

**Koʻolau Poko Trail Complex.** This is a proposed 15-mile system of interconnected trails, most segments of which are already open, including the Likeke Trail, Maunawili Trail, and Maunawili Falls Trail. This trail complex features opportunities for hiking, hunting, nature study, bird watching and photography. Horseback riding is possible in some sections, as is mountainbiking. Points of interest along the route include Maunawili Falls, the Maunawili Ditch irrigation flumes, and numerous archaeological sites, including *kalo* (taro) *loʻi* and *heiau*. The area’s rich history adds to the interpretive potential of the trails.

**Waikāne Trail.** This trail begins in Waikāne Valley and extends to the crest of the Koʻolau Mountain Range, where it intersects with the Koʻolau Poko Trail Complex. The trailhead is within the site of Waikāne Nature Preserve, which presents an excellent opportunity for related interpretive and educational programs and improved facilities for hikers.

**Kaʻiwa Trail.** This trail, following the crest of Kaʻiwa Ridge from Lanikai to a WWII bunker, is in a relatively urban setting. It is a good vantage point for striking

panoramic views of the adjacent Bellows Air Force Base and suburban communities backdropped by natural features such as Kailua Bay, Waimanālo Bay, the Koʻolau Mountain Range, and Mount Olomana. Currently, access is limited, but parking and maintenance issues are being addressed to improve the situation.

The State's Na Ala Hele Program manages and maintains public trails. Of the trails mentioned above, only the Kaʻiwa Trail and portions of the Koʻolau Poko Trail Complex are Na Ala Hele Program trails. Na Ala Hele trails that are part of the Koʻolau Poko Trail Complex are the:

- Maunawili-Waimanālo Access Road
- Maunawili Trail
- Maunawili Ditch Trail

Other trails may be privately owned and/or managed. Issues regarding ownership, safety and liability must be further addressed before official access to trails can be assured. Planning and development of public access to mountain areas should incorporate provisions for adequate parking and means for minimizing and addressing complaints from neighbors near trailheads.

Because the mountains and coastal headlands are prominently visible from long distances and are a fundamental element of the regional identity, it is important to preserve their visual integrity by avoiding encroachment of land disturbances and structures on upper slopes and ridgelines.

Moreover, to protect important resource values in the State Conservation District, steps need to be taken to control the number and range of feral animals and other alien species and prevent overuse and misuse by humans in selected areas, such as habitats of native and endangered species. Control of feral animals in the mountain areas is also needed to prevent accelerated vegetation loss and soil erosion.

#### GUIDELINES FOR MOUNTAIN AREAS

- Improve access to mountain areas and enhance the physical condition and recreational and educational value of Koʻolau Poko's hiking trails by fully implementing the recommendations in the State of Hawaiʻi's Na Ala Hele Program Plan.<sup>3</sup> Accompany access improvements with funding for management of associated problems through increased trail maintenance, weed control and eradication of non-native predators.

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<sup>3</sup> State of Hawaiʻi Department of Land and Natural Resources, Na Ala Hele - Hawaiʻi Trail and Access System Program Plan, May 1991.

- Create public access to the former U.S. Coast Guard Omega Station site, including Ha‘ikū Stairs, and combine this parcel site with the adjoining City and County of Honolulu parcel for the proposed Ha‘ikū Valley Cultural and Nature Preserve in order to:
  - Provide recreational, cultural and educational benefits; and
  - Help protect resources in the *makai* portion of the He‘eia watershed, including a high-quality perennial stream, a significant wetland habitat for waterbirds, migratory waterfowl and shorebirds, and an ancient Hawaiian fishpond.
- Improve the sites that have been acquired for Waihe‘e Valley Nature Park and Waikāne Nature Preserve in a manner that preserves the area’s natural scenic quality and provides educational and passive recreation opportunities.
- Promote the preservation of remaining undeveloped lands at the foot of the Ko‘olau Mountain Range through protective regulatory measures, tax incentives for the establishment of conservation easements and management programs on private properties, and public acquisition of fee simple or partial interest, where necessary to create the Ko‘olau scenic resource area or “greenbelt” from Waimanālo to Kualoa. (See *Ko‘olau Greenbelt* under Section 3.1.3.3)
- Locate structures at higher elevations of slopes only for purposes of public safety when there is no feasible alternative, and when adequate mitigation measures have been taken to reduce or avoid impact on the scenic and natural environment.
- Maintain, protect, and/or restore native forests in the State Conservation District, especially by identifying and protecting endangered species habitats and other sensitive ecological zones from threats such as fire, alien species, feral animals, and human activity and disturbance.
- Provide access to existing mountain trails through acquisition of easements or rights-of-way, if necessary. Work with property owners to provide access over their lands to mountain trails.

### **3.1.3.2 Shoreline Areas**

Ko‘olau Poko’s shoreline displays a variety of physical characteristics, from the rocky headlands of Makapu‘u at the south end of the district, to wide sandy beaches fronting Waimanālo and Kailua Bays, to mud flats and fishponds which rim much of

Kāne‘ohe Bay. This signature region asset also possesses multiple values which are important to residents of the district and the island at large. It is valued for its natural and cultural resources, recreational opportunities, scenic amenities, and economic aquaculture potentials. Management of this shoreline, then, must carefully consider the relationship of various activities and the integrity of assets they may affect. They include active and passive recreation, lateral and *mauka-makai* public access, scenic interludes and vistas, fishpond restoration and appropriately selected and managed aquacultural activity. While all these opportunities merit enhancement, this must be pursued while maintaining the integrity of the shoreline’s natural, cultural, and scenic qualities, as well as considering impacts to coastal processes. Individual beach management plans, such as the Kailua Beach and Dune Management Plan, should be developed, and modification of shoreline setbacks and impacts from sea level rise must be considered. Views from public roads toward the shoreline should be maintained or enhanced. Where appropriate, create new *makai* views. Notable segments of the shoreline are discussed below.

**Kualoa Point to Moli‘i Fishpond.** Kualoa Regional Park, a major recreational asset with cultural significance and numerous pre-contact archaeological sites, provides access to the shoreline, coastal waters and Mokoli‘i Island (“Chinaman’s Hat”). Severe, long-term erosion of the shoreline of the park has damaged park landscaping and structures. Littoral drift has deposited sand from this beach to the shoreline fronting Moli‘i Fishpond.

**Kāne‘ohe Bay, from Moli‘i Fishpond to Ke Alohi Point (He‘eia State Park).** The narrow but stable beach is comprised of silty sand. There are relatively few structures in the shoreline area. Physical and visual access to the shoreline from Kamehameha Highway was improved significantly with the expansion and clearing of Waiāhole Beach Park in the early 1990’s. Intermittent views of the shoreline are available along the stretch of Kamehameha Highway between Kahalu‘u Fishpond and He‘eia Landing. He‘eia State Park, Laenani Beach Park and Kahalu‘u Beach Park provide physical access to the shoreline and vantage points for views of Kāne‘ohe Bay. The expansion of Kahalu‘u Regional Park to include the beach park area on the *makai* side of Kamehameha Highway is intended to provide viewplane enhancement from the highway. Kapapa Island, the central barrier reef and “sand bar” (*Ahu o Laka*) in this section of Kāne‘ohe Bay is an attraction for recreational and commercial boating. He‘eia Kea Harbor provides public boating launching ramps and mooring spaces. Other launching ramps are available for small craft at Laenani Beach Park and Kahalu‘u Beach Park.

**Kāne‘ohe Bay, from He‘eia Fishpond to Nu‘upia Pond.** Similar to the northern end of Kāne‘ohe Bay, most of the shoreline in this section is stable. Vertical retaining walls have been constructed along many of the properties to support docks

or to prevent soil banks from slumping into the water, but there are no chronic or significant patterns of erosion or accretion. Physical and visual access to the shoreline is very limited due to residential and other private urban or marina development along almost the entire length. Public access is available at the small Kāne'ohe Beach Park, where parking and facilities are very limited. There are five pedestrian rights-of-way to the shoreline at other points, but none of these have off-street parking.

**Mōkapu Peninsula.** Sandy beach dunes facing the ocean are situated between large remnants of volcanic craters. On one side of Nu'upia Ponds, at the neck of the peninsula, is a narrow, sandy beach facing Kailua Bay, and on the other side is a siltier beach fronting Kāne'ohe Bay. Except at certain times for special events, the general public is denied physical access to the peninsula, which is under military jurisdiction.

**Kailua Bay, from Kapoho Point to Alāla Point.** Kailua Beach is wide and sandy, but dynamic and subject to significant erosion and accretion cycles. It is famed for its high quality as a recreation area. Kailua Bay is attractive for a variety of ocean recreation activities, notably swimming, body surfing, windsurfing, kayaking and canoe racing. Public access to the beach and coastal waters is provided primarily at Kailua Beach Park, on either side of the Ka'elepulu Stream outlet, and at the smaller Kalama Beach Park. At both locations, vehicular parking spaces are in great demand on weekends and holidays. There are five public rights-of-way for pedestrians at dispersed points along Kalāheo Avenue, the street that runs parallel to the beach, but no off-street parking, public restrooms or showers are available at these locations. Visual access to the shoreline from the adjacent street is available only at Alāla Point and the Ka'elepulu Stream crossing.

**Kailua Bay, from Alāla Point to Wailea Point (Lanikai).** Severe erosion is occurring at either end of Lanikai Beach, where adjacent residential property owners have built seawalls and revetments along most of the shoreline. The remaining sandy beach in the central portion is popular for recreation. Public access for pedestrians is provided at eleven points along the parallel public street, Mokulua Drive, but no off-street vehicular parking, public restrooms or showers are available for beach-goers. Visual access to the shoreline from the street is very limited.

**Waimanālo Bay, from Wailea Point to Makapu'u Point.** Wide sandy beaches front almost the entire length of Waimanālo Bay. There is a narrower beach and emerging reef rock in the vicinity of Pāhonu Pond in the mid-section of the Bay shoreline. While Kalaniana'ole Highway is relatively distant from the shoreline at the northern portion of the beach, physical access is readily available during peak recreation periods at Bellows Air Force Station and Waimanālo Bay State

Recreation Area. In the beachfront residential area of Waimanālo, there are three pedestrian rights-of-way to the shoreline along Laumilo Street. Further south, at Waimanālo Beach Park and Kaiona Beach Park, the highway is close enough to the shoreline to afford both visual and physical access. In the southernmost stretch, along Kaupō Beach Park and Makapu'u Beach Park, visual and physical access to the shoreline is virtually unimpeded. From the highway, dramatic vistas of coastal headlands and cliffs, ocean waters, and off-shore islands can be seen.

#### **GUIDELINES FOR SHORELINE AREAS**

- Maintain existing *makai* view channels along Kalaniana'ole Highway between Makapu'u Point and Waimanālo Beach Park; along Kawaiola Road and North Kalāheo Avenue in Kailua; along Lilipuna Road in Kāne'ohe; and along Kamehameha Highway north of Kāne'ohe. Avoid visual obstructions, such as walls and dense landscaping.
- Create and maintain new *makai* view channels along Kamehameha Highway and Kahekili Highway north of Kāne'ohe by:
  - Acquiring shoreline properties along the highway either in fee or by obtaining easements and maintenance agreements with private landowners, giving priority to locations where there are actual or potential vistas of perennial streams, wetlands, fishponds and off-shore islands; and
  - Selective clearing of dense vegetation and the removal of structures.
- Maintain the untamed landscape quality of the Makapu'u viewshed, with any modification to this area being done for the purpose of health and safety and in a manner that continues the landscape character of the scenic shoreline corridor on the East Honolulu side of Makapu'u Point.
- Establish buffer zones for the protection of rare coastal resources and recognition that such resources should be defined and identified.
- Increase opportunities for physical access to the shoreline areas of Kāne'ohe and Kailua by acquiring additional storefront areas, with following locations as priorities:
  - The site of the Kāne'ohe Wastewater Pre-Treatment Facility, to be named Waikalua Bayside Park, with possible expansion into Kokokahi YWCA facility through either acquisition or joint use agreement;

- King Intermediate School and an area north of Heʻeia Kea Landing, which may require some realignment of a portion of Kamehameha Highway to create adequate land area *makai* of the roadway; and
  - A site in either the Oneawa Beach area, near the surf spot known as “Castles” or in the frontage along Kalaheo Avenue between Kailua Beach Park and Kalama Beach Park.
- Improve existing pedestrian rights-of-way to the shoreline by providing on-street or off-street parking nearby; secured bicycle racks where the access point adjoins an existing or planned bikeway, such as along Mokulua Drive in Lanikai and Kāneʻohe Bay Drive in Kāneʻohe; and provisions for emergency vehicle access and lateral access along the shoreline.
- Prepare beach management plans to maintain lateral access along popular beaches that are subject to long-term and seasonal erosion, particularly at Lanikai and Kualoa, emphasizing non-structural approaches and prevention of adverse effects on adjacent coral reef ecosystems such as greater shoreline setbacks for new structures along these and other unstable shoreline areas. The Kailua Beach and Dune Management Plan could serve as a prototype for beach management plans at other locations. Effective beach management plans are very location-specific and incorporate the consideration of long-term effects such as climate change and sea level rise, as well as seasonal and long-term erosion and accretion.
- Locate and design exterior lighting to avoid disturbance to seabirds and marine mammals, using DLNR guidelines.
- Designate the Alāla Point to Wailea shoreline as an erosion-prone area and prepare a beach management plan for this area, focusing beach restoration activities on the Bellows Air Force Station beach and Kaupō beach.
- Designate the shoreline along Kamehameha Highway adjacent to Kualoa Ranch to Kualoa Point as an erosion-prone area and prepare a beach management plan for this area.
- Pursue measures to render all shoreline accretion as public (State) property in perpetuity in order to preserve shorelines as a public resource.
- Prohibit the use of shore armoring structures, considering alternative measures such as beach replenishment.

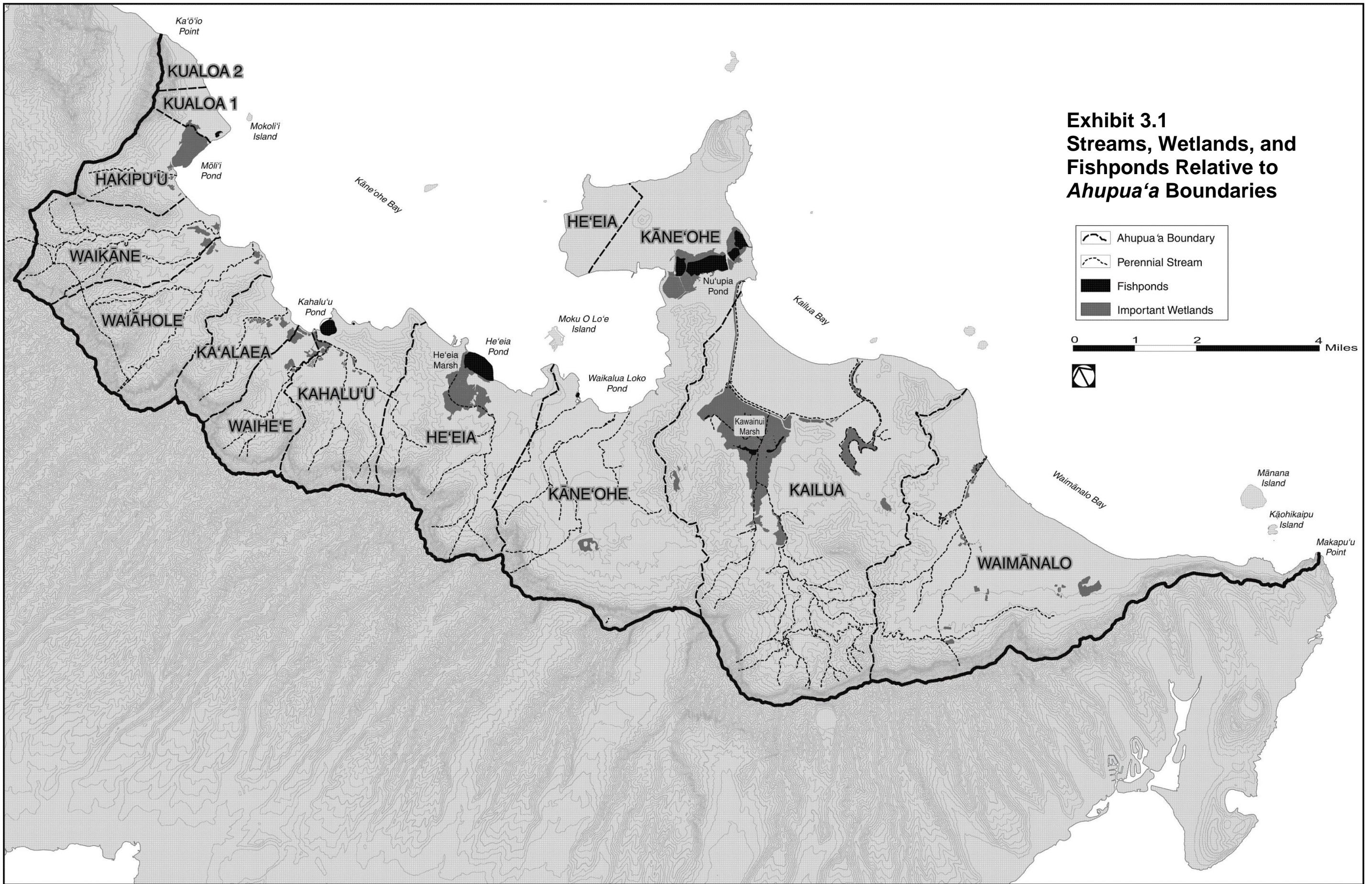
- Modify shoreline setbacks as needed to protect the natural shoreline, lessen the impact to coastal processes, and address sea level rise.
- Analyze the possible impact of sea level rise for new public and private projects in shoreline areas and incorporate, where appropriate and feasible, measures to reduce risks and increase resiliency to impacts of sea level rise.

### **3.1.3.3      Wetlands, Wildlife Preserves and Nature Parks**

Ko‘olau Poko is home to several wetlands listed as significant by the U.S. Fish and Wildlife Service (USFWS) O‘ahu Team 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 shorebirds. Policies on the management of wetlands have been prepared by the U.S. Environmental Protection Agency, in cooperation with the State Department of Health<sup>4</sup>. Ko‘olau Poko hosts a variety of venues which serve as habitat for avian, terrestrial, aquatic, and marine wildlife. In addition to onshore habitat, offshore islands which lie seaward of the planning region also serve as habitat which may merit protection as such. Major onshore wetlands, proposed nature parks/preserves and botanical gardens of Ko‘olau Poko (see Exhibit 3.1) are described below:

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<sup>4</sup> Hawai‘i Wetland Management Policy Workgroup, U.S. Environmental Protection Agency, State of Hawai‘i Department of Health, and Sarah Young, Hawai‘i Wetland Management Policy, April 1999.



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- ***Ho'omaluhia Botanical Garden.*** This 211-acre park, maintained by the City, was originally developed as a Federally-funded flood control project and includes a large stormwater impoundment basin. It includes limited facilities for camping, horse-back riding, hiking, camping and environmental education as well as botanical gardens.
- ***Kawainui Marsh.*** Since 2005, Kawainui-Hamakua Marsh Complex has been on the Ramsar List of Wetlands of International Importance, serves multiple purposes as a flood storage basin, wetland filter, wildlife habitat and cultural and scenic resource pursuant to a master plan prepared in 1994<sup>5</sup>. (Note that the 1994 plan was never officially adopted by the State DLNR.) The master plan includes hiking trails through the marsh. Also proposed are an environmental education center and a pedestrian path around the perimeter of the marsh. A large restoration project by the Army Corps of Engineers and the DLNR began in 2013. The project will restore nearly 40 acres and includes habitat restoration for endangered native waterfowl. In 1979, the National Registrar for Historic Places determined that the Marsh is eligible for listing in the National Register of Historic Places.

The Kawainui-Hamakua Marsh Complex, endangered waterbird habitat, and archaeological and cultural sites should be improved and protected by:

- Improving water quality in contributing Kapaa and Maunawili streams;
- Improving water quality in the marsh;
- Establishing a comprehensive and coordinated land and water management plan, including a long-term water monitoring and testing schedule;
- Establishing a buffer zone surrounding existing waterbird habitats on the marsh side of the Kapaa Quarry Road;
- Removing invasive plant species to open up water flow;
- Establishing long-term plans for removing and controlling invasive plants in the ditches on both sides of Kapaa Quarry Road so that runoff from industrial areas can be filtered as designed;
- Implementing predator control measures;
- Expanding Kapaa and Maunawili stream courses by removing vegetation from their entrances into the marsh;

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<sup>5</sup> State of Hawai'i Department of Land and Natural Resources, Kawai Nui Marsh Master Plan, July 1994. This master plan is currently being updated by DLNR.

- Developing criteria for monitoring discharge of sediments into the marsh;
  - Investigating and recording the sacred nature and cultural significance of the birds in the Kawainui area;
  - Conducting specific archaeological research studies of entire primary and secondary areas of the marsh, which includes the slopes above the marsh; and
  - Preserving and enhancing identified wildlife species, their habitats, and related ecological systems.
- **He'eia Wetland.** He'eia Wetland was acquired by the State in 1991 and is under the jurisdiction of the Hawaii Community Development Authority. In 2010, a non-profit group, Kāko'o 'Ōiwi, acquired a long-term lease to the wetland. Their goal is to implement the community-driven vision of restoring agricultural productivity and environmental quality of the wetland. Wetland *kalo* was traditionally grown at He'eia. The vision is to produce *kalo* once again, to serve to educate, feed, and sustain the He'eia community.
  - **Nu'upia Pond.** This large waterbody at the neck of Mōkapu Peninsula is within the Marine Corps Base Hawai'i and is under Federal protection and management as a habitat for endangered species.
  - **Waikalua Loko Fishpond.** This fishpond in Kāne'ohe is an active site for resource management training and education that is managed by the Waikalua Loko Fishpond Preservation Society.
  - **Waie'e Valley Nature Park.** This site covering nearly 150 acres was acquired by the City and is designated as a Nature Park, but remains undeveloped.
  - **Ha'ikū Valley Cultural and Nature Preserve.** The City proposed to acquire the former Omega Station site from the State Department of Hawaiian Home Lands. Combined with the adjoining City and County of Honolulu parcel, this could create a large nature and cultural preserve. The site includes Ha'ikū Stairs and potential access to the Ko'olau Poko Trail Complex. In addition to its recreational and education purposes, this park would help protect the He'eia watershed, which includes a high-quality perennial stream, a significant wetland habitat for native endangered Hawai'ian waterbirds and migratory waterfowl and shorebirds, and an ancient Hawai'ian fishpond in relatively good condition.
  - **Waikāne Nature Preserve.** This is a site recently acquired by the City that had formerly been proposed for the development of a 27-hole private golf course. It

is now designated for a nature preserve, but is currently undeveloped. The preserve will provide access to the Waikāne Trail.

- **Ko'olau Greenbelt.** This describes the transition area between the Ko'olau Mountain Range and the urban and agricultural uses in the valleys and on the coastal plain. Much of this area is presently undeveloped or used for open space purposes, including the nature parks/preserves described above or golf courses described below. The purposes of designating the remainder of this area as greenbelt are to preserve this natural, recreational and scenic resource; maintain significant view corridors; to prevent inappropriate development or use which may cause hazards or other undesirable environmental consequences downstream; and to provide opportunities for environmental and cultural research and education.

#### GUIDELINES FOR WETLANDS, WILDLIFE PRESERVES, AND NATURE PARKS

- Prepare use and management plans for He'eia Marsh, Waihe'e Valley Nature Park, Ha'ikū Valley Cultural and Nature Preserve, and Waikāne Nature Preserve and develop those sites pursuant to those plans.
- Encourage owners of private wetlands, such as Waihe'e Marsh (also known as "Haia Moa"), and other wildlife habitats, to prepare and abide by use and management plans for those resources, and to investigate the various State and Federal programs that provide incentives for landowners to manage their lands for the benefit of wildlife.
- Prepare and implement a plan to establish a Ko'olau Greenbelt.
- Prohibit encroachment or intensification of residential or other urban uses near wildlife sanctuaries and nature parks.
- Prepare wildlife preserve management plans emphasizing conservation and restoration of native plants, birds, fish and invertebrates.
- 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.

#### 3.1.3.4 Natural Gulches, Streams and Drainageways

According to the [Ko'olau Poko Watershed Management Plan](#), the Ko'olau Poko region contains 20 watersheds (systems of natural gulches and streams) and 13 perennial streams. These stream channels are the primary means for carrying water from the inland areas to the sea and are generally capable of handling runoff from normal rainfall amounts. During periods of intense rainfall, however, a number of

these drainageways overflow and create flooding problems (see discussion in Section 4.6, *Drainage Systems*).

#### GUIDELINES FOR NATURAL GULCHES, STREAMS AND DRAINAGEWAYS

- Preserve the natural aesthetic and biological values of gulches, streams and drainageways as part of the open space system by implementing the stream classifications, design guidelines and actions contained in the Ko'olau Poko Watershed Management Plan for the protection of natural stream beds and habitat and the restoration of degraded streams.
- Alter natural drainageways only when necessary to provide flood protection for existing developed areas, and in a way that preserves aesthetic and biological values, and avoids degradation of stream, coastline and nearshore water quality. For example, impacts on biological conditions may be mitigated, as appropriate, by using v-shaped bottom channels for periods of low stream flow, rip-rap boulder lining of stream banks, streamside vegetation and similar strategies to shade, cool and aerate the waters of the stream and provide riparian and stream bottom habitat.
- Incorporate erosion control measures and best management practices, as cited in the Hawai'i's Coastal Nonpoint Pollution Control Program Management Plan<sup>6</sup> to prevent pollution of wetlands, streams, estuaries and nearshore waters.

#### GUIDELINES FOR OTHER OPEN SPACE ELEMENTS

Several types of land uses, other than those described above, contribute to Ko'olau Poko's open space system. In general, they are developed lands either presently or potentially in active use rather than natural areas, but they are relatively free of structures, compared to most urban uses. Below are the descriptions of these land uses, their contribution to the open space system, and guidelines for the use and development of these lands to maintain their open space value.

##### ***Agriculture***

While it is not its primary function, agriculture land use does contribute to the open space system. It defines the landscape character of large sections of Ko'olau Poko north of 'Āhuimanu and in the *mauka* portions of Waimanālo. Smaller enclaves of agricultural lands are found in Maunawili, Kailua and Kāne'ohe. Guidelines for agricultural land use to help maintain these open space values are listed below:

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<sup>6</sup> Office of State Planning, Hawai'i Coastal Zone Management Program, Hawai'i's Coastal Nonpoint Pollution Control Program Management Plan, Volume I, June 1996.

- Design and locate buildings and other facilities that are accessory to an agricultural operation in a way that minimizes visual impacts within the view corridors identified in Appendix Map A-1.
- Retain the open space character of pastures adjacent to Kawainui Marsh and within the Hawai'i Youth Correctional Facility to visually separate and define the edges of the Maunawili, Olomana and Pohakūpū and Kukunono residential neighborhoods.

## **Parks**

Parks provide active and passive recreation space for residents in the form of play courts and playfields, gyms and pools, gardens, water features, open fields, trails, and other forms of active or passive recreational facilities. In addition to meeting the recreation needs of the region, parks also serve as open space elements, contain wildlife, and add aesthetic value to the region and mental health value to its residents by providing visual relief from urban land uses. Parks and recreation are discussed further in Section 3.2.

## **Golf Courses**

Golf courses are important elements of the open space system because they provide areas for active recreation and offer visual relief from adjacent urban uses. Most are available for public play and are considered a part of the region's recreational resources.

Golf courses have a manicured appearance, so they are not necessarily appropriate for areas where the retention of a natural, untamed landscape character is desired. The Mid-Pacific Country Club, Bayview Golf Park, Kāne'ohe Klipper Golf Course and Olomana Golf Links demonstrate how golf courses in suburban settings can provide open space buffers between residential neighborhoods, passive stormwater drainage management, and opportunities to preserve significant views. The Pali, Luana Hills and Ko'olau golf courses have less value as contributors to the open space system because they are situated within or near forests with a dense canopy of trees and have altered the natural landscape character of those settings.

Golf courses also serve a practical purpose by reducing flooding and non-point pollution by helping retain storm waters. However, they are highly land intensive, typically occupying 150 to 200 acres, and thus plans for future golf courses or redevelopment of existing golf courses must undergo careful evaluation. Depending on the location, design, and pricing of greens fees and/or memberships, new course development could have significant environmental, economic, and social impacts. Furthermore, Ko'olau Poko is mostly built-out and land areas that could possibly accommodate a new golf course are either in preservation or long-term agricultural

use. Consequently, the development of additional golf courses in the Ko'olau Poko region is not desired.

Ko'olau Poko's golf courses are listed in Table 3.1 below:

<b>Table 3.1 Golf Courses in Ko'olau Poko</b>		
Type/Name	Location	Public Play
<b>Municipal:</b> Pali Golf Course	Kāne'ohe	Yes
<b>Daily Fee:</b> Bayview Golf Links	Kāne'ohe	Yes
Ko'olau Golf Course	Kāne'ohe	Yes
Olomana Golf Links	Waimanālo	Yes
<b>Semi-Private:</b> Royal Hawaiian Golf Club	Kailua	Yes
<b>Private:</b> Mid-Pacific Country Club	Kailua	No; members only
<b>Military:</b> Kāne'ohe Klipper Golf Course	MCB Hawai'i	No; military only

Policies relating to golf courses:

- New golf courses are not recommended for Ko'olau Poko.

Guidelines relating to golf courses:

- Maintain golf courses to provide view amenities for adjacent urban areas, especially from well-used public rights-of-way, parks and vista points. Where necessary, redesign golf course facilities or layouts to reduce the visual prominence of large accessory buildings.
- Design and maintain existing golf courses to avoid or minimize environmental impacts, such as siltation, pesticide and fertilizer runoff, destruction of coastal, riparian and wetland habitat, etc.
- Optimize the function of golf courses as passive drainageways, maximizing their potential to retain or detain stormwater runoff.
- Provide safe access through golf courses, as necessary, for regional continuity of pedestrian and bicycle systems.
- When necessary for safety reasons, use landscape screening, setbacks and modifications to the course layout rather than fencing or solid barriers.

- Provide appropriate buffers between golf courses and surrounding residential areas.

## **Cemeteries**

Major cemeteries in Ko'olau Poko are Valley of the Temples Memorial Park in 'Āhuimanu and the Hawaiian Memorial Park that adjoins the Hawai'i State Veterans Cemetery in Kāne'ohe. There are other, smaller cemeteries in the region, but these three are by far the most significant in size and visibility.

Guidelines for cemeteries:

- Maintain the open space character of the cemeteries through very low lot coverage ratios.
- Where located in the State Conservation District or in preservation area designated by this Plan, above-grade structures shall be limited to maintain the open space character of the cemetery.
- Limit above-grade structures to grave markers of modest size; and necessary administrative and maintenance support buildings that are minimally visible from public rights-of-way, entries and vista points.
- Where direct, indirect, or cumulative impacts of any proposed cemetery expansion will affect rare, threatened, or endangered species; or where direct, indirect, or cumulative impacts of any proposed cemetery expansion on sensitive areas are identified in any environmental setting; measures to mitigate, reduce, or rectify any adverse impacts shall be formulated.
- Any proposed expansion by Hawaiian Memorial Park must include a 150-foot buffer from residential homes, a 2,000-foot buffer from the Pohai Nani senior living community, and a phased approach to sales and marketing to ensure that the land adjacent to the residential homes on Lipalu Street is the last portion of land used for cemetery interment, in order to minimize potential impacts to neighboring residents.
- Hawaiian Memorial Park shall record with the State of Hawaii Bureau of Conveyances or the State of Hawaii Land Court, or both, as appropriate, a conservation easement on the entirety of the 156-acre undeveloped portion of its Pikoiloa Tract property (TMK No. 4-5-033: 001) that would limit any other future development on the property, except for the 28.2-acre portion of the property that encompasses the proposed Hawaiian Memorial Park expansion site, and the 14.5-acre portion of the property that encompasses the proposed Kawa'ewa'e Heiau cultural preserve.

### **3.1.4 PROTECTION OF OTHER NATURAL RESOURCES**

This section describes the policies and guidelines for protecting other natural resources of the region.

#### **3.1.4.1 Policies**

- Protect endangered species and their habitats.
- Balance the need for public safety, the protection of property, and the desire for architectural embellishments with the need to conserve energy and the protection of wildlife and human health from adverse effects of outdoor night lighting.

#### **3.1.4.2 Guidelines**

- Require surveys to identify endangered species habitat, and require appropriate mitigation and protection measures to address impacts due to developments.
- Minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary by fully shielding lighting (no light above the horizontal plane) fixtures and using lower wattage.
- Adopt outdoor night lighting standards that help reinforce the difference between urban and rural communities.

### **3.1.5 RELATIONSHIP TO MAP A-1, OPEN SPACE**

The following components of the regional open space system are shown on the Open Space map in Appendix A:

- **Mountains, Wildlife Preserves and Nature Parks.** These areas are designated for preservation and are to remain outside of the Community Growth Boundary. Small wetlands and agricultural lots consisting of less than 10 acres may be included within the Community Growth Boundary, but the intent is to preserve them in their present use, even if they are not specifically shown on Map A-1, Open Space.
- **Shoreline Areas.** All public shoreline parks, whether managed by the City or the State, are designated for preservation and shown on Map A-1, Open Space. Smaller existing and proposed access points to the shoreline are indicated by symbols on the map.

- **Agricultural Areas.** Map A-1, Open Space, shows all areas designated for agriculture on the Map A-2, Land Use. Some of these lands are in the State Urban District, but almost all are outside of the Community Growth Boundary.
- **Golf Courses and Cemeteries.** The golf courses and three largest cemeteries in Ko'olau Poko are shown for their visual contributions to open space by virtue of their size and landscape character.
- **Natural Gulches, Streams and Drainageways.** The riparian areas of perennial streams that are significant for their natural resource quality or that have potential for recreational accesses in urbanized areas are designated as stream management corridors, which are discussed in Section 4.6.

## 3.2 PARKS AND RECREATION

The City and County of Honolulu Department of Parks and Recreation (DPR) develops and maintains a system of island-wide parks and community-based parks and related recreation facilities which it classifies in a hierarchical manner. The largest and most specialized parks are classified as island-wide parks since they serve the needs of all O'ahu residents. This group includes regional parks, beach/shoreline parks, beach/shoreline right-of-ways, nature parks/reserves, botanical gardens, golf courses, and zoological parks. State parks can also be considered part of the island-wide park system. DPR's standard for island-wide parks is 25 acres per 1,000 defacto population. The size of the park and facilities to be provided are based on the character of the site, intended use, and availability.

### 3.2.1 ISLAND-WIDE PARKS

Ko'olau Poko's regional, beach and nature parks are listed in Table 3.1. Compared to other regions of the island, Ko'olau Poko has a disproportionate share of park acreage dedicated to natural and cultural preserves, which is a reflection of the region's physical assets and historical use. For future additions to Ko'olau Poko's island-wide park land inventory, priority is given to the acquisition of shoreline properties primarily in Kāne'ohe and secondarily in Kailua, as stated in Section 3.1.3.2 Shoreline Areas.

**Table 3.2**  
**Island-Wide Parks in Ko'olau Poko**

Park Type/Name	Acreage	Park Type/Name	Acreage
<b>Regional Parks</b>		<b>Nature Parks</b>	
Kahalu'u Regional Park <sup>1</sup>	34.6	Waihe'e Valley Nature Park	149.6

**Table 3.2**  
**Island-Wide Parks in Ko'olau Poko**

Park Type/Name	Acreage	Park Type/Name	Acreage
Kualoa Regional Park <sup>1</sup>	<u>153.4</u>	<u>He'eia Kea Valley Nature Park<sup>3</sup></u>	<u>218.5</u>
Subtotal	188.0	Waikāne Nature Park <sup>3</sup>	<u>503.0</u>
		Subtotal	871.1
<b>Beach/Shoreline Parks</b>		<b>Botanical Gardens</b>	
Bellows Field Beach Park (weekend use)	54.2	Ho'omaluhia Botanical Garden <sup>2</sup>	370.8
He'eia State Park	18.5		
Kailua Beach Park	35.2	<b>Total Acreage</b>	<b>1,735.0</b>
Kaiona Beach Park	4.3		
Kalama Beach Park	4.3		
Kāne'ohe Beach Park	1.1		
Kaupō Beach Park	8.2		
[Laenani Neighborhood Park]	[1.4]		
Makapu'u Beach Park <sup>2</sup>	46.9		
Waiāhole Beach Park	20.0		
Waimanālo Bay Beach Park	74.8		
Waimanālo Beach Park	<u>37.6</u>		
Subtotal	305.1		

<sup>1</sup> Portions of these parks function as beach parks or nature parks.

<sup>2</sup> Portions of this park are also considered as nature park.

<sup>3</sup> Actual park development is pending the removal of hazards.

Acreage shown in brackets [ ] are counted as part of another park and therefore, not included in the subtotals.

Source: City & County of Honolulu, Department of Parks and Recreation.

## POLICIES

The following policies relate to island-wide parks and recreational resources in Ko'olau Poko:

- Increase the inventory of island-wide parks by giving priority to the acquisition of shorefront properties primarily in Kāne'ohe and secondarily in Kailua. (Note that expansion of the inventory of island-wide parks is of lower priority than expansion of the inventory of community-based parks in Ko'olau Poko as provided in Section 3.3.2.)
- Maintain and enhance present island-wide parks by utilizing land area not fully developed for recreation use. Island-wide parks are part of the region's

abundance of natural and scenic resources and contribute to the attractiveness of Ko‘olau Poko to both residents and visitors.

- Carefully site active playfields and supporting facilities intended for intensive use, and use appropriate landscape screening to reduce the potential impacts on surrounding areas.
- Construct park facilities in a manner that avoids adverse impacts on natural resources or processes in the coastal zone or any other environmentally sensitive area. In the design of recreation areas, incorporate natural features of the site and use landscape materials that are indigenous to the area in order to retain a sense of place.
- Integrate and link recreational attractions, which may be designed to have distinct identities and entries, with surrounding areas through the use of connecting roadways, bikeways, walkways, landscape features and/or architectural design.

## **GUIDELINES**

### **Passive or Nature Parks**

- Acquire and develop the proposed Ha‘ikū Valley Cultural and Nature Preserve, including access to Ha‘ikū Stairs.
- Improve the Waikāne Nature Preserve and Waihe‘e Valley Nature Park.

### **Active Recreation Areas**

- Acquire additional shoreline land for parks in Kāne‘ohe and Kailua with particular attention to increasing shoreline access in Kāne‘ohe.
- Locate bus stops and loading areas at principal entries and adjacent to convenient pedestrian accesses to main activity areas within the park.
- Provide amenities and service facilities to accommodate “tailgate” picnics in parking areas for sporting events, including shading canopy trees within the parking lot as well as nearby picnic tables and outdoor grills.
- Locate areas designed for sporting events that attract high numbers of people along major collector streets and separate them as much as possible from residential areas and significant wildlife habitats.

- Expand active recreational facilities by incorporating facilities such as playfields and playcourts in regional and beach parks and in the former sanitary landfill site at Kapa'a.

### **3.2.2 COMMUNITY-BASED PARKS**

Park areas that serve more localized populations are classified as community-based parks. This group includes district, community, and neighborhood parks as well as other, smaller park areas (see Table 3.3).

<b>Table 3.3 Types of Community-Based Parks</b>			
<b>Park Type</b>	<b>Average Size (Acres)</b>	<b>Population Service Size</b>	<b>Typical Facilities</b>
District	20	25,000	Playfields, playcourts, passive areas, gym/recreation complex, swimming pool
Community	10	10,000	Playfields, playcourts, passive areas, recreation bldg
Neighborhood	6	5,000	Playfields, playcourts, passive areas, comfort station
Mini Park	Varies	High Density Area	Benches, picnic tables, children's play area

DPR uses a standard of two acres per every 1,000 persons in evaluating service needs, although this figure varies according to each community's situation. Ko'olau Poko contains a total of approximately 167 acres of community-based parks (see Table 3.4). Based on DPR's standard and Ko'olau Poko's 2010 population of 115,164, this represents a deficit of approximately 63 acres of community-based parks. With an expected 2035 population of 115,000, there will still be a deficit in acreage if there is no addition to the park land inventory. At present, the only planned addition to the community-based park inventory in Ko'olau Poko is a one-acre expansion of the Kāne'ohe Civic Center Neighborhood Park.

Acquisition of new park land is dependent currently on the Park Dedication Ordinance which imposes a recreation requirement on new housing. This method cannot be used to make up the existing deficit in community-based park lands in Ko'olau Poko because the amount of new park improvement is generally intended to only serve new development.

<b>Table 3.4 Community-Based Public Parks in Ko'olau Poko</b>			
<b>Park Type/Name</b>	<b>Acreage</b>	<b>Park Type/Name</b>	<b>Acreage</b>
District Parks		Neighborhood Parks, continued	

Kāne'ohe District Park	31.4	Kaluapuhi Neighborhood Park	5.8
Kailua District Park	18.7	Kāne'ohe Civic Center Park	4.2
Waimanālo District Park	<u>25.3</u>	Kapunahala Neighborhood Park	3.9
Subtotal	75.4	Kea'alaau Neighborhood Park	3.7
<b>Community Parks</b>		Puohala Neighborhood Park	3.9
'Āhuimanu Community Park	4.0	Kalāheo Neighborhood Park	1.4
Kahalu'u Community Park	5.6	Kawainui Neighborhood Park	4.8
Kāne'ohe Community & Senior Center	2.0	Keolu Hills Neighborhood Park	6.3
Kāne'ohe Community Park	5.5	Maunawili Neighborhood Park	4.2
'Aikahi Community Park	4.0	Maunawili Valley Neighborhood Park	<u>8.1</u>
Enchanted Lake Community Park	5.8	Subtotal	59.7
Waimanālo Beach Park – <i>portion</i>	<u>10.0*</u>	<b>Mini Parks</b>	
Subtotal	26.9	Ka'elepulu Mini Park	1.6
<b>Neighborhood Parks</b>		Pōhākupu Mini Park	<u>3.5</u>
Bayview Neighborhood Park	8.0	Subtotal	5.1
Laenani Neighborhood Park	1.4		
He'eia Neighborhood Park	4.0	<b>Total Acreage</b>	<b>167.1</b>

\*Acreage for this park is counted as part of the Waimanālo District Park and is not included in the Community Parks total acreage.

Source: City & County of Honolulu, Department of Parks and Recreation.

The ratio of population to land area is not the only factor to consider when evaluating community-based public park needs. Some of the demand for public park space is off-set by private parks that are owned and maintained by community associations in Kailua, 'Āhuimanu, Kāne'ohe and Lanikai for the use of their residents and guests. For military personnel and their dependents, the Marine Corps Base Hawai'i, Kāne'ohe also provides a golf course and several parks.

It may be possible to increase the availability of public recreation facilities without acquiring additional land to develop for that purpose. For example, the current deficit of community-based public park land could be reduced if portions of the regional parks and beach parks were developed with more active playing fields, courts and playgrounds, as has been done at Waimanālo Beach Park. The campuses of some of Ko'olau Poko's public schools, including Windward Community College, have athletic facilities that could be opened for general community use, possibly under a joint use agreement between the State and the City. Similar joint use agreements also could be explored with nonprofit organizations such as the YMCA/YWCA or with Hawai'i Pacific University.

The development of landscaped bikeways and walkways along streams and drainage channels is another way to both increase recreation opportunities and provide safer and more enjoyable access to existing parks, particularly in the urbanized areas of Kāne'ohe and Kailua. "Pocket" parks could be developed along the route on adjacent small parcels either presently owned by the City or State or acquired by the City for this purpose.

Possible additional sites for active recreational facilities would be the *mauka* portions of Kahalu'u Regional Park and Bellows Field Beach Park, if and when that site is released by the military for permanent civil recreation use. Also, the former sanitary landfill site at Kapa'a has been landscaped for eventual park use, and some active recreation facilities could be developed there. A portion of the former landfill area at the edge of Kawainui Marsh is already in use as a model airplane park. While all possible methods should be pursued as ways to reduce the deficit of community-based parks, emphasis realistically has to be placed on future acquisition in areas where the current deficit is most significant. Additions to the community-based park system are appropriately determined more by community facility design considerations than by their relationship to the regional open space network.

## **POLICIES**

The following policies relate to community-based parks:

- Increase the inventory of community-based parks to provide sports and recreation facilities for Ko'olau Poko residents in appropriate locations in Kailua, Kāne'ohe, Kahalu'u, and Waimanālo with land acquisition to reduce the existing deficit of such parks in these areas.
- Increase recreation facilities in existing parks and increase access to public school facilities in areas where there is limited opportunity to expand park space.
- Require new residential development provide land for open space and recreation purposes in lieu of payment of a fee for park dedication purposes, if the project is of sufficient size to set aside usable land to meet neighborhood recreational needs.
- Pursue the development of greenways along the following streams and drainage channels: Kāne'ohe Stream, from Kāne'ohe Bay to Kamehameha Highway; Kea'ahala Stream, from Kāne'ohe Bay to Kahekili Highway; Kawainui Stream, from Kailua Bay to Kawainui Marsh; Kawa Stream, from Mokulele Drive to Kāne'ohe Bay Drive; and Ka'elepulu Stream, from Kailua Bay to Ka'elepulu Pond.

## **GUIDELINES**

- Design and site structural improvements and landscaping in community-based parks in such a way as to enhance the aesthetic value of these open space elements.
- Mitigate visual impacts of large recreation buildings or structures, lighting, parking lots, perimeter fencing along major collector streets and other utilitarian elements through building design, plantings or other appropriate visual screens adjacent to residential areas and major roadways.
- Encourage multi-use and/or modest expansion of existing facilities over the construction of new structures to minimize impacts on open space.
- Prepare a functional plan for the acquisition of new community-based parks in Kailua, Kāne'ohe, Kahalu'u, and Waimanalo.
- Have master plans for development of new parks or redevelopment of existing parks provide for facilities and accessible pathways from surrounding streets to facilitate pedestrian and bicycle access to parks.
- The DPR should explore ways, through cooperative agreements and mutual indemnifications with the UH, DOE and non-profit organizations, to design and operate facilities to achieve efficiencies and reduce duplication in the development and use of athletic, recreation, meeting, and parking facilities.

### **3.3 HISTORIC AND CULTURAL RESOURCES**

Ko'olau Poko's landscape includes many vestiges of its cultural past, including ancient fishponds fronting Kāne'ohe Bay, terraces for the cultivation of taro, several *heiau* and other sacred sites, and various remains of pre-historic habitation. On a smaller scale, there are also historic structures and places representing Ko'olau Poko's more recent past.

Due to the relatively recent urban development of the region, the most significant remnants of Ko'olau Poko's past are archaeological sites. In 1930, an archaeological survey of O'ahu documented numerous sites in the area<sup>7</sup>. Erosion or other land altering activities such as agricultural use and urban development had destroyed many of these sites, even at that time.

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<sup>7</sup> McAllister, J. Gilbert. Archaeology of O'ahu, 1933. p. 57.

Table 3.5 lists some of the significant archaeological sites in Ko'olau Poko including ancient fishponds and known remaining sacred sites such as *heiau* and fishing shrines many of which are listed on the Hawai'i or National Registers of Historic Places. The approximate location of these sites and other significant cultural features is shown in Exhibit 3.2. This representative list is not intended to document all significant archaeological sites in Ko'olau Poko.

<b>Table 3.5 Significant Archaeological Sites in Ko'olau Poko</b>	
<b>Feature</b>	<b>Reference</b>
Moli'i Fishpond	McAllister, SHPD
Kualoa <i>Ahupua'a</i> Historical District	SHPD
Puakea <i>Heiau</i> , Hakipu'u	McAllister
Kukuiianiani <i>Heiau</i> , Waikāne	McAllister
Waikāne Taro Flats	SHPD
He'eia Fishpond, He'eia	McAllister, SHPD
Leleahina <i>Heiau</i> , He'eia	McAllister, SHPD
'Āhuimanu Taro <i>Lo'i</i> , Kahalu'u	SHPD
Kahalu'u Fishpond, Kahalu'u	SHPD
Kahalu'u Taro <i>Lo'i</i>	SHPD
Pohaku <i>Ka Luahine</i>	SHPD
Luluku Archaeological District	SHPD
Kapapa Island Complex	SHPD
Kawainui Marsh	SHPD
Kawainui Marsh, Archaeological_site #7	SHPD
Kawa'ewa'e <i>Heiau</i> , Kāne'ohe	McAllister, SHPD
Kanohulu'iwi Pond, Kāne'ohe	SHPD
Mōkapu (Nu'upia) Fishponds	SHPD
Mōkapu Burial Area	SHPD
Pahukini <i>Heiau</i> , Kailua	McAllister, SHPD
Pohakunui <i>Heiau</i> , Kailua	SHPD
Ulupō <i>Heiau</i>	McAllister, SHPD
Maunawili Archaeological District	SHPD
Koa (Manana Island)	SHPD
Manikolu Shelter, Waimanālo	SHPD
Kukuipilau <i>Heiau</i> , Waimanālo	SHPD
Bellows Field Archaeological Area	SHPD
Pāhonu Pond/ <i>Heiau</i> , Waimanālo	McAllister, SHPD
Waimanālo Taro Terraces, Waimanālo	SHPD

Ko'olau Poko has many other structural landmarks that are identified with the history of the region. The following, some of which are listed on the National or Hawai'i Registers of Historic Places, are among the more significant sites:

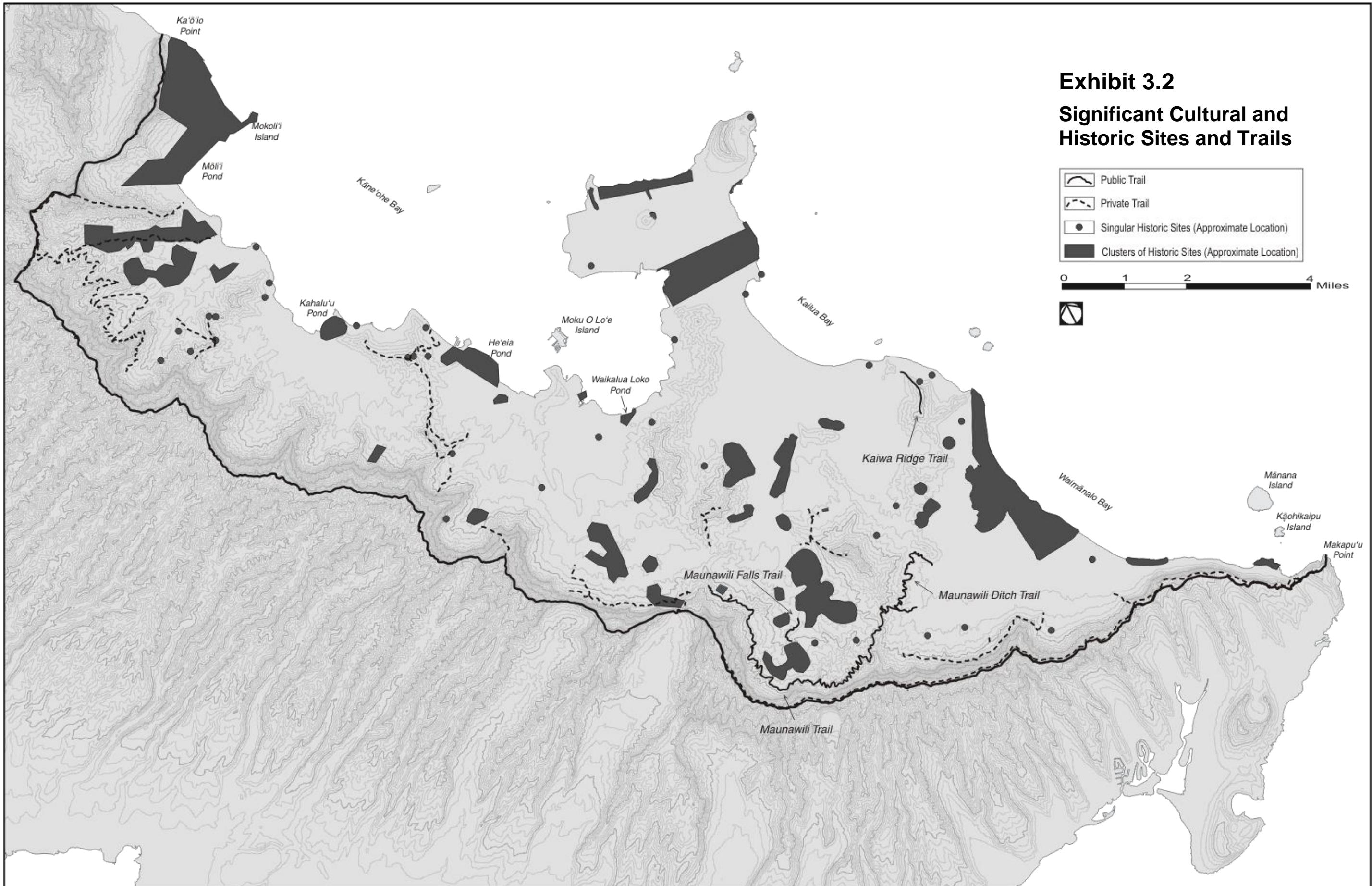
- Makapu'u Lighthouse
- Waikāne Store
- Lanikai Entry Marker
- Ha'ikū Plantation Gardens, Kāne'ohe
- Hygienic Store, Kahalu'u
- Waiāhole Poi Factory
- Kāne'ohe State Hospital
- Hawai'i Youth Correction Facility - Kawaihoa, Kailua
- Byodo-in Temple, Valley of the Temples, 'Āhuimanu
- Boettcher Estate, Kalama Beach Park, Kailua
- Kāne'ohe Ranch offices, Maunawili
- Waimanālo Ditch System

The cultural richness of Ko'olau Poko is significant. In addition to the previously listed sites, other sites highly valued by Ko'olau Poko residents include: Holomakani Heiau (Kailua), Na Pohaku o Wahine (Kailua), Kawainui Marsh Archaeological District (Kailua), Waikalua Loko Fishpond (Kāne'ohe), Ahu o Laka Island, Nu'upia Ponds (at entrance to Marine Corps Base Hawai'i).

There are also many private residences, at various locations, which are more than 50 years old that have sufficient architectural distinction and integrity to make them eligible for listing on either the National or State Registers.

## Exhibit 3.2

### Significant Cultural and Historic Sites and Trails



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### **3.3.1 POLICIES**

- Emphasize physical references to Ko'olau Poko's history and cultural roots.
- Protect existing visual landmarks and support the creation of new, culturally appropriate landmarks.
- Preserve significant historic features from earlier periods.
- Retain significant vistas associated with archaeological features.
- Implement *in situ* preservation and appropriate protection measures for sites that have high preservation value because of their good condition or unique features.
- Determine the appropriate treatment for a historic site by the particular qualities of the site and its relationship to its physical surroundings. Carefully plan and design adjacent uses to avoid conflicts or abrupt contrasts that detract from or destroy the physical integrity and historic or cultural value of the site since the context of a historic site is usually a significant part of its value.
- Establish the degree of public access and interpretation that would best promote the preservation of the historic, cultural and educational value of the site, recognizing that economic use is sometimes the only feasible way to preserve a site. Public access to a historic site can take many forms, from direct physical contact and use to limited visual contact. In some cases, however, it may be highly advisable to restrict access to protect the physical integrity or cultural value of the site.

### **3.3.2 GUIDELINES**

Native Hawaiian cultural and archaeological sites:

- Require preservation *in situ* only for those features that the State Historic Preservation Officer has recommended such treatment.
- Determine the appropriate preservation methods on a site-by-site basis in consultation with the State Historic Preservation Officer.
- Determine appropriate delineation of site boundaries and setback restrictions for adjacent uses based on whether a site is listed and/or eligible for listing on the State and/or National Register of Historic Places and on a site-by-site basis in consultation with the State Historic Preservation Office.

- Include sight lines that are significant to the original purpose and value of the site in criteria for adjacent use restrictions.
- Determine the appropriateness of public access on a site-by-site basis in consultation with the State Historic Preservation Officer and the owner of the land on which the site is located.

Historic sites and landmarks the following guidelines apply:

- Promote the identification, survey and listing of sites that are eligible for the Hawai'i or National Registers of Historic Places.
- Preserve the architectural character, landscape setting and visual context of historic and cultural landmarks through appropriate zoning standards and development controls, as necessary, and public outreach programs such as design guidelines for the maintenance, renovation or expansion of older dwellings.
- Provide incentives for the preservation and maintenance of historic sites and buildings, and allow for adaptive re-use of historic buildings through a permit review process.

### **3.4 AGRICULTURAL USE**

The system for rating the relative productivity of agricultural lands, known as Agricultural Lands of Importance to the State of Hawai'i (or ALISH), classified approximately 2,300 acres of agricultural lands in the "Prime" category, and 200 acres in the "Unique" category when the system was developed. These are the two highest ratings in this classification system. "Other" agricultural lands in this rating system are those whose limiting characteristics require certain investments -- such as added fertilizer or other soil amendments, drainage improvements, erosion control practices and flood control -- to increase their productivity. The location of these lands and classifications relative to the State Agricultural District boundary is shown in Exhibit 3.5.

According to the City and County of Honolulu Department of Planning and Permitting's Geographic Information System data, there are 6,179 acres of land in Ko'olau Poko that are within the State Land Use Agricultural District and are designated as ALISH<sup>8</sup>. These lands are considered good farm land. Not all may be in production, but those that are consist primarily of small farms.

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<sup>8</sup> As of August 2012.

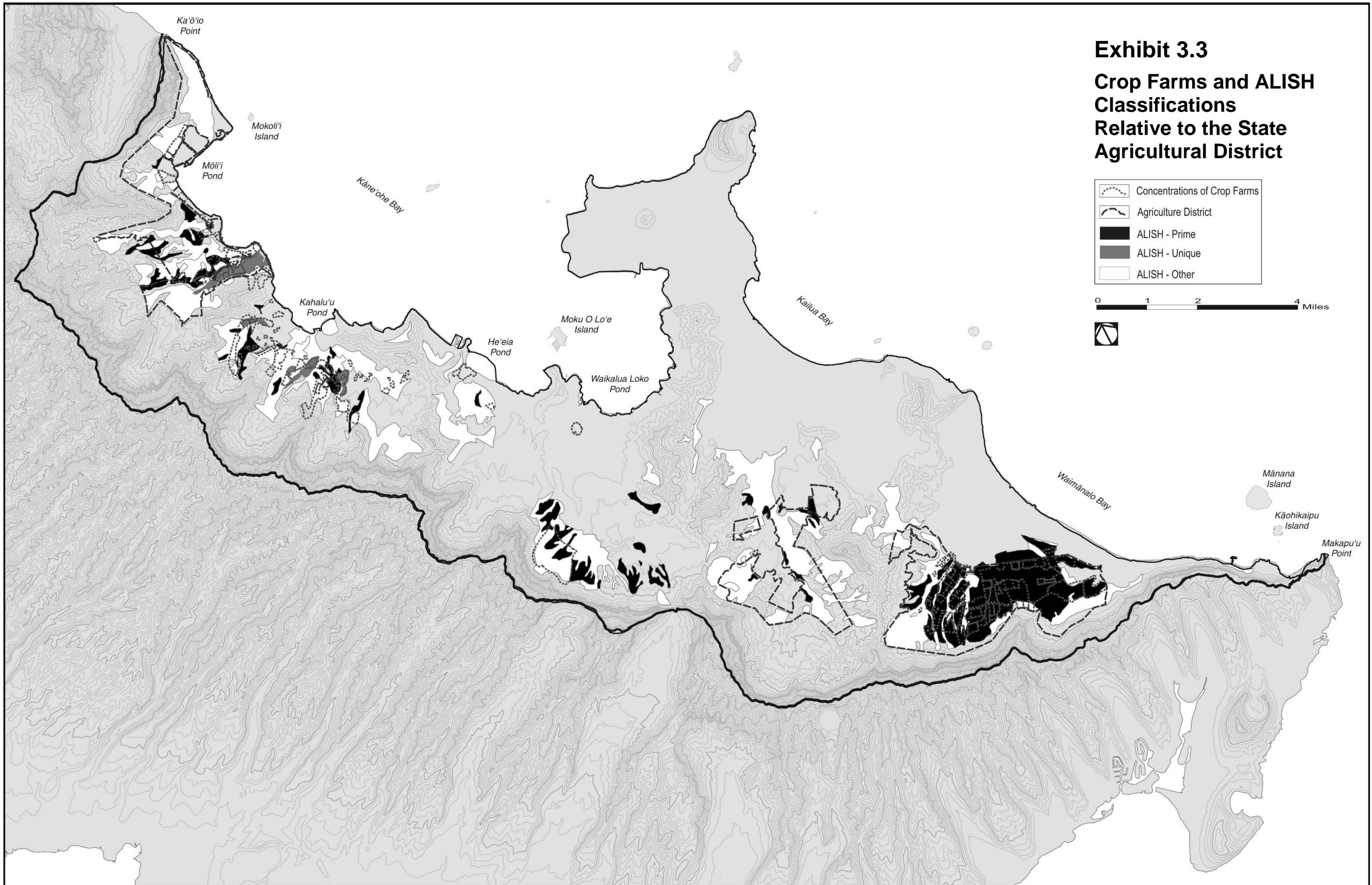
The largest concentration of high-quality agricultural land in Ko‘olau Poko is in Waimanālo, which is also within reasonable reach of the Honolulu market and overseas shipping terminals. Other areas are in the valleys between Āhuimanu and Hakipu‘u at the northern end of Kāne‘ohe Bay, Maunawili Valley, and the valleys near the mauka section of Likelike Highway.

Ko‘olau Poko’s wet climate favors it as a region for certain products such as bananas, papayas and tropical flowers. In some areas, reliable and inexpensive sources of irrigation water have been developed to supplement rainfall and adjust for periods of relative drought. The State of Hawai‘i provides irrigation water at reasonable rates to farmers in Waimānalo and in its Wai‘āhole Valley agricultural park. The State Commission on Water Resources Management’s 1997 decision to release a greater amount of flow from Wai‘āhole Ditch back to Windward streams made more water available for the expansion of taro and other crop production in the northern valleys of the region.

The pattern of small farms, typically with a dwelling on the same lot, presents a paradox. Many people are attracted to the lifestyle of the small farms in the region, pursuing agriculture for subsistence or supplemental income. This arrangement enhances the economic feasibility of an agricultural operation by (1) minimizing land costs; (2) enhancing security for agricultural products and equipment; (3) allowing more efficient access for daily maintenance; and (4) avoiding the cost of a separate home site for the farmer. On the other hand, the pattern of development has attracted those who are seeking a large residential lot with a “country” ambience at a reasonable price. Increasingly, older farmers seek more dwellings on their properties to pass their legacies on to their children and grandchildren or to finance their retirement. Growing use of small farm lots for this purpose may lead to a gradual transformation of agricultural areas to large-lot residential neighborhoods, induced by real estate development pressures.

### Exhibit 3.3

#### Crop Farms and ALISH Classifications Relative to the State Agricultural District



Sources: Hawaii Statewide GIS Program and the Honolulu Land Information System

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Development pressure is exacerbated as conflicts arise between agricultural use and nearby residences, such as increased complaints from neighbors about dust, noise, overspray, odors, and other normal effects of farming. In turn, this can lead to operational changes that may be required by the enforcement of public health regulations and that adversely affect the feasibility of agriculture. One way to avoid this conflict is to require the more-recently established use to maintain adequate separation between agricultural and residential uses.

Land use policy can support agricultural activities in other ways, as well. For example, zoning and development codes can restrict non-agricultural uses to those that are intended to meet the needs of the rural community or that are related to agricultural operations in the area. It can also propose the development of facilities and programs that support agricultural activities and the marketing of products.

### **3.4.1 POLICIES**

The following policies apply to lands designated for agricultural use:

- Encourage agricultural use of small lots.
- Adopt development and public works standards that are appropriate and cost-effective for rural, agricultural areas.
- Provide support infrastructure, services and facilities to foster and sustain agricultural operations.
- Implement tax policies and easements that promote active, long-term agricultural uses.
- Encourage organic and sustainable agriculture.
- Encourage self-contained land-based aquaculture in appropriate locations.
- Prevent the conversion of agricultural lots to residential or other non-agricultural uses.
- Modify standards for public infrastructure in rural and agricultural areas in accord with the character and needs of such areas.
- Develop and apply use standards to provide for all agricultural activities and uses customarily associated with agricultural areas, including ranching and plant nurseries (crop production with on-site retail or wholesale sales).
- In agricultural districts, craft nuisance regulations in zoning and environmental codes to give preference to agriculture use over residential use.

- Limit non-agricultural uses to those that provide support services for agricultural operations or operations related to public renewable energy sourcing, provided it does not remove high quality agricultural land.
- Provide tax incentives, technical and financial assistance, and public land or facilities that support agricultural operations and/or the marketing of products.
- Promote land trusts, conservation easements, agricultural dedications, and other mechanisms as incentives to preserve agricultural land use.
- Promote and provide opportunities for small family farms.

### **3.4.2 GUIDELINES**

- Limit the floor area of dwellings and prevent inappropriate urban uses, such as meeting facilities and conditional uses that have no direct relationship to agricultural or local community needs. Permit a dwelling only if it is accessory to a verifiable agricultural use on the same lot.
- Require new residential development to maintain an adequate buffer when adjacent to agricultural lands, giving consideration to topographic barriers, prevailing winds, and the noise and air-borne emissions associated with the type of agricultural operation.
- Adopt standards for roadway and other infrastructure design that are appropriate and intended for continued agricultural use rather than residential use.
- Require the acknowledgement of agricultural standards in the subdivision process and in all deeds to lots.
- Focus performance standards for agricultural zoning districts on preventing degradation of the natural environment, maintaining the viability of agricultural uses, and protecting the health and safety of agricultural workers rather than on disturbance to residential uses.
- Encourage development proposals of more than two lots to apply for cluster housing which provides a larger, contiguous area reserved for agriculture use.
- Structure property tax assessments and rates to encourage long-term leases for agricultural operations. Also, adopt lower development fees and standards for agricultural subdivisions that do not involve the construction of dwellings.
- Adopt zoning standards that promote the use of natural energy sources to support agricultural uses.

- Permit revenue-producing activities on lots where a commercial agricultural operation is being conducted, as ancillary uses. Allow these activities only if they do not interfere with surrounding agricultural uses. Examples of compatible activities include camping, picnicking, horseback riding, training and instruction, rodeos, polo matches, and tours of botanical gardens, fishponds, and *kalo lo'i*. Private parties promoting agricultural production or agriculture-related educational activities may be compatible, depending on the intensity of use and the location and size of the property. Recreational activities involving motorized vehicles and thrill craft are generally not considered compatible.

### **3.5 RESIDENTIAL USE**

The Community Growth Boundary is established to preserve open space and agricultural areas and contain the spread of development. Therefore, housing capacity in Ko'olau Poko will be increased only by:

- “Infill” development of remaining vacant lands in areas that are already urbanized;
- Subdivision of larger residential lots into smaller parcels at various locations throughout the region;
- Expansions of existing homes to accommodate larger households;
- Residential development on Marine Corps Base Hawai'i and lands under the jurisdiction of the Department of Hawaiian Homelands or the Office of Hawaiian Affairs;
- Additional housing units on existing residential lots through such programs as ‘ohana dwellings/accessory dwelling units; and
- Housing above storefronts in town centers.

While the development of vacant parcels is readily identified and their effects are more immediately apparent, the physical changes wrought by incremental intensification of residential use in existing built-up neighborhoods through subdivisions and home expansions will be slower and more subtle. Effective residential lot design standards which limit building height, coverage, paving, and the removal of landscaping may be implemented to avoid the long-term cumulative impact of this gradual transformation, which could adversely affect the character of existing neighborhoods.

Although recognized as a region with a slow growth policy, Ko'olau Poko continues to have a high demand for housing.

Land use planning at the local level has a limited ability to shape market forces or to influence the rate and amount of property taxes, but it can restrict transient occupancy of housing. Currently, except for nonconforming uses, vacation rentals within areas outside resort designations are not allowed. The current General Plan does not support vacation rentals in residential areas. The military can be encouraged to take a more active role in providing housing on-base for their personnel and dependents in order to increase the availability of housing for the local resident population.

Another concern of some Ko'olau Poko residents is the amount of large tour buses visiting the neighborhoods and the increase in vehicular and foot traffic. Residents are concerned about the potential hazards of large tour buses traveling on streets that have no sidewalks which could pose a danger to pedestrians and bicyclists. In general, the community would like to limit tour bus stops, loading, and unloading by prohibiting any new off-street parking or loading areas for large (15 passengers or more) private vehicles unless used for school or public transportation vehicles. To address the potential impacts and hazards that tour buses may have, a study could be undertaken to evaluate the impact of large vehicles on residential streets and implement its recommendations where warranted.

As noted in Section 2.1.7, Ko'olau Poko has two types of residential communities that are located within the Community Growth Boundary: one more suburban in character and the other more rural. The suburban communities are those identified in the General Plan as "urban fringe" areas, corresponding to the suburban communities of Kāne'ohe, Kailua, Mokapu Peninsula, Maunawili and 'Āhuimanu within the State Urban District boundary. The "rural" areas within the Community Growth Boundary consist of smaller, more dispersed, less intensively developed residential communities and towns than those of Ko'olau Poko's "urban fringe" areas; namely, the sections of Waimānalo, Kahalu'u, Wai'āhole and Waikāne in the State Urban District where there are clusters of parcels that are less than two acres in size occupied by dwellings or buildings used for community or commercial purposes other than agriculture.

While these two types of residential communities have some common features, they are distinguishable by their built form, particularly with respect to density of development. Accordingly, Section 3.5.2 contains two sets of guidelines for residential development: one for rural communities and the other for suburban communities.

### **3.5.1 POLICIES**

- Protect the character of existing residential areas and enhance desirable residential amenities.
- In accordance with the General Plan, increase housing capacity and address the trend toward decreasing household size through the development of new homes on lots presently designated for low-density residential use, and the expansion of existing homes in existing residential neighborhoods.
- Respond to the special needs of an aging population by providing future housing development for the elderly in a variety of living accommodations that are affordable to low- and moderate-income, gap group, and other elderly households; such as multi-generation households, group homes, assisted living units, and continuing care retirement communities.
- Provide greater emphasis on safe, accessible, convenient and comfortable pedestrian routes, bus stops, and bike routes in residential areas, even if this requires somewhat slower travel speeds or less direct routes.
- Allow community facilities such as schools, churches and meeting halls, as well as home-based occupations, with appropriate limitations on scale, siting and intensity of activity to respect adjacent residential uses and the prevailing character of the surrounding neighborhood.
- Encourage bus, pedestrian, and bicycle travel, particularly to reach neighborhood destinations such as schools, parks, and convenience stores, recognizing the need for accessible design and safe travel conditions for elderly and/or disabled people. Implement passive and active automobile traffic calming measures on residential neighborhood streets and plant street trees to provide shading for sidewalks and bus stops. Provide sufficient area within the public right-of-way to accommodate bus stop shelters.
- Encourage energy efficient features, such as the use of solar panels for heating water or electricity, and passive solar design, such as the use of window recesses and overhangs and orientation of openings to allow natural cross-ventilation. Also, incorporate resource conservation measures, such as water flow constrictors and facilities for the sorting of waste materials for recycling, in the design of new development and expansions of existing dwellings. Minimize the visual impacts of such measures.
- Avoid safety and health problems inherent in the development of land with steep slopes and/or potentially unstable soil conditions. Reevaluate and revise development standards governing such conditions to reflect the most current civil, soils, structural engineering and geological findings related to

this subject as well as the analysis of historical experience on O'ahu. Development within the 100 year floodplain needs to conform with regulations and guidelines of the Federal Emergency Management Agency.

- Regulate nuisance in zoning and environmental codes such that residential uses are given preference over non-residential uses within residential zoning districts.
- Evaluate the impact of large vehicles on residential streets and implement its recommendations, where warranted.

### **3.5.2      GUIDELINES**

This Plan recognizes two categories of residential development: Rural Communities and Suburban Communities.

#### **3.5.2.1    Rural Communities**

- Adopt development standards and design guidelines for residential-designated areas within the Community Growth Boundary in order to:
  - Minimize impervious surfaces;
  - Require greater building setbacks than in suburban residential zoning districts;
  - Generally limit building heights to two stories;
  - Allow relatively narrow roadway widths;
  - Allow alternative sidewalk designs, as compared to suburban communities, providing they comply with public safety and ADA standards;
  - Allow the use of detention basins and grassed swales for stormwater drainage instead of concrete curbs and gutters;
  - Encourage the retention of a neighborhood's character by avoiding a concentration of group living facilities and group homes;
  - Promote passive solar design, such as the use of sloped roof forms with wide overhangs, and residential-scaled energy conservation and natural energy harnessing devices;
  - Promote water conservation measures, such as flow constrictors, xeriscaping, and use of non-potable water sources for irrigation; and

- Achieve an overall residential density of no greater than four principal dwelling units per acre.

### **3.5.2.2 Suburban Communities**

- Adopt development standards and design guidelines for lots designated for residential use within the Community Growth Boundary in order to:
  - Retain the physical character and definition of neighborhoods and minimize long-term adverse impacts of expansions of existing homes and new infill development on surrounding neighborhoods;
  - Enhance the identities of neighborhoods through the use of landscaping, natural features, and building form and siting;
  - Encourage appropriate scale and privacy with respect to surrounding residential properties when infill development such as new homes or expansion of existing homes occurs;
  - Provide a range of housing at varying densities, depending on the characteristics of the surrounding neighborhood and the physical features of the site, but not to exceed six dwelling units per acre;
  - Limit building height to two stories;
  - Reduce the visual dominance of vehicular parking on residential lots and discourage the paving of yards;
  - Discourage the use of solid barrier walls that obscure views of the front yard and dwelling entrances from the street;
  - Prohibit development on slopes of 20 percent or greater that have soil characteristics indicating potential instability for building purposes;
  - Avoid the geographic clustering or concentration of group living facilities and group homes that are licensed by the State and/or allowed by federal laws;
  - Promote passive solar design, such as the use of sloped roof forms with wide overhangs, and residential-scaled energy conservation and natural energy harnessing devices; and
  - Promote water conservation measures, such as flow constrictors, xeriscaping, and use of non-potable water sources for irrigation.
- Implement traffic safety measures for streets in residential neighborhoods, including:

- Install traffic calming modifications at selected street locations where speeding is a chronic problem;
  - Install additional lighting or more visually prominent crosswalks at selected intersections where pedestrian safety is a concern;
  - Post signs or install striping for designated bike routes and bike lanes; and
  - Make sidewalk or pathway improvements and undertake operational measures that are identified as part of a Safe Routes to Schools or Complete Streets program, or other pedestrian safety initiatives.
- Adopt zoning maps that recognize existing residential apartment developments, but allow new apartment development only under the following circumstances:
  - The site is at least one acre in size and is located in close proximity to a Regional Town Center;
  - The building height does not exceed three stories; and
  - The density does not exceed 30 units per acre.

### **3.5.2.3 Special Needs Housing**

Special Needs Housing is typically comprised of facilities designed for certain segments of the population with special living requirements. Categories of special needs groups include low- and moderate-income sectors, elderly, disabled people, and people with health problems or needs for other forms of special care. Often such housing, including group living facilities and group homes, includes special features, such as congregate dining and social rooms; laundry, housekeeping and personal assistance services; shuttle bus services for project residents; and skilled nursing beds or physical therapy clinics.

Special needs housing are ideally located in close proximity to transit services and commercial centers since those with special needs are less likely or able to drive. Although special needs housing can occur at a variety of scales appropriate to the region's neighborhoods, it is intended that multi-family housing will be the primary form used to achieve economies of scale in the development of special needs housing. Thus, it is anticipated that special needs housing will be accommodated primarily within the low-density apartment areas and the commercial-residential mixed use areas in the Regional Town Centers.

### **3.5.3 RELATION TO MAP A-2, LAND USE**

Residential areas are shown conceptually on the Land Use Map in Appendix A as follows:

**Rural Communities.** This land use designation corresponds to smaller, more dispersed, less intensively developed residential communities and towns within the Community Growth Boundary.

**Suburban Communities.** This land use designation corresponds to areas identified in the General Plan as “urban fringe” areas. These residential communities consist of lots typically sized one acre or less.

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

Nonresidential 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, day-care centers, and other public facility and utility uses serving the area. It should be noted that some of these uses do require project review and/or public hearings and issuance of permits before they can be developed in residential and rural areas.

## **3.6 COMMERCIAL AND INDUSTRIAL USES**

Much of the commercial development in Ko’olau Poko is in the form of shopping centers. Some are located within the central business districts of Kāne’ohe and Kailua, while others are located in outlying areas, usually surrounded by suburban residential neighborhoods and smaller commercial properties. Listed in Table 3.6 are the shopping centers that contained over 50,000 square feet of gross leasable area in 2010.

The main commercial district in Kailua is currently undergoing redevelopment. The former Don Quijote was replaced by a new 130,000 square foot Target Corporation store and other new stores, such as the 33,500 square foot Whole Foods Market, have joined the Kailua Town Center. Redevelopment of the commercial district includes the addition of other businesses, but Target in particular, has drawn opposition from many Kailua residents. The main concerns were the “big box” scale and impact on the community.

A “big box” retail establishment is generally a single freestanding store belonging to a chain of stores and measuring 50,000 square feet or more. Big box stores are

typically situated on the property to be car-oriented and not pedestrian friendly and big box stores draw customers from an area much larger than the community in which it is located. The amount of floor area, the traffic it generates, the flow of traffic around the community, and the effects on smaller businesses were the main concerns of the recent redevelopment. In general, the community would like to discourage additional big box retail stores or factory outlet stores in the town centers unless they retain a more pedestrian-oriented environment along the sidewalks and not larger than 90,000 square feet of floor area.

**Table 3.6**  
**Major Shopping Centers in Ko'olau Poko**

Shopping Center	Site Area (Acres)	Gross Leasable Area (Sq Ft)	Location Characteristics
'Aikahi Park	7.9	103,000	Outskirts of Kailua at major collector road intersection; Pali Palms Center across street
Enchanted Lake	5.5	75,000	Within Enchanted Lake community in the outskirts of Kailua; other small commercial properties located adjacent and across street
Kailua	2.3	84,222	Within Kailua central business district
Kāne'ohe	3.3	54,000	Within Kāne'ohe central business district
Kāne'ohe Bay	10.0	106,000	Edge of Kāne'ohe central business district; across Kamehameha Highway from Windward Mall
Temple Valley	12.3	100,866	Within 'Āhuimanu community; surrounded by townhouse and low density apartment development
Windward City	15.4	231,782	Within Kāne'ohe at major highway intersection; small commercial and industrial properties nearby
Windward Mall	32.0	530,000	Edge of Kāne'ohe central business district; across from Kāne'ohe Bay Shopping Center
Windward Town & Country	5.6	87,639	Within Kailua central business district

Source: International Council of Shopping Centers, 1992 Directory; interviews with property managers.

"Major" is defined as those with over 50,000 sq. ft. of gross leasable floor area.

The majority of office space in Ko'olau Poko is located in Kāne'ohe, with an inventory of approximately 212,000 square feet. Given current high vacancy rates, there is little demand for expansion of office space in the region. The existing supply is anticipated to be sufficient to meet near-term increases in demand should economic conditions change.

**Table 3.7**  
**Office Space in Ko'olau Poko**

Office Building	Net Rentable Area (Sq Ft)
Castle Professional Center	62,820
Enchanted Lake Plaza	19,385

Kailua Commercial Center	26,469
Pali Palms Plaza	58,604
Windward Business Center	58,253

Most of Koʻolau Poko’s industrial land is within the Kapaʻa light industrial subdivision. The designated industrial land and building inventory is expected to be capable of meeting future demand, especially in light of the declining island-wide demand for industrial space and no windward airport or harbor to generate or sustain high demand in the area. Industrial activities and future opportunities are likely to be limited to small service and repair operations, storage facilities, and other service business uses that are oriented to the needs of the region’s suburban and rural communities. Such uses, which are commercial in character, are permitted in the Kāneʻohe and Kailua Regional Town Centers. The anticipated demand for industrial space in this region will be more light industrial uses and can be accommodated within the existing industrial or mixed use zones of the town centers of Kailua and Kāneʻohe and in the vicinity of the Kapaʻa quarry. However, a light industrial site in Waimānalo should be considered to address parking and maintenance needs of large trucks and industrial vehicles.

### 3.6.1 POLICIES

For purposes of this Plan, the various types of commercial and industrial uses are defined and designated in five categories: Rural Commercial Center, Suburban Commercial Center, Community Commercial Center, Regional Town Center, and Light and Extractive Industry. The policies pertaining to each of these categories are as follows:

#### 3.6.1.1 Rural Commercial Center

The Rural Commercial Center is a small cluster of commercial and service uses which serve primarily the surrounding rural community. Due to their highway exposure, many businesses also attract visitors and residents from outside the immediate community. The Rural Commercial Center typically consists of small business establishments located on small land parcels rather than in shopping centers. At present, commercial uses within the rural communities are somewhat dispersed along highway frontages.

Policies pertaining to Rural Commercial Centers are as follows:

- Promote a more concentrated, but small-scale center for commercial activities and services for rural communities and agricultural enterprises in Kahaluʻu and Waimanālo.

- Maintain consistency in architecture and scale between the building mass of a commercial center and its rural setting. Ensure that the architectural character of commercial centers respects the surrounding context, particularly when located adjacent to a residential area or significant natural or historic feature. Commercial centers lend themselves to the application of urban design features that provide distinctiveness to each center and strengthen the characteristics of the communities they serve.

### **3.6.1.2 Suburban Commercial Center**

The Suburban Commercial Center typically encompasses an area of about five to ten acres or less, with an aggregate floor area of up to 100,000 square feet. It may consist of a shopping center on a single lot, a concentration of commercial establishments on smaller lots, or a combination of the two. It is located within or adjacent to a residential neighborhood and contains services and shops catering to common household needs. Some examples of such businesses are grocery stores, pharmacies, copy centers, dentists, and banks.

Policies pertaining to Suburban Commercial Centers are as follows:

- Designate commercial properties within the Community Growth Boundary that are not defined as Community Commercial Centers or Regional Town Centers as Suburban Commercial Centers.
- Maintain the present scale and purpose of the Suburban Commercial Centers, but allow minor expansions of floor area on lots that are presently zoned for commercial use.
- Emphasize retail stores, personal services and public facilities designed to serve the needs of the surrounding community, i.e., typically residents within a one- to two-mile radius.
- Incorporate site design and facilities to promote pedestrian and bicycle access.
- Maintain compatibility in architectural design and scale between the building mass of a commercial center and its urban and natural setting, particularly when located adjacent to a residential area or significant natural or historic feature.

### **3.6.1.3 Community Commercial Center**

The typical Community Commercial Center is situated along an arterial road or at the juncture of major roads. The nucleus is a retail shopping center that occupies between 10 to 30 acres and contains up to 250,000 square feet of floor area, but

with the addition of adjacent, smaller sites the entire Community Commercial Center may encompass up to 50 acres. In addition to the uses found in Suburban Commercial Centers, Community Commercial Centers may include offices, service industrial establishments, entertainment and social centers. Windward City Shopping Center and adjacent commercial uses fall into this category.

Policies pertaining to Community Commercial Centers are as follows:

- Retain the present purpose and approximate size of Community Commercial Centers.
- Allow modest additions of floor area and parking through redesign of site.
- Prohibit expansion of commercial zoning to additional lots in the vicinity of these centers, except for those near Windward City that are presently zoned heavy industrial, but are predominantly in commercial-type uses.
- Incorporate site design and facilities to promote pedestrian and bicycle access.
- Maintain compatibility in architecture and scale of commercial centers and their urban and natural settings, particularly when located adjacent to a residential area or significant natural or historic feature.

#### **3.6.1.4 Regional Town Center**

The commercial core areas of Kāne'ohe (defined by the Kāne'ohe Town Plan as the Windward Mall area in general) and Kailua are defined as "Regional Town Centers". They offer a wider range of shopping and services than the other commercial centers in the region, including light industrial uses. Their roles will be intensified and enhanced by directing new commercial development to these centers, increasing the mix of uses and types of services and activities in the centers and providing more convenient public transportation access and pedestrian amenities within and leading to the centers.

Regional Town Center policies are as follows:

- Designate the centers of Kāne'ohe and Kailua as the focal points for regional shopping and services. This may include small to medium-sized office buildings and "service-industrial" establishments.
- Allow low-density apartment and special needs housing uses in the commercial district to stimulate business activity and create a livelier environment, but not to the extent that it is inconsistent with General Plan population policies, nor to the extent that a net loss of commercial floor area is realized in the affected Regional Town Center.

- In the centers of Kāne'ohe and Kailua, integrate the pedestrian circulation system with linkages through blocks to public sidewalks and transit stops. Encourage the design of storefronts and entries to business establishments to support this pedestrian orientation.
- Encourage shared use of parking to reduce the dominance of parking lots. Implement a parking improvement district in Kāne'ohe and expand the parking improvement district in Kailua.
- Scale and site buildings to be consistent with the surrounding context. Provide appropriate setback and height transitions.
- Incorporate site design and facilities to promote pedestrian, bicycle, and transit access.
- Promote efficiencies and other improvements in traffic and parking conditions by redesigning or re-siting parking lots, driveways (particularly in the Kailua Regional Town Center) and walkways and providing shuttle bus services within the Kailua and Kāne'ohe communities and their respective Regional Town Centers.
- Maintain consistency in architecture and scale between the building mass of a commercial center and its urban and natural setting, particularly when located adjacent to a residential area or significant natural or historic feature. The Regional Town Centers may reflect a more urban architectural character, with emphasis on pedestrian-scaled design and features.
- Encourage environmental compatibility via use of energy efficient features, such as solar panels for heating water or electricity, and passive solar design, such as the use of arcades, window recesses and awnings and orientation of openings to allow natural cross-ventilation. Also, incorporate resource conservation measures, such as water flow constrictors and facilities for the sorting of waste materials for recycling, in the design of new development.

### **3.6.1.5 Light Industrial and Extractive Industries**

This description pertains to light industrial uses and resource extractive activities, such as sand and rock quarrying. Ko'olau Poko has two quarry sites, one in Waimanalo and the other at Kapa'a. The former quarry at Kapa'a was the site of the City's largest sanitary landfill for many years until its closure in 1997. A portion of the existing Kapa'a quarry is bounded by light industrial uses. This Plan anticipates the continuation of existing quarries.

Policies pertaining to light industrial and extractive industries are as follows:

- Promote a re-use plan for the Kapa'a quarry sites that emphasizes the restoration of natural conditions rather than urban uses. Use fill material that is engineered and generally consists of natural materials or non-toxic construction debris. Limit the quantity of fill material to the amount necessary to simulate the original topographic conditions of the site. Provide a suitable depth of topsoil to establish plant material similar to that in the surrounding area.
- Promote a re-use plan for the Kapa'a quarry that includes an expansion of light industrial use, if sufficient demand can be demonstrated.
- Promote a re-use plan for the quarry site in Waimanalo that supports the development of Hawaiian Home Lands residential lots and a neighborhood mini-park.

### **3.6.2 GUIDELINES**

Guidelines for commercial and light industrial uses are as follows:

#### **3.6.2.1 Rural Commercial Centers**

##### ***Architectural Character and Building Mass***

- Encourage the rustic appearance in building forms, with pitched roof forms or “false-front” parapets characteristic of rural towns in Hawai'i.
- Promote individual business establishments that are relatively small and focused on provision of goods and services primarily to the surrounding rural community or agricultural activities.
- Site buildings close to the roadway in the manner of a traditional rural village.
- Keep meeting facilities, other than schools or service facilities, relatively small in area and focused on accommodating the needs of the surrounding rural community or agricultural activities.
- In Kahalu'u, improve the commercial center in the vicinity of the Kamehameha Highway-Kahekili Highway intersection in accordance with the design recommendations of the Kahalu'u Community Master Plan (2007).

### ***Visual Screening, Lighting and Signage***

- Encourage informal landscaping, subdued road signage and lighting, and parking lots that are visually subordinate to the buildings and landscaping.
- In Kahalu'u, implement the landscape, fencing and signage improvements in public rights-of-way and in lands recommended in the Kahalu'u Community Master Plan (2007).

### ***Vehicular Access***

- In Kahalu'u, implement the traffic calming and transportation measures, i.e., roadway treatments, bus stop relocation, bikeway, that are recommended in the Kahalu'u Community Master Plan (2007).

### ***Outlying Commercial Uses***

- Outside of the Rural Commercial Centers, allow structures occupied by existing commercial, light industrial or community facility uses to be rebuilt or remodeled within their present floor area, provided they meet the design guidelines for Rural Commercial Centers.
- Further explore and define the needs for a community baseyard and vocational training center in Waimanalo, as part of the implementation of the Waimanalo Business Plan.

### **3.6.2.2 Suburban and Community Commercial Centers**

#### ***Architectural Character and Building Mass***

- Retain the residential character; height, size, and massing of buildings to be compatible with adjacent residential areas.
- Limit the total floor area of Suburban Community Centers to a maximum of 100,000 square feet, and limit the aggregate floor area of all properties within Community Commercial Centers to 350,000 square feet.
- Encourage gable and hip-form roofs, using breaks in the roof line to reduce the apparent scale of large roof plates.
- Express residential character by using exterior materials and colors that are contextual with the neighborhood character.

### ***Vehicular Access***

- Provide access to the parking and loading areas from a collector street, when available.
- Encourage use of shared driveways to access parking areas between buildings.
- Permit access to a local residential street only if it is for emergency or secondary access and would not encourage through traffic along the local street.

### ***Pedestrian and Bicycle Facilities***

- Provide pedestrian access from the public sidewalk or other off-site pedestrian pathway to the entrance of establishments in the commercial center that does not require crossing a traffic lane or parking lot aisle or driveway.
- Provide a direct pedestrian connection from the interior walkways in the commercial center to a bus stop, if a bus stop is nearby.
- Provide bicycle racks for security. Locate bicycle racks to be visible and readily accessible from the street entry.

### ***Visual Screening, Lighting, and Signage***

- Visually screen parking and service areas from streets and residential areas.
- Include a landscaped screen of trees and hedges along the street frontages and property lines.
- Use only fully-shielded lighting which does not exceed the minimum standards necessary to meet safety and security requirements in parking lots.
- Ensure compatibility between the type, size, design, placement, and color of signage and the context of adjacent facilities and uses.

#### **3.6.2.3 Regional Town Centers (Kailua and Kāne'ohe)**

##### ***Mix of Uses***

- Locate public uses serving a regional purpose -- such as Satellite City Halls, regional libraries, police substations, post offices, and civic centers - within or adjacent to Regional Town Centers and not in outlying areas. Public facilities that have smaller service areas or that are an integral part of a regional network, such as elementary

schools, fire stations, pump stations, and utility substations, may be located in outlying areas.

- Locate service industrial uses within enclosed buildings.
- Locate, design, and operate uses that generate undue noise levels in a way that will keep noise to an acceptable level in adjacent areas.

### ***Architectural Character and Building Massing***

- Allow variation in architectural character, depending on the context and theme for the particular center. For portions of commercial center buildings that are adjacent to, or readily visible from, residential areas, encourage architectural character that reflects and are compatible with the residential character; or screen from view from such areas by landscaping.
- Avoid blank facades on portions of buildings visible from public areas by using texture, articulation, color, and fenestration to create visual interest.
- Limit building heights to 40 feet, as is currently established, with height setback transitions from street frontages, the shoreline, and adjacent residential areas.
- Limit the total floor area belonging to a single business to 90,000 square feet.
- Locate street facades of buildings at or near the street property line and incorporate display windows. Orient the primary entries to commercial establishments toward the sidewalk.
- Locate parking for individual commercial structures behind or to the side of the building. Secondary entries to business establishments may be provided from parking areas.
- Encourage the development of cooperative parking agreements among neighboring businesses and landowners.

### ***Pedestrian, Bicycle, and Transit Facilities***

- Provide street frontage improvements for bus stops, including bus shelters and dedicated loading lanes, along all abutting streets that have bus routes.
- Provide a pedestrian pathway from the bus stop to an entrance to the main building of the commercial center. Clearly indicate the

pathway with special paving or markings and provide weather protection, where feasible, if the commercial center building is not directly connected to the bus shelter.

- Design and place bicycle parking in secure places that are visible from the main street or parking entry to the commercial center.

#### ***Visual Screening, Lighting and Signage***

- Buffer noise and other adverse impacts related to parking, loading and service areas from adjacent residential areas with proper siting and by landscaped berms or solid walls fronted by landscaping.
- Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages.
- Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping to soften the appearance of large solid walls.
- Signage may be directly illuminated, but discourage the use of direct illumination of building features. Use only fully-shielded lighting to avoid direct visibility from residential areas.

#### **3.6.2.4 Light and Extractive Industry**

##### ***Visual Screening, Lighting and Signage***

- Buffer noise and other adverse impacts from quarrying operations from adjacent urban uses, wildlife preserves and public roads by a combination of landscaped berms and setbacks.
- For light industrial uses, buffer noise and other adverse impacts from parking, loading and service areas from adjacent urban uses, wildlife preserves and public roads by a combination of solid walls or berms and landscaped setbacks.
- Plant a landscape screen, consisting of trees and hedges, along roads fronting parking lots or garages.
- Visually screen storage areas for vehicles, equipment, and supplies from adjacent roads, wildlife preserves and urban uses by privacy walls and by building orientation. Soften the appearance of screening walls by landscaping in front.
- Use fully-shielded lighting that balances the needs for public safety, security, energy conservation, and wildlife protection.

### ***Drainage and Waste Material***

- Manage stormwater runoff through application of Best Management Practices (BMPs) or containment or filtering onsite. To minimize the creation of impervious surfaces, alternatives to hardscape are encouraged. Avoid discharge into adjacent wildlife preserves, water resources, sanitary sewage systems, or other urban use areas.
- Prevent leachates from underground storage tanks or fill material from migrating offsite, applying particularly stringent measures to sites near wildlife preserves. Where practicable, institute leachate management systems from existing and closed quarries and landfills.
- Prevent litter and other waste material from encroaching into adjacent sites through the use of proper operational means, as well as landscaping.

#### **3.6.3 RELATION TO MAP A-2, LAND USE**

Commercial and industrial areas are conceptually shown on Map A-2, Land Use, as follows:

**Rural Commercial Centers.** The Rural Commercial Centers of the rural communities of Waimanālo and Kahalu'u are illustrated on the Land Use Map and designated "RC."

**Suburban Commercial Centers and Community Commercial Centers.** The locations of Community Commercial Centers and Suburban Commercial Centers with an aggregate floor area of more than 50,000 square feet are shown on the Land Use Map and designated with "CC" and "SC", respectively.

**Regional Town Centers.** The components of the Regional Town Centers of Kailua and Kāne'ohe are designated with "TC," representing the general location, size and shape of the respective land areas.

**Light and Extractive Industry.** Industrial areas are indicated on the Land Use Map.

## 3.7 INSTITUTIONAL USES

Ko'olau Poko is home to several public and private institutional campuses. Its secondary school campuses are listed and discussed in Section 4.7. Table 3.8 lists other significant institutions.

Table 3.8 Institutional Campuses in Ko'olau Poko	
Institution	Location Characteristic
Hawai'i Pacific University	In State Conservation District surrounded by open space
Windward Community College	Situated between Kāne'ohe State Hospital and Kāne'ohe District Park
Oceanic Institute	Mauka of Kalaniana'ole Highway near Makapu'u
Hawai'i Jobs Corp	Mauka of Kalaniana'ole Highway in Waimanalo
Castle Memorial Hospital	At edge of Kawainui Marsh and the entry to Kailua
Kāne'ohe State Hospital	Mauka of Windward Community College and Kāne'ohe District Park to the Conservation District
Hawai'i Youth Correctional Facility – Ko'olau	Makai of Kalaniana'ole Highway at edge of Kailua
Hawai'i Youth Correctional Facility – Kawaihoa	Mauka of Kalaniana'ole Highway at edge of Kailua

### 3.7.1 POLICIES

The following policies are applicable to institutional campuses:

- **New Campuses.** The decrease in population forecast for 2035 for Ko'olau Poko does not warrant major new schools, hospitals, or similar institutions to serve these communities. No new institutional campuses are proposed in this Plan, although they may be appropriate if they respond to or advance the vision for the region.
- **Existing Campuses.** Existing institutions may expand facilities and programs within the campuses they presently occupy; however, because the major institutions are located adjacent to significant scenic resources, ensure that the

campuses retain an open space character. Design and site buildings and facilities on the campus to respect the scenic context. Ensure that the architectural character of institutional buildings and structures respect the surrounding urban and natural features, particularly when located adjacent to a residential area or significant natural or historic feature.

- ***Environmental Compatibility.*** Encourage energy efficient features, such as the use of solar panels for heating water, and passive solar design, such as the use of window recesses and overhangs and orientation of openings to allow natural cross-ventilation. Also, incorporate resource conservation measures, such as water flow constrictors and facilities for the sorting of waste materials for recycling, in the design of new development.

### **3.7.2      GUIDELINES**

#### ***Architectural Character and Building Massing***

- Reflect in the site plan a campus-like environment with a relatively low building coverage ratio and low profile, emphasize open space and landscaping.
- Vary the architectural character, depending on theme and purpose of the use. Design portions of buildings that are adjacent to or readily visible from residential areas to reflect that residential character or be screened from view from such areas by landscaping.
- Limit building heights to two to three stories or 40 feet, including the roof form. Provide height setback transitions from street frontages, the shoreline, and adjacent residential areas.

#### ***Pedestrian, Bicycle, and Transit Facilities***

- Provide street frontage improvements for bus stops, including a bus shelter and a dedicated loading lane, along all abutting streets that have bus routes.
- Provide a pedestrian pathway from the bus stop to an entrance to the main building of the institution. Clearly indicate the pathway with special paving or markings.
- Design and place bicycle parking in secure places that are visible from the main street or parking entry to the institution.

#### ***Visual Screening, Lighting and Signage***

- Buffer the noise and other adverse impacts from parking, loading, and service areas from adjacent residential areas by a combination of walls or berms and landscaped setbacks.

- Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages. Plant shade trees throughout parking lots.
- Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping used to soften the appearance of large solid walls.
- Signage is non-illuminated or indirectly illuminated. Outdoor lighting is fully-shielded to avoid light trespass over residential areas.

### **3.7.3 RELATION TO MAP A-3, PUBLIC FACILITIES**

The general locations of existing larger institutions, such as intermediate and high schools, colleges, hospitals and correctional facilities, are indicated on the Public Facilities Map, A-3. Elementary schools, churches, child care centers, fire stations, and other public facility and utility uses serving the area are not specifically designated on the Public Facilities Map, A-3, but are allowed in all residential and commercial areas, subject to appropriate zoning controls to assure compatibility with surrounding uses.

## **3.8 MILITARY USES**

Ko'olau Poko contains the following military installations: Marine Corps Base Hawai'i in Kāne'ohe (MCB Hawaii) on Mōkapu Peninsula; Marine Corps Training Area Bellows (MCTAB); and, the Bellows Air Force Station in Waimanālo. In 1994, all of the Marine Corps landholdings and installations were consolidated under a single command at MCB Hawai'i. This was in part a result of the decision to close the Barbers Point Naval Air Station (BPNAS) in 'Ewa, whose functions were to be absorbed by MCB Hawai'i. On January 5, 2000, the Marine Corps acquired 1,049 acres from the Air Force to form MCTAB. The U.S. Air Force retained approximately 274 acres for its existing recreation and training area under Detachment 2, 18<sup>th</sup> Force Support Squadron.

For safety and security reasons, public access to the MCB Hawai'i is restricted. At present, the beach area of MCTAB serves as a site for military exercises and training and a portion of the land near the shoreline is used as a recreation facility for military personnel. Native Hawaiians have lobbied for the return of MCTAB to the State of Hawai'i for the use of the Department of Hawaiian Home Lands. However, there has been increasing use of Bellows by the Hawai'i Air and Army National Guards in the last decade. This increase in use has also increased noise impacts to surrounding homes. In addition, noise generated by aircraft operating at MCB Hawai'i directly impact the residents of Kane'ohe, due to the flight patterns used and the particular geographic features of the region. The high volume noise generated

from large aircraft at the airport facilities has adversely impacted the quality of life of residents in the surrounding community.

Noise impacts from military installations are not regulated by the Federal Aviation Administration or the Hawai'i Department of Health. Community concerns regarding noise impacts are normally directed to the originating installation.

Military installations consider themselves a member of the community and routinely work directly with local comprehensive planning efforts. The military takes a proactive approach to understanding encroachment and community concerns, while at the same time articulating its military mission and operational requirements for installations, ranges, and training areas. The dialogue supports good communication and partnering. Securing the nation depends on realistic training for its military units. The use of actual weapon systems and detonation of live ordinance, night training, and low-level flight are just a sample of the requirements for representation of real life conditions and effective training. Recognizing that the sounds of military operations can affect people's lives, the military services (Army, Navy, Marines, and Air Force) continues to work with civilian partners and to listen to residents' concerns regarding the sounds associated with military training that may be disruptive to their community.

National defense objectives and budget priorities that are difficult to foresee determine the level of military presence. Nevertheless, more recent events indicate the likelihood of a long-term commitment to military presence and training in Ko'olau Poko. This Plan therefore assumes that MCB Hawai'i and MCTAB will remain under military control. However, portions of MCTAB may continue to be available for civilian use through agreements with the City.

### **3.8.1 POLICIES**

- The State of Hawai'i should continue to pursue the release of surplus federal lands, including those at Bellows, for civilian use. When such is released, reserve beachfront area for recreational use in perpetuity. *Mauka* areas could also be used for recreational purposes or for other purposes. Discourage any residential or commercial uses unless they constitute a minor portion of the total site area and are located outside of flood hazard areas and adjacent to existing similar uses.
- Encourage energy efficient features, such as the use of solar panels for heating water and electricity, and passive solar design such as the use of window recesses and overhangs and orientation of openings to allow natural cross-ventilation. Also, incorporate resource conservation measures, such as water flow constrictors and facilities for the sorting of waste materials for recycling, in the design of new development.

- Encourage pro-active and periodic communication between the military and neighboring community organizations, including affected residences of military activities, to disclose and address adverse impacts attributed to military operations. Share in advance with the community and affected residences, schedules for training exercises anticipated to have a significant noise impact and provide contact information for its Public Affairs Office or the Community Plans and Liaison Officer.

### **3.8.2     GUIDELINES**

#### ***Architectural Character and Building Massing***

- When buildings and structures are visible from an adjacent non-military use, reflect the scale and design character of the adjacent non-military use or screen from view from such areas by landscaping.
- Limit building heights to two to three stories or 40 feet, including the roof form, except to meet specific mission-critical design requirements. Height setback transitions are provided from streets, the shoreline, and adjacent residential areas.

#### ***Pedestrian, Bicycle, and Transit Facilities***

- Provide street frontage improvements for bus stops, including a bus shelter and a dedicated loading lane along all abutting streets that have bus routes.
- Provide a clearly indicated pedestrian pathway, such as special paving or marking, from the bus stop to the base's main entrance.
- Design and place bicycle parking in secure places that are visible from the main street or parking entry.

#### ***Visual Screening, Lighting and Signage***

- Buffer the noise and other adverse impacts from parking, loading, and service areas from adjacent residential areas by a combination of solid walls or berms and landscaped setbacks.
- For parking lot lighting, use fully-shielded fixtures and low intensity lamps.
- Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages. Plant shade trees throughout parking lots.

- Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping used to soften the appearance of large solid walls.
- Use non-illuminated or indirectly illuminated signage. Fully shield lighting to avoid light trespass into residential and public areas.

### **3.8.3 RELATION TO MAP A-2, LAND USE**

Portions of military lands that are occupied by identifiable urban uses, such as housing, commercial establishments and military buildings of an industrial character, are reflected on the map in the same way that comparable civilian uses are. Military lands used for training exercises, munitions storage or similar uses that have an open space character are represented in the Land Use Map, A-2. Other lands under military control that have no specified use or that are designated as protected habitats are represented in the same way as Preservation areas under civilian control

When lands are released from military jurisdiction, the use depicted on the Land Use Map, A-2, shall be the basis for determining the appropriate civilian use. Where major deviations from these designated uses are proposed, an amendment of the Plan and its Land Use Map may be required if large tracts of land are involved.

## **4. PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES**

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The vision for Ko‘olau Poko will be implemented in part through application of the policies and guidelines for public facilities and infrastructure, which are presented in the following sections.

This chapter is organized under the following headings:

### **Section**

- 4.1 Transportation Systems
- 4.2 Water Systems
- 4.3 Wastewater Management
- 4.4 Electrical and Communications Systems
- 4.5 Solid Waste Handling and Disposal
- 4.6 Drainage Systems
- 4.7 School and Library Facilities
- 4.8 Civic and Public Safety Facilities and Community Resilience

### **4.1 TRANSPORTATION SYSTEMS**

This section describes the existing road, transit, bikeway and pedestrian network in Ko‘olau Poko as well as plans for future improvements. These elements are shown in Map A-3, Public Facilities, in Appendix A. The section concludes with policies and guidelines to direct future transportation system development in Ko‘olau Poko with the understanding it will be part of an island-wide multi-modal transportation system.

Act 54 (Session Laws Hawai‘i, 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, bicyclists, and transit passengers of all ages and abilities.

#### **4.1.1 ROADWAY NETWORK**

The Ko‘olau Poko Sustainable Communities Plan Area is served by several highways that provide access across the Ko‘olau Mountain Range and other parts of the island:

- **Likelike Highway, Pali Highway, and the H-3 Freeway** traverse the Ko‘olau Mountain Range and provide direct access between the windward and

leeward sides of the island. The latter, a U.S. Interstate opened in 1997, begins at the MCB Hawai'i in Kāne'ohe and connects to H-1 and the Moanalua Freeway at Halawa.

- **Kamehameha and Kahekili Highways** connect to trans-Ko'olau highways and link Ko'olau Poko to other windward O'ahu locations. In the mid-1990's, Kahekili Highway was widened to six lanes from Likelike Highway to Kahuhipa Street, and to five lanes from Kahuhipa Street to Haiku Road.
- **Kalaniana'ole Highway** links Ko'olau Poko to communities in East Honolulu and serves as a scenic, secondary route for travel between Kailua/Waimānalo and Honolulu.

The 2035 O'ahu Regional Transportation Plan (ORTP) serves as a guide for the development of recommended major surface transportation facilities and programs. It identifies short- and long-term plans for major highway projects, transit improvements and transportation demand management (TDM) measures (e.g. park-and-ride lots and rideshare programs). The plan lists projects by the time period in which they are expected to be completed. Some projects identified are conceptual or generic in nature and serve as "placeholders" in order to qualify for federal funding rather than as indicators of specific projects or solutions. The following projects are identified in the current ORTP. These are in addition to islandwide projects. The ORTP is currently being updated to year 2040.

#### 2011 - 2020 Time Period

- Construct safety improvements to Kamehameha Highway from Hale'iwa to Kahalu'u.
- Construct safety and operational improvements along Kamehameha Highway between Ka'alaea Stream and Hygienic Store.
- Construct operational and safety improvements to Kalaniana'ole Highway between Olomana Golf Course and Waimānalo Beach Park.
- Protect shoreline along Kamehameha Highway and other locations.

#### 2021 - 2035 Time Period

- Widen Kahekili Highway from 2 to 4 lanes from Kamehameha Highway to Ha'ikū Road, to include:
  - Enabling contraflow in the existing right-of-way between Hui Iwa Street and Haiku Road, and

- Making intersection improvements at Hui Iwa Street and Kamehameha Highway

The above listed projects were based on a preliminary anticipated growth in population and economic activity in 2006 and may not be necessarily needed or desirable in light of revised projections.

In addition to the projects listed under the ORTP, appropriate measures to reduce risks and increase resiliency should be implemented, where feasible, to respond to the impacts of sea level rise due to climate change. Improvement and/or relocation of roadways and associated infrastructure should be considered for new public and private projects in shoreline and storm surge impact areas.

#### **4.1.2 TRANSIT SYSTEM**

TheBus system in Ko'olau Poko is organized in three service categories:

- **Suburban trunk service**, which provides direct, multi-stop connections between suburban neighborhoods and activity centers within Ko'olau Poko;
- **Suburban feeder service**, which provides suburban neighborhoods that are not directly served by trunk routes access to the transit system -- namely to express and trunk service routes; and
- **Express service**, which provides direct non-stop connections between Ko'olau Poko and the major activity centers in the urban core of Honolulu.

To support the express bus service for commuters, a transit center is proposed within the Regional Town Center of Kāne'ohe to function as a collection and distribution hub. The transit center proposal considers parking facilities to provide more convenient access for bicyclists, pedestrians and riders of the "circulator" buses or vans. This, in turn, will stimulate economic and community activity in the Regional Town Center, as envisioned in Chapter 2 of this Plan.

#### **4.1.3 BIKEWAY SYSTEM**

Bike Plan Hawai'i (2003), a State master plan for bikeways, defines the various types of bikeways:

- **Signed Shared Roadway.** Any street or highway specifically designated by signs for the shared use of bicycles and motor vehicles and/or pedestrians. Such facilities are of two types: a widened curb lane in an urban-type area or a paved right shoulder in a rural-type area. The Signed Shared Roadway is,

according to Bike Plan Hawai'i, "...the preferred route for bicycle use," when mainly due to land width or other mitigating factors.

- **Bicycle Lane.** A portion of a roadway designated by striping, signing, and/or pavement markings for the preferential or exclusive use of bicycles. The right-of-ways assigned to bicyclists and motorists are delineated to provide for more predictable movements of each. Only crossflows by motor vehicles or pedestrians to gain access to driveways or parking facilities or bus stops are allowed.
- **Shared Use Path.** A bikeway 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.

In Ko'olau Poko, the existing bikeway system consists of discontinuous segments of bike lanes, bike routes and bike paths in Kāne'ohe, Kailua, Lanikai and Waimānalo. Significant community interest has been communicated regarding connection of segments and expansion of the bikeway system in general. The State's bikeway master plan proposes substantial additions to Ko'olau Poko's bikeway system to create an interconnected grid through the more populated areas and links to East Honolulu via Kalaniana'ole Highway and to Ko'olau Loa via Kamehameha Highway. The creation of the grid will enhance the potential for bike travel for short commuting and incidental trips. Also, the grid can be expanded by marking bicycle lanes where the existing right-of-way width permits on local streets in residential neighborhoods as part of a "traffic calming" program.

In 2012, the City Council adopted the O'ahu Bike Plan, which builds upon the 1999 Honolulu Bicycle Master Plan.

#### 4.1.4 PEDESTRIAN CIRCULATION

For the past several decades commercial developments and residential subdivisions have been required to install sidewalks along street frontages, but there are many areas throughout Ko'olau Poko where there are inadequate surfaces or clearances for walking within the road rights-of-way.

High costs and adverse environmental effects make it impractical and undesirable to install formal sidewalks along all roadways in rural and older, low-density suburban areas. In most sections, the volume or speed of vehicular traffic is low enough to allow pedestrians to share the road surface or move over to the road shoulder while a vehicle passes. In areas where there are conflicts between vehicular and pedestrian travel, safety should be improved by making relatively modest changes to

the right-of-way to slow vehicular speed, enhance sight distances, and separate vehicular and pedestrian traffic.

Most street frontages in higher density residential areas and commercial districts have public sidewalks, but many are too narrow or too cluttered with utility and street light poles, signposts, traffic control boxes and other fixtures to accommodate comfortable and safe pedestrian movement. Even street trees may become obstacles rather than amenities for pedestrians when the sidewalk is too narrow or the trees are inappropriately placed.

An integrated approach to planning for pedestrians is needed in the areas where activity is more intensive. The Regional Town Centers of Kailua and Kāne'ohe – especially the latter -- should be improved significantly by designing and implementing a pedestrian circulation plan to provide a safe, convenient and attractive network of public walkways consisting of sidewalks, streamside paths and passageways through or along parking lots and buildings. The circulation plan should not only designate routes, but also provide detailed design guidelines for pavement width and material, rehabilitation of footpaths in older residential neighborhoods (including asphalt footpaths), street crosswalks, landscaping, signage, street fixtures, transit stops and other elements of the pedestrian environment. The recently passed "Complete Streets" ordinance, which addresses these issues and promotes an integrated planning and design approach City-wide, should be implemented.

#### **4.1.5 POLICIES**

- Reduce reliance on the private passenger vehicle by promoting transportation system management and travel demand management measures for both commuting and local trips.
- Encourage the provision of infrastructure to support alternative fuel vehicles.
- Improve adequate and improved mobility between communities, shopping, and recreation centers; especially by enhancing transit, pedestrian, bicycle, and other forms of personal mobility vehicle modes of travel.
- Reduce conflicts between pedestrian travel and vehicular travel and improve pedestrian safety.
- Promote connectivity in the design of new or enhancement of existing roadway networks.
- Maintain adequate person-carrying capacity for peak-period commuting to and from work in the Primary Urban Center.

#### **4.1.6 GUIDELINES**

##### Commuter Travel

- Encourage the Department of Transportation's Highways Division to construct new bridges that do not flood at Waiāhole and Waikāne stream crossings at Kamehameha Highway.
- Provide improved services and facilities for express buses, such as more frequent, larger-capacity and more comfortable vehicles.
- Provide park-and-ride and bus transfer facilities as a joint or modified use of an existing parking area or adjacent to uses that are related to commuter trips, such as child-care centers and convenience stores.
- Establish transit centers to function as collector or distribution hubs which provide an interface between “circulator” shuttle and trunk bus routes.
- Promote ridesharing, vanpooling, and bicycle-sharing.
- Increase person-carrying capacity on trans-Ko'olau highways and Kalaniana'ole Highway for commuter travel without expanding rights-of-way or exacerbating delays in access to the highway from collector streets during peak periods.

##### Local Trips

- Identify and take measures to reserve the option for potential future right-of-ways acquisitions at locations where minor connections between existing local street would improve mobility and reduce congestion on collector streets;
- Implement roadway modifications recommended in the Kahalu'u Community Master Plan (2007) and the Kāne'ohe Town Plan (2009);
- Modify rights-of-way by changes to travelway widths, curb radii, pavement width, pavement texture, installation of appropriate signage, and more generous landscape planting in selected areas; especially along designated bike lanes and routes, principal pedestrian routes and street crossings, and near bus stops.
- Expand the bikeway network by implementing the proposals in the State of Hawai'i Bike Plan Hawaii Master Plan (2003) and the City and County of Honolulu O'ahu Bike Master Plan (2012). Safety is an important concern.
- Design streets to accommodate personal mobility vehicles for travel within and between town cores and residential areas.

## **4.2 WATER SYSTEMS**

In 1987, the State enacted the Water Code (HRS Chapter 174C) in order to protect, control, and regulate the use of the State's water resources. This Code is implemented through the Hawai'i Water Plan which addresses water conservation and supply issues on a statewide level by incorporating county water plans and water-related project plans.

The O'ahu Water Management Plan (OWMP) is being updated using the watershed approach to water resource management for each of the eight Development Plan and Sustainable Communities Plan areas. The Ko'olau Poko Watershed Management Plan (KPWMP) was adopted in 2012. The goal of the KPWMP is to formulate an environmentally holistic, community-based, and economically viable plan that balances: (1) the preservation and management of Ko'olau Poko's watersheds, and (2) sustainable ground and surface water use and development to serve present users and future generations. The KPWMP can be accessed at: <http://www.boardofwatersupply.com/water-resources/watershed-management-plan/koolau-poko-plan>. The KPWMP provides existing and future water demand projections to 2035.

### **4.2.1 POTABLE WATER**

The Board of Water Supply (BWS) is the principal purveyor of potable water in Ko'olau Poko. The BWS Six-Year Capital Improvement Program for fiscal years 2015-2020, completed in February, 2015, sets forth BWS's planned infrastructure improvements for the City and County of Honolulu, including the Ko'olau Poko municipal water system. In 2015, the region consumed 13.4 million gallons per day (mgd) of potable water, approximately 4.0 mgd of which was imported from sources within the Ko'olau Loa region. The BWS projects future water demand based on population growth rather than number of dwellings. Therefore, while additional housing is expected to be built in Ko'olau Poko, notably by the Department of Hawaiian Home Lands (DHHL) in Waimānalo and Waiāhole, with the slight decline in projected population over the next couple of decades (as noted in Chapters 1 and 2) potable water demand in the region is expected to remain stable, especially when water conservation measures are implemented. No new source, storage, or transmission mains are planned in the region, but existing source, storage, and water mains must be repaired and replaced as needed.

### **4.2.2 IRRIGATION WATER**

#### ***Waiāhole and Waikāne***

The State of Hawai'i developed a 1 mgd water system to supply the residents and farmers in the Waiāhole Valley Agricultural Park. Farmers use only about 0.1 mgd from this source since the valley is not fully planted, and they can draw free water

from the McCandless pipeline, which can deliver 0.5 mgd. Irrigation water for taro and other crops is also drawn from Waiāhole Stream, whose flow has become more abundant since the CWRM's decision on the Waiāhole Ditch matter.

### ***Waimānalo***

In Waimānalo, the State provides water to farmers from the Maunawili Ditch, which was built by Waimānalo Sugar Company. Its source is high-level water tunnels, springs, and streams in Maunawili and Waimānalo Valley. The system delivers an average of about 0.75 mgd of water.

### ***Other Water Systems***

In many areas, farmers rely on relatively expensive water from the Board of Water Supply. However, some farmers rely on local springs, streams, groundwater wells, and rainfall. A few taro growers take advantage of ancient irrigation systems built by early Hawaiians.

#### **4.2.3 POLICIES**

- Integrate management of all potable and non-potable water sources, including groundwater, stream water, storm water, and water recycling, following State and City legislative mandates.
- To protect watersheds, retain existing acreage that is designated as Preservation Area.
- Adopt and implement water conservation practices in the design of new developments and the modification of existing uses, including landscaped areas.
- Encourage all new development to install and use dual water systems.

#### **4.2.4 GUIDELINES**

- Where new reservoirs and other above-ground infrastructure is necessary, avoid impacts to significant scenic resources; where such impacts are unavoidable, implement appropriate mitigation measures. Design and locate new water supply facilities to be compatible with the scenic environment.
- Require installation of low-flush toilets, flow constrictors, and other water conserving devices in commercial and residential developments.
- Investigate the feasibility of bulk-heading Waiāhole Ditch to restore water in the natural dikes.

- Utilize climate-appropriate, indigenous plant material and drip irrigation systems in newly installed, smaller-scale landscaped areas.
- Use recycled (R-1 or R-2) water for the irrigation of golf courses, as well as for landscaping, and agricultural areas where this would not adversely affect potable groundwater supply or other aspects relating to public health.
- Investigate the feasibility of small-scale rain catchment systems in agricultural areas to use for irrigation, groundwater recharge and filtering of stormwater runoff sediments. (See related discussion in Section 4.6.2.)
- Confirm that adequate potable and non-potable water is available prior to approval of new residential and commercial development.

## **4.3 WASTEWATER MANAGEMENT**

Ko‘olau Poko’s wastewater systems are organized into three service areas. The boundaries of the municipal Kailua-Kāne‘ohe-Kahalu‘u Service Area extend from Ka‘ōio Point and Waikāne Valley to the north, to Wailea Point and Lanikai/Keolu Hills to the south, and inland along the ridgeline of the Ko‘olau Mountain Range. The municipal Waimānalo Service Area is bounded by Keolu Hills to the northwest, Waimānalo Bay to the northeast, Makapu‘u Point to the east, and the Ko‘olau Mountain Range ridgeline to the south. The Marine Corps Base Hawai‘i on the Mōkapu Peninsula has an independent sewage collection, treatment and disposal system under the control of the military.

### **4.3.1 KAILUA-KĀNE‘OHE-KAHALU‘U WASTEWATER SERVICE AREA**

The Kailua-Kāne‘ohe-Kahalu‘u area is served by the Kailua Regional Wastewater Treatment Plant (WWTP). As part of a regional plan, the Kailua WWTP receives wastewater flows from the Kāne‘ohe and ‘Āhuimanu areas. The Kailua WWTP serves as a secondary treatment facility and has an average design capacity of 18.0 mgd and a 1995 average flow of approximately 12.3 mgd. The former treatment plants at Kāne‘ohe and ‘Āhuimanu were converted to preliminary treatment facilities (screening and grit removal only) in late 1994. Wastewater flows from the entire region are now conveyed to the Kailua WWTP for treatment and are then discharged through the Mōkapu Outfall. The system has experienced major problems which resulted in overloads and spills. To remedy the situation, a new gravity sewer tunnel is currently being constructed to replace the existing force main that connects the Kāne‘ohe WWPTF with the Kailua Regional WWTP. Other improvements at the Kāne‘ohe WWPTF are also under construction.

Unsewered areas in the service area are primarily in the Kahalu'u area. For much of these areas, Sewer Improvement Districts have been identified and are being implemented, but no plans are in place for areas north of Waihe'e Road. There are also some small pockets of unsewered areas in Kāne'ohe and Kailua.

Population projections for the Kailua-Kāne'ohe-Kahalu'u area indicate a declining population between 2010 and 2035. However, in order to address the problems mentioned above and to accommodate projected five-year peak storm flows, substantial expansions and modifications of the Kailua WWTP, the Kāne'ohe and 'Āhuimanu Wastewater Preliminary Treatment Facilities (WWPTF), and the collection system were and are continuing to be made.

Major proposed improvements include:

#### ***Kailua Regional WWTP***

Expansion of plant capacity to handle secondary treatment of up to 68 mgd. Major improvements include a new influent pumping station, additional primary and secondary clarifiers, additional biotower and biotower pumping station, and upgrade of the effluent pumping station. An ultraviolet disinfection facility is also incorporated in the planned improvements.

#### ***Kāne'ohe WWPTF***

Preliminary treatment capacity upgrade to 46 mgd, to include a new screening and grit removal facility, new influent pumping station, additional odor control, additional storage and flow equalization capacity, and equalization tanks.

#### ***'Āhuimanu WWPTF***

New screening and grit removal facility, and new odor control and flow equalization tank improvements.

#### ***Collection System***

Improvements to the collection system included the provision of relief lines throughout the Kailua and Kāne'ohe basins, increased pump station capacities, and addition of equalization basins adjacent to the Kailua Road, Kailua Heights, and Enchanted Lakes Wastewater Pumping Stations.

### **4.3.2 WAIMĀNALO WASTEWATER SERVICE AREA**

Approximately 65 percent of residences in the Waimānalo Wastewater Service Area is served by a centralized wastewater collection, treatment, and disposal system.

Wastewater is collected by a network of gravity sewers, and is then treated at the Waimānalo Wastewater Treatment Plant, which has a design capacity of 0.6 million gallons per day (mgd) and average flow of approximately 0.585 mgd. Wastewater from a residential area located within the western portion of the service area is pumped by the Kahawai Stream Wastewater Pump Station (WWPS).

Homes in Waimānalo that are not connected to the public sewers are served by individual wastewater systems, which are generally either cesspools or septic tanks with leaching fields. The unsewered areas include certain portions of the low lying coastal areas and all of the inland agricultural lots. In addition, nearly 15 percent of the homes in sewer areas are not connected to the sewer system and continue to use individual wastewater systems.

There are water quality and public health concerns associated with the continued use of individual treatment systems (primarily cesspools) in the low-lying coastal areas. Algal blooms have occurred periodically in the past in the nearshore waters of Waimānalo. It is uncertain whether nutrients from individual wastewater treatment systems, stormwater runoff, and/or treatment plant effluent promoted such algal blooms.

Between 2000 and 2035, residential population serviced by the Waimānalo WWTP is projected to increase from approximately 10,087 to 10,745 residents, or by about 6.5 percent. The service area population is projected to grow primarily due to new housing development proposed by the Department of Hawaiian Home Lands (DHHL), and expansion of the wastewater collection system to service existing unsewered dwellings.

To address these concerns, the average design capacity of the Waimānalo WWTP will be increased from 0.7 mgd to 1.1 mgd<sup>9</sup>. The expansion will include a new secondary biological treatment process, an effluent filtration system, additional injection wells, new sludge thickening facilities, an upgraded electrical system, and added personnel and maintenance facilities. There will also be an ultraviolet disinfection system and effluent pumping facilities to allow the use of recycled water for irrigating selected agricultural lots and the Olomana Golf Links.

#### **4.3.3 POLICIES**

- Direct all wastewater produced within the Community Growth Boundary to municipal or military sewer service systems.

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<sup>9</sup> Hawai'i Pacific Engineers. Waimānalo Wastewater Facilities Plan, April 1997.

- Treat and recycle, where feasible, wastewater effluent as a water conservation measure.
- Mitigate visual, noise, and odor impacts associated with wastewater collection and treatment systems, especially when they are located adjacent to residential designated areas.
- Use reclaimed water for irrigation and other uses, where feasible, in accordance with the Guidelines for the Treatment and Use of Recycled Water (May 15, 2002) by the State Department of Health and the No Pass Line established by the Board of Water Supply.

#### **4.3.4 GUIDELINES**

- Complete planned improvements to the Kailua Regional WWTP service area facilities.
- Complete planned improvements to the Waimānalo WWTP service area facilities.
- Replace outdated individual cesspools with septic tanks and individual wastewater systems in areas outside of planned municipal wastewater service areas, employing public programs or policies to support private conversion efforts.
- Provide adequate horizontal separations and landscape elements (e.g. berms and windrows) between wastewater facilities and adjacent residential designated areas.

### **4.4 ELECTRICAL AND COMMUNICATIONS SYSTEMS**

The demand for electrical power in Ko'olau Poko is expected to be generally proportionate to the modest level of projected population decline. Hawaiian Electric Company is not planning to construct new trans-Ko'olau transmission lines, substations or power generating facilities in the Ko'olau Poko region. However, replacement or repair of components of the transmission and distributions system should be anticipated over the next couple of decades. Underground placement of overhead lines should be accomplished, especially where they are exposed to high winds or other conditions that cause power outages or where they detract from a high quality view of natural features, such as identified in Appendix Map A-1, Open space.

The growth in telecommunications systems is more likely to outpace population growth. The 1990's decade saw substantial development of the telecommunications infrastructure throughout the island, including Ko'olau Poko. Many new antennae and relay devices were installed throughout the region, usually at higher elevations

to provide adequate line-of-sight or coverage. Competition between communications companies contributed to the proliferation of facilities, and often made cooperation in the collocation of communications devices a challenge.

Technological advances in fiber optics and insulation will probably make it more feasible to bury power and communications cables in the future, creating an opportunity to develop more reliable and less visually intrusive transmission and distribution systems.

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

While the benefits of telecommunications industry cannot be disputed, communities have opposed the antennas due to aesthetic impacts, particularly on public views and on the neighborhood character. Their visibility has increased, especially 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 transmissions, as evidenced by the presence of antennas. However, the Federal Communications Commission (FCC) is responsible for evaluating the human environmental effects of radio frequency (RF) emissions from FCC-regulated transmitters. The federal guidelines specifically preclude local decisions affecting environmental effects of radio frequency emissions, assuming that the provider is in compliance with the Commission's RF rules.

#### **4.4.1 POLICIES**

- Design system elements and incrementally replace facilities such as substations, transmission lines and towers to avoid or mitigate any potential adverse impacts on scenic and natural resource values and to enhance system reliability.
- Place new utility distribution lines underground and implement a long-range program for systematically relocating existing overhead lines underground.

- 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 (i.e. towers disguised as trees) especially on free-standing antennas towers in order to blend in with the surrounding environment and minimize visual impacts.

#### **4.4.2     GUIDELINES**

- Initiate a region-wide program to place utility lines underground and relocate and/or streamline existing overhead utility and communications lines, focusing on the following priority areas:
  - Streets within Regional Town Centers, especially where overhead utility lines conflict with existing or planned street tree canopies;
  - Locations where overhead utility lines are prominently visible within a scenic viewshed identified in Appendix Map A-1.
  - Locations where major construction projects within rights-of-way present the opportunity to coordinate the undergrounding of facilities through shared trenching and to minimize construction-related disruptions.
- Where full undergrounding of utility lines is cost-prohibitive or impractical due to disruption of existing uses and utility connections, utility poles may be visually streamlined by undergrounding lower-hanging communications lines and related equipment, if this would result in substantial visual improvement at a much lower cost.
- Promote the use of renewable energy sources and energy conservation measures through both regulatory and tax incentive measures.
- Co-locate communications and power equipment and devices with similar facilities in order to minimize the number of supporting structures and dispersal sites.

### **4.5       SOLID WASTE HANDLING AND DISPOSAL**

Solid waste collection, transport, and disposal operations on the island are provided by the City Department of Environmental Services, Refuse Division. Municipal

refuse collection trucks provide curbside pickup for most single-family residences. Refuse collection for commercial and multi-family apartment uses is provided by private haulers. Individuals may deliver recyclable items to collection containers that are located throughout the region. They may also dispose of trash and large items that cannot be picked-up by the municipal refuse truck at one of Ko'olau Poko's two refuse convenience centers, in Kapa'a and Waimānalo.

Collected refuse is taken from the Kapa'a Transfer Station to a recycling center, incinerator or a sanitary landfill. Incineration, handling the majority of the island's waste disposal, is done at the H-POWER plant, located in the 'Ewa region. The City's sanitary landfill is at Waimānalo Gulch, also in the 'Ewa region.

Potential new landfill sites on O'ahu are extremely limited because of stringent federal and state environmental requirements. Ko'olau Poko has not had a sanitary landfill since the closure of the Kapa'a site in 1997.

A reduction of the amount of refuse going to landfills would lessen transportation costs and the need for landfill space. This can be possibly achieved by full participation in the waste sorting and collection program by individual households, commercial buildings, government offices, parks maintenance, etc. By sorting out green waste which can be recycled into usable mulch, and materials such as cardboard, paper, and beverage bottles and cans which can be recycled into usable material, the amount of refuse headed to landfills and overall waste may be significantly reduced.

#### **4.5.1 POLICIES**

- Continue efforts to establish more efficient waste diversion and collection systems.
- Promote waste reduction, re-use and recycling.

#### **4.5.2 GUIDELINES**

- Promote the recycling of waste materials by providing expanded collection facilities and services, and public outreach and education programs.
- Expand the use of automated refuse collection in residential areas.
- Develop programs for reducing the production of solid waste.
- Provide a convenience refuse transfer station, including a green-waste drop-off site, to serve Kahalu'u at a location close to the Kamehameha Highway in the area between 'Āhuimanu and Waikāne.
- Analyze and approve siting and/or expansion of sanitary landfills based on island-wide studies and siting evaluations.

## 4.6 DRAINAGE SYSTEMS

The *mauka* reaches of Ko‘olau Poko are among the wettest areas of the island and the source of numerous perennial streams, which are listed in Table 4.1.

The water quality and riparian habitat of many of these streams has been adversely impacted by diversions, channel alterations and polluted stormwater runoff. These problems are generally more severe along stream segments that traverse highly urbanized areas, but irrigation systems, water well development and land use conditions in agricultural and conservation areas have also created impacts. Still, Ko‘olau Poko contains significant stream segments of high resource value, and the quality of many other segments could be improved by restoring natural habitat and adopting stream corridor management practices.

All of Ko‘olau Poko’s major watersheds have urban and agricultural areas in regulatory flood zones (see Exhibit 4.1) In the 1960’s and 1970’s, several large flood control projects were undertaken to remove or reduce the most frequent and severe threats of flooding. The most visible results of those flood projects are the Kawainui Marsh and flood berm, the Kahalu‘u lagoon, and the Ho‘omaluhia dam and stormwater detention basin. Following a major flood event in 1987, improvements were made to the design and maintenance of the Kawainui flood control project.

**Table 4.1**  
**Environmental Quality and Flood Zones of Perennial Streams in Ko‘olau Poko**

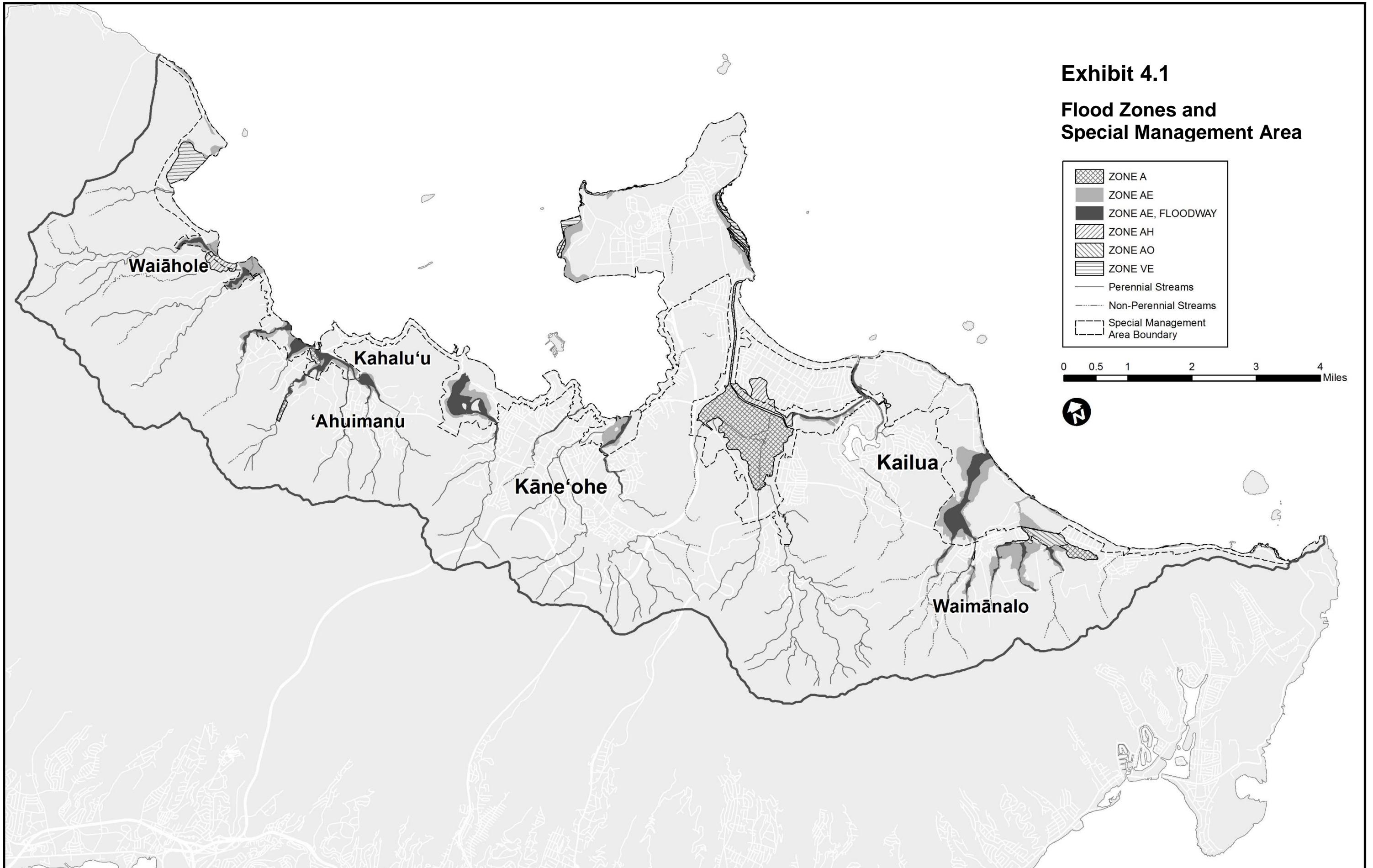
Stream	Environmental Quality		
	Aquatic	Riparian	Areas in Flood Zone
Hakipu‘u	Moderate	--	Agricultural lots
Waikāne	Moderate	--	Agricultural lots
Waiāhole	Moderate	Substantial	Agricultural lots
Waihe‘e	--	--	Agricultural lots
Ka‘alaea	Moderate	--	Agricultural lots
Kahalu‘u	Moderate	--	Agricultural lots
He‘eia	Moderate	Outstanding	Wetlands
Kea‘ahala	Moderate	--	--
Kamo‘oali‘i	--	--	Ho‘omaluhia Park
Kāne‘ohe	Moderate	Substantial	--
Kawa	--	--	Golf Course
Kawainui	Low	Outstanding	--
Maunawili	--	Outstanding	Portions of Maunawili and Coconut Grove residential areas

**Table 4.1**  
**Environmental Quality and Flood Zones of Perennial Streams in Ko'olau Poko**

<b>Environmental Quality</b>			
<b>Stream</b>	<b>Aquatic</b>	<b>Riparian</b>	<b>Areas in Flood Zone</b>
Kapa'a	--	--	Portions of Coconut Grove residential area
Ka'elepulu	Low	Substantial	Wetlands; portion of Enchanted Lakes residential area
Waimānalo	--	Substantial	Agricultural lots; Saddle City residential area; Bellows AFS

Source: State of Hawai'i Commission on Water Resource Management and The National Park Service, Hawai'i Stream Assessment: A Preliminary Appraisal of Hawai'i's Stream Resources, December 1990; State of Hawai'i Department of Land and Natural Resources, General Flood Control Plan for Hawai'i, September 1983.

**Exhibit 4.1**  
**Flood Zones and  
Special Management Area**



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Some of Koʻolau Poko’s agricultural irrigation systems have become *de facto* drainage systems. The Waiāhole, Kailua and Maunawili Ditches divert some stormwater from downstream areas. Problems occur when abandoned irrigation structure, such as the reservoir for the former Waimānalo Plantation, fall into disrepair and the responsibility for their maintenance is unclear.

Due to the high cost and adverse environmental effects of formal flood control structures, flood protection measures have turned to non-structural approaches. In 1980, the City adopted development standards based on the Federal Flood Insurance Program to prevent encroachments into floodways and reduce the risk of property damage. In 2000, the City adopted storm drainage standards to address both the quantity and quality of storm runoff for flood control and environmental quality purposes<sup>10</sup>. Periodic maintenance of stormwater basins, including wetlands, and stream channels and outlets is another element of the flood protection strategy. Soil conservation measures, especially in agricultural areas, are also important to reduce sediment and maintain the downstream capacity of the stream channel.

#### **4.6.1 POLICIES**

- Promote drainage system design that emphasizes control and minimization of non-point source pollution and the retention of storm water on-site and in wetlands.
- Develop a comprehensive study of local flooding and drainage problems, including a phased plan for improvements.
- Design and construct modifications needed for flood protection in a manner that maintains habitat and aesthetic values, and avoids and/or mitigates degradation of stream, coastline and nearshore water quality.
- Include where practical, the integration of pedestrian and bicycle connections for the regional open space network as part of drainageway improvement planning.
- View storm water as a potential irregular source of water that should be retained for recharge of the aquifer rather than quickly moved to coastal waters.
- Select natural and man-made vegetated drainageways and retention basins as the preferred solution to drainage problems wherever they can promote water recharge, help control non-source pollutants, and provide passive recreation benefits.

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<sup>10</sup> The Rules Relating to Storm Drainage Standards was updated in 2012.

- Keep drainageways clear of debris to avoid the flooding problems that have occurred in the past.
- Low Impact Development strategies are recommended.

#### **4.6.2 GUIDELINES**

- Emphasize retaining or detaining storm water for gradual release into the ground as the preferred strategy for management of storm water.
- Prevent the blocking of downstream channels during major storm events by properly maintaining large-capacity boulder and debris basins in upper valleys above urbanized areas.
- Integrate planned improvements to the drainage system into the regional open space network by emphasizing the use of retention basins, creation of passive recreational areas, and recreational access for pedestrians and bicycles without jeopardizing public safety.
- In places where the hardening of stream channels is unavoidable or highly desirable to prevent significant loss of property or threat to public health and safety, design improvements in a manner which protects natural resource and aesthetic values of the stream, consistent with the guidelines expressed in Section 3.1.3.4.
- Require periodic maintenance of stream channels and stormwater detention basins, including natural wetlands, to improve and retain their capacity for flood conditions while taking care to maintain their biological and aesthetic values.
- Designate a public agency to assume jurisdiction over abandoned irrigation ditches and reservoirs for the purpose of maintaining them as important elements of the flood control system.

### **4.7 SCHOOL AND LIBRARY FACILITIES**

Public schools in the Ko'olau Poko Sustainable Communities Plan area, listed in Table 4.2, are part of the Department of Education's (DOE) Windward District. Most recent enrollment figures show that the majority of schools in Ko'olau Poko are operating under capacity. Consequently, DOE does not plan to increase classroom capacity through new construction or expansion of existing facilities. During this time period, however, other improvements are planned for a number of schools in the region. These include renovation of cafeterias and libraries, and construction of new administration buildings. Additional demand for classroom space generated by future residential developments can be absorbed by the existing facilities. If necessary, school boundaries could be adjusted to allocate additional demand to schools that have the most available capacity. Also, future residential developments

may be subject to a school impact fee. This fee will help pay for improvements in order to accommodate the additional students who will live in the future residential developments.

<b>School</b>	<b>2009-2010 Enrollment</b>	<b>2008-2009 Capacity</b>	<b>Under/(Over) Capacity</b>
<b><u>Elementary</u></b>			
Āhuimanu	415	491	76
Aikahi	495	620	125
Ben Parker	283	507	224
Enchanted Lake	420	606	186
Heʻeia	484	736	252
Kaelepulu	193	228	35
Kahaluʻu	233	357	124
Kailua	356	530	174
Kainaliu	509	700	191
Kāneʻohe	618	672	54
Kapunahala	568	600	32
Keolu	175	245	70
Lanikai	303	330	27
Maunawili	404	487	83
Mōkapu	794	720	(74)
Pope	230	390	160
Puohala	232	612	380
Waiāhole	63	159	96
Waimānalo (Elem. & Inter.)	501	600	99
<b><u>Intermediate</u></b>			
Kailua	680	1,113	433
King	663	1,043	380
<b><u>High School</u></b>			
Castle	1,421	1,738	317
Kailua	902	1,159	257
Kalāheo	859	1,051	192
Olomana (Inter. & High)	136	189	53

Source: State of Hawai'i, Department of Education, Facilities and Support Services Branch, November 2009

Private schools have a relatively small presence in Ko'olau Poko. As of 2009, Ko'olau Poko's 11 private schools had a combined enrollment of 2,921 (see Table 4.3). If enrollment increases in these private schools, it is likely that enrollment will decline in area public schools because most students are expected to be drawn from within the region rather than outside.

<b>School</b>	<b>PS/K-8</b>	<b>9-12</b>	<b>TOTAL</b>
Kailua Christian Academy	20	29	49
Ko'olau Baptist Church Academy	156	50	206
Le Jardin Academy	632	190	822
Redemption Academy	34	26	60
Saint Ann School	388	0	388
Saint Anthony	355	0	355
Saint John Vianney	274	0	274
Saint Mark Lutheran	181	0	181
Trinity Christian	283	0	283
Windward Adventist	61	0	61
Windward Nazarene	242	0	242

Source: Hawai'i Association of Independent Schools Enrollment Report 2008-2009.

Colleges, universities, and research institutions in Ko'olau Poko include the University of Hawai'i's (UH) Windward Community College, UH's Hawai'i Institute of Marine Biology, UH's College of Tropical Agriculture and Human Resources Waimanalo Research Station, and Hawai'i Pacific University. These institutions utilize the outdoors as open classrooms, taking advantage of Ko'olau Poko's natural environment and biota. They also add to Ko'olau Poko's diversity and quality of life.

Ko'olau Poko contains three public libraries administered by the DOE. The regional library is located in Kāne'ohe. The other two libraries are in Kailua and Waimānalo, the latter of which is incorporated in the Waimānalo Elementary and Intermediate School. No additional libraries are planned.

#### **4.7.1 POLICIES**

- Approve new residential developments only after the State Department of Education confirms that adequate school facilities, either at existing schools or at new school sites, will be available at the time new residential units are occupied.

- Have developers pay their fair share of costs to ensure provision of adequate school facilities.
- Consider schools as community resources for learning about specialized environmental, cultural and historic subjects related to Ko'olau Poko and each of its communities.

#### **4.7.2 GUIDELINES**

- Encourage coordination between the Department of Parks and Recreation and the DOE regarding the development and use of athletic facilities such as playgrounds, play fields and courts, swimming pools, and gymnasiums where the joint use of such facilities would maximize use and reduce duplication of function without compromising the schools' athletic programs.
- Support the DOE's requests for fair share contributions from developers to ensure that adequate school facilities are in place.
- Apply the guidelines for institutions in Section 3.7.2 when a new public or private school campus or a significant increase in enrollment capacity at one of the existing campuses is proposed.

### **4.8 CIVIC AND PUBLIC SAFETY FACILITIES AND COMMUNITY RESILIENCE**

Civic centers in Ko'olau Poko include several State of Hawai'i facilities. The City's Satellite City Hall for the region is located in the Windward City Shopping Center. Satellite City Halls offer many basic services for residents, including bus pass sales and bicycle registration. The State of Hawai'i operates regional or area service centers for unemployment insurance in the Regional Town Centers of Kailua and Kāne'ohe and a food stamp office near Windward City Shopping Center. The State's Windward Health Center and the District Court for Ko'olau Poko-Ko'olau Loa are located adjacent to the Kāne'ohe State Hospital, Windward Community College and Kāne'ohe District Park, forming a secondary civic center for Kāne'ohe.

Ko'olau Poko public safety facilities consist of police, fire and ambulance stations, and emergency shelters. Police sub-stations are located in Kāne'ohe and Kailua, both of which are located within their respective Regional Town Centers. The Honolulu Fire Department (HFD) operates fire stations in Kailua, Kāne'ohe, Waimānalo and Kahalu'u. The military maintains a fire station on the Marine Corps Base Hawai'i. To provide adequate response time throughout the region, a future fire station is planned at Kualoa. Ambulance service, staffed by the City's Emergency Medical Services Division, is provided from each of the HFD fire stations except Kahalu'u, whose service area is covered from the Kāne'ohe station. An

ambulance unit is planned in Ka‘a‘awa where an ambulance bay has been completed at the new Ka‘a‘awa fire station.

Emergency shelters in the event of a potential disaster will be opened selectively depending on the severity of the situation as determined by the Department of Emergency Management. Shelter locations for the Ko‘olau Poko and Ko‘olau Loa regions are listed on Table 4.4. Kailua has been designated as a disaster-ready community. Other communities should be encouraged to become disaster-ready communities as well. Emergency planning should be updated according to the most recent Federal Emergency Management Agency and National Oceanic and Atmospheric Administration flood inundation maps.

**Table 4.4**  
**Emergency Shelters for Ko‘olau Poko**

<u>Kane‘ohe/Kahalu‘u</u>	<u>Kailua/Mōkapu/Waimānalo</u>
‘Āhuimanu Elementary School	‘Aikahi Elementary School
Kapunahala Elementary School	Enchanted Lake Elementary School
Benjamin Parker Elementary School	Keolu Elementary School
Castle High School	Kailua Middle School
Kāne‘ohe Elementary School	Lanikai Elementary School
He‘eia Elementary School	Maunawili Elementary School
Kahalu‘u Elementary School	Mōkapu Elementary School
Waiāhole Elementary School	Kalaheo High School
King Middle School	Pope Elementary School
Puohala Elementary	Kailua Elementary School
	Kainalu Elementary School
	Kaliua High School
	Waimānalo Elementary and Middle School

Community resilience is the ability of a community to prepare for anticipated hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions. In order to protect lives, livelihoods, and quality of life, communities should plan for damages and disruptions to buildings and infrastructure systems from natural, technological, and human-caused hazards. Planning for a more

resilient community involves a comprehensive, risk-based approach that is tailored to their community's needs for maintaining vital services. The U. S. Department of Homeland Security and the National Institute of Standards and Technology, U. S. Department of Commerce, provides policy, support information and guidelines for community resilience planning and implementation strategies that will better prepare communities for future hazard events. The City and County of Honolulu, Department of Emergency Management, prepared various plans and operations guides to prepare, prevent, protect, respond and recover from hazards.

#### **4.8.1 POLICIES**

- Provide adequate staffing and facilities to ensure effective and efficient delivery of basic governmental service and protection of public safety.
- Locate regional civic facilities in the Regional Town Centers of Kāne'ohe and/or Kailua.
- Encourage the development of more emergency shelters.
- Encourage disaster resilient communities.

#### **4.8.2 GUIDELINES**

- Locate permanent Satellite City Halls in the Regional Town Centers of Kāne'ohe and Kailua to reinforce these areas as a regional focal point or gathering spot for activities and services.
- Design new public buildings such as schools and recreation centers to serve a secondary function as an emergency shelter.
- Design new City buildings which are used for public assembly and able to serve as emergency shelters such that they can withstand a Category 3 hurricane.
- Survey and retrofit, as appropriate, existing public buildings to serve a secondary function as hurricane-resistant emergency shelters.
- Provide incentives for private organizations to create hurricane-resistant shelter areas in their facilities and for homes to include hurricane-resistant safe rooms.

## **5. IMPLEMENTATION**

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Many counties, cities and other local jurisdictions on the U.S. mainland have instituted comprehensive planning programs that emphasize proactive, community-based planning and implementation processes. These local governments have sought 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 are intended to strengthen the linkage to implementation to realize the vision for the future and the policies and guidelines articulated in this Plan. Implementation will vary depending upon the priorities and resources of each department.

This chapter is organized under the following headings:

Section

- 5.1 Overview and Planning Implementation Tools
- 5.2 Public Facilities Investment Priorities
- 5.3 Development Priorities
- 5.4 Special Area Plans
- 5.5 Functional Planning
- 5.6 Review of Zoning and Other Development Applications
- 5.7 Five-Year Sustainable Communities Plan Review
- 5.8 Implementation Matrix

### **5.1 OVERVIEW AND PLANNING IMPLEMENTATION TOOLS**

Implementation of the Ko'olau Poko Sustainable Communities Plan will be accomplished by:

- Initiating zoning map and development code amendments to achieve consistency with the vision, policies and guidelines of the Sustainable Communities Plan;
- Guiding public investment in infrastructure through Functional Plans and Special Area Plans in support of the vision, policies and guidelines of the Sustainable Communities Plan;
- Reviewing zoning and other development applications based on how well they support, conform to and carry out the purposes of the Sustainable Communities Plan;
- Incorporating Sustainable Communities Plan priorities through the Public Infrastructure Map and the City's annual budget process;

- Advising the State government on the content of the Sustainable Communities Plan and seeking to conform State actions including those of DHHL to the vision, policies, and guidelines of this Plan; and
- Conducting a review of the vision, policies, guidelines, and CIP priority investments of the Ko'olau Poko Sustainable Communities Plan every five years and recommending revisions as necessary.

## **5.2 PUBLIC FACILITY INVESTMENT PRIORITIES**

The vision for Ko'olau Poko requires the cooperation of both public and private agencies in planning, financing, and improving infrastructure. The City must take an active role in planning infrastructure improvements, such as land acquisition and site improvements for proposed parks, provision of adequate public access to the shoreline and mountain areas, provision of pedestrian, bicycle, and other transportation options, and improvements to wastewater and stormwater management systems and other proposals of this Plan.

## **5.3 DEVELOPMENT PRIORITIES**

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

- Land acquisition and improvements for public projects that are consistent with the Sustainable Communities Plan's vision, policies and guidelines;
- Action on applications for land use and other regulatory approvals that are consistent with the Sustainable Communities Plan's vision, policies and guidelines; and
- Use of vacant usable parcels or sites ready for redevelopment and conform to the Sustainable Communities Plan Map A-2, Land Use.

## **5.4 SPECIAL AREA PLANS**

For areas requiring particular attention, Special Area Plans provide more detailed policies and guidelines than are provided by the Sustainable Communities Plan. 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 public views. 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.

In Ko'olau Poko, Special Area Plans are proposed for the following locations and purposes:

- **Kailua Regional Town Center.** A plan to improve pedestrian circulation, public transit service, landscaping and public open spaces, street fixtures and signage, and building appearance in the central commercial district and civic center.
- **Ko'olau Greenbelt.** A plan to restore, protect and maintain the area at the base of the Ko'olau Mountain Range through a variety of mechanisms that may include land trusts and tax incentives.
- **Ha'ikū Valley, Waihe'e and Waikāne Nature Preserves, Kawainui Marsh, and Nu'upia Fishponds.** Plans for improved public access and preservation of these resources should be prepared.

Other Special Area Plan opportunities may be identified as the Sustainable Communities Plan is implemented.

## 5.5 FUNCTIONAL PLANNING

Functional planning is the process through which various City agencies determine needs, assign priorities, phase projects, and propose project financing to further implement the vision, policies, and guidelines 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.

Through the functional planning process, City agencies responsible for developing and maintaining infrastructure and public facilities or for provision of City services review existing functional planning documents and programs. 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 Plan 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 that 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 priorities for 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 the transportation planning activities that are conducted in association with the O’ahu 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 evaluations, and financing. Outreach activities should involve Neighborhood Boards, community organizations, landowners, and others who may be significantly affected by the public facilities and infrastructure projects or programs to be developed to further implement the policies of the Sustainable Communities Plan.

The functional planning process should be characterized by opportunities for early and continuing involvement, timely public notice, public access to information used in the evaluation of priorities, and the opportunity to suggest alternatives and to express preferences. The functional planning process provides the technical background for Capital Improvement Program and public policy proposals that are subject to review and approval by the City Council. Consequently, any functional planning proposal which is inconsistent with, or varies from, the vision, policies, and guidelines of the Sustainable Communities Plan shall only be approved as an amendment to the Plan.

## **5.6 REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS**

A primary way in which the vision of the Ko'olau Poko Sustainable Communities Plan will guide land use will be through the review of applications for zone changes and other development approvals. Approval for all development projects will be based on the extent to which the project conforms to and carries out the purposes of the policies, and guidelines of the Sustainable Communities Plan.

Projects that do not involve significant zone changes will be reviewed by the Department of Planning and Permitting for conformance with the policies, development priorities, and guidelines of the Ko'olau Poko Sustainable Communities Plan and the population policies of the General Plan. For mixed-use zoning allowing residential use, the applicant should prepare an analysis of the projected population impacts of the change to verify that such impacts will not be inconsistent with the population policies of the General Plan as they apply to Ko'olau Poko. Those projects requiring an Environmental Assessment (EA) or Environmental Impact Statement (EIS) shall follow the provisions of Hawai'i Revised Statutes, Chapter 343.

### **5.6.1 ADEQUATE FACILITIES REQUIREMENT**

All projects requesting zone changes shall be reviewed to determine if adequate public facilities and infrastructure 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 will be established during the Capital Improvement Program.

In order to guide development and growth in an orderly manner as required by the City's General Plan, zoning and other development approvals for new developments should be approved only if the responsible City and State agencies indicate 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, as part of its report on the consistency of the project with the Ko'olau Poko Sustainable Communities Plan vision, policies, and guidelines, will review and summarize any individual agency's findings regarding public facilities and utilities adequacy that are raised as part of the EA/EIS process. The Department of Planning and Permitting 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 will be included in the conditional zoning approval to insure adequacy of facilities.

## **5.7 FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW**

The Department of Planning and Permitting shall conduct a comprehensive review of the Ko'olau Poko Sustainable Communities Plan and shall 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 the Community Growth Boundary will remain fixed through the 2035 planning horizon.

In the Five-Year review, the Ko'olau Poko Sustainable Communities Plan will be evaluated to see if the regional vision, policies, guidelines, and implementing actions are still appropriate, with particular attention to the issue of sustaining long-term agriculture.

### **5.7.1 ADOPTION OF THE SUSTAINABLE COMMUNITIES PLAN AND EXISTING LAND USE APPROVALS**

This Sustainable Communities Plan will go into effect upon its 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 zoning action to further implement the vision, policies, and guidelines of the Ko'olau Poko Sustainable Communities Plan is initiated. If an EA or EIS was accepted in the course of a Development 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.

## **5.8 IMPLEMENTATION MATRIX**

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

Table 5-1 lists each of the guidelines and identified related plans, regulatory code or action, and the public or private entities responsible for implementing the action. The table is organized by land use and infrastructure category, with the categories listed according to the order of Chapters 3 and 4.

The table is not exclusive. Programs and initiatives that are consistent with the Plan's policies and guidelines may be added. In addition, new funding sources or public-private partnerships may expand and/or alter policy implementation.

- The first column of the table – Policies/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.
- 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, zoning and 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 last column – Role – describes the role of the named agency in carrying out the code revision or action, either as primary implementer, or as an advocate or partner of the primary implementer. For the implementation of certain guidelines there is more than one primary implementer if more than one code revision or action is necessary or multiple jurisdictions are involved.

**Table 5.1****Implementation Matrix**

Policies/Guidelines	Program	Agency	Role
<b>Sec 3.1.3.1 Open Space Preservation – Mountain Areas</b>			
Improve access to mountain areas and enhance the physical condition and recreational and educational value of hiking trails by fully implementing the recommendations in the State of Hawai'i's Na Ala Hele Program Plan, providing adequate funding for the management of issues related to increased access, such as trail maintenance, weed control, and eradication of non-native predators.	CIP, OPS	DLNR	Implementer
Create public access to the former U.S. Coast Guard Omega Station site, including Ha'ikū Stairs, and combine this parcel with the adjoining City and County of Honolulu site for the proposed Ha'ikū Valley Cultural and Nature Preserve in order to: <ul style="list-style-type: none"> <li>• Provide recreational, cultural and educational benefits; and</li> <li>• Help protect resources in the <i>makai</i> portion of the Heeia watershed, including a high-quality perennial stream, a significant wetland habitat for waterbirds, migratory waterfowl and shorebirds, and an ancient Hawaiian fishpond.</li> </ul>	CIP	DPR DLNR	Implementer Advocate
Improve the sites that have been acquired for Waihe'e Valley Nature Park and Waikāne Nature Preserve in a manner that preserves the area's natural scenic quality and provides educational and passive recreation opportunities.	CIP	DPR CBO	Implementer Advocate
Promote the preservation of remaining undeveloped lands at the foot of the Ko'olau Mountain Range through protective regulatory measures, tax incentives for the establishment of conservation easements and management programs on private properties, and public acquisition of fee simple or partial interest, where necessary to create the Ko'olau scenic resource area or "green belt" from Waimānalo to Kualoa.	TAX, CIP	DLNR CBO	Implementer Advocate & Implementer
Locate structures at higher elevations of slopes only for purposes of public safety or compelling public interest, when there is no feasible alternative to fulfill the public need, and when adequate mitigation measures have been taken to reduce or avoid impact on the scenic and natural environment.	Project Review	DLNR	Implementer
Maintain, protect, and/or restore native forests in the State Conservation District, especially by identifying and protecting endangered species habitats and other sensitive ecological zones from threats such as fire, alien species, feral animals, and human activity and disturbance.	OPS	DLNR FED CBO	Implementer Implementer Implementer

Policies/Guidelines	Program	Agency	Role
Provide access to existing mountain trails through residential areas, through acquisition of easements or rights-of-way, if necessary, and work with the military and agricultural landowners to provide access through those lands to mountain trails, as well, consistent with security needs.	OPS, CIP	DLNR	Implementer
<b>Sec 3.1.3.2 Open Space Preservation – Shoreline Areas</b>			
Maintain existing <i>makai</i> view channels along Kalaniana'ole Highway between Makapu'u Point and Waimānalo Beach Park; along Kawaiola Road and North Kalāheo Avenue in Kailua; along Lilipuna Road in Kāne'ohe; and along Kamehameha Highway north of Kāne'ohe. Avoid visual obstructions, such as walls and dense landscaping.	Project Review, LUO	DPP DOT DFM	Implementer Implementer Implementer
Create and maintain new <i>makai</i> view channels along Kamehameha Highway and Kahekili Highway north of Kāne'ohe by: <ul style="list-style-type: none"> <li>Acquiring shoreline properties along the highway either in fee or by obtaining easements and maintenance agreements with private landowners, giving priority to locations where there are actual or potential vistas of perennial streams, wetlands, fishponds and off-shore islands; and</li> <li>Selective clearing of dense vegetation and the removal of structures.</li> </ul>	CIP, OPS OPS	DOT DFM	Implementer Implementer
Maintain the untamed landscape quality of the Makapuu viewshed, with any modification to this area being done for the purpose of health and safety and in a manner that continues the landscape character of the scenic shoreline corridor on the East Honolulu side of Makapuu Point.	Project Review  OPS	DLNR DPP DOT	Implementer Implementer Implementer
Establish buffer zones for the protection of rare coastal resources and recognition that such resources should be defined and identified.	OPS	DLNR CBO	Implementer Advocate
Increase opportunities for physical access to the shoreline areas of Kāne'ohe and Kailua by acquiring additional storefront areas, with following locations as priorities: <ul style="list-style-type: none"> <li>The site of the Kāne'ohe Wastewater Pre-Treatment Facility, to be named Waikalua Bayside Park, with possible expansion into Kokokahi YWCA facility through either acquisition or joint use agreement;</li> <li>King Intermediate School and an area north of He'eia Kea Landing, which may require some realignment of a portion of Kamehameha Highway to create adequate land area <i>makai</i> of the roadway; and</li> <li>A site in either the Oneawa Beach area, near the surf spot known as "Castles" or in the frontage along Kalaheo Avenue between Kailua Beach Park and Kalama Beach Park.</li> </ul>	SAP CIP	DDC/DPR DLNR	Implementer Implementer

Policies/Guidelines	Program	Agency	Role
Improve existing pedestrian rights-of-way to the shoreline by providing on-street or off-street parking nearby; secured bicycle racks where the access point adjoins an existing or planned bikeway, such as along Mokulua Drive in Lanikai and Kāne'ohe Bay Drive in Kāne'ohe; and provisions for emergency vehicle access and lateral access along the shoreline.	SAP CIP	DDC/DPR DLNR	Implementer Implementer
Prepare beach management plans to maintain lateral access along popular beaches that are subject to long-term and seasonal erosion, particularly at Lanikai and Kualoa, emphasizing non-structural approaches and prevention of adverse effects on adjacent coral reef ecosystems such as greater shoreline setbacks for new structures along these and other unstable shoreline areas. Effective beach management plans are very location specific and incorporate the consideration of long-term effects such as climate change and sea level rise, as well as seasonal and long-term erosion and accretion.	SAP	DLNR/DPP	Implementer
Locate and design exterior lighting to avoid disturbance to seabirds and marine mammals, using DLNR guidelines.	LUO, Project Review	DPP DLNR	Implementer Advocate
Designate the Alāla Point to Wailea shoreline as an erosion-prone area and prepare a beach management plan for this area, focusing beach restoration activities on the Bellows Air Force Station beach and Kaupō beach.	SAP	DLNR	Implementer
Designate the shoreline along Kamehameha Highway adjacent to Kualoa Ranch to Kualoa Point as an erosion-prone area and prepare a beach management plan for this area.	SAP	DLNR	Implementer
Pursue measures to render all shoreline accretion as public (State) property in perpetuity in order to preserve shorelines as a public resource.	CIP	DLNR	Implementer
Prohibit the use of shore armoring structures, considering alternative measures such as beach replenishment.	Project Review CIP	DPP/DLNR DLNR	Implementer Implementer
Modify shoreline setbacks as needed to protect the natural shoreline, lessen the impact to coastal processes, and address sea level rise.	LUO	DPP	Implementer
Analyze the possible impact of sea level rise for new public and private projects in shoreline areas and incorporate, where appropriate and feasible, measures to reduce risks and increase resiliency to impacts of sea level rise.	Project Review CIP	DPP DOT DTS DDC	Implementer
<b>Sec 3.1.3.3 Open Space Preservation - Wetlands, Wildlife Preserves and Nature Parks</b>			
Prepare use and management plans for He'ea Marsh, Waihe'e Valley Nature Park, Ha'ikū Valley Cultural and Nature Preserve, and Waikāne Nature Preserve and develop those sites pursuant to those plans.	SAP	DDC/DPR	Implementer

Policies/Guidelines	Program	Agency	Role
Encourage owners of private wetlands, such as Waihe'e Marsh (also known as "Haia Moi"), and other wildlife habitats, to prepare and abide by use and management plans for those resources and to investigate the various State and Federal programs that provide incentives for landowners to manage their lands for the benefit of wildlife.	SAP TAX	PRIV DLNR	Implementer Advocate
Prepare and implement a plan to establish a Ko'olau Greenbelt.	SAP OPS	DLNR CBO	Implementer Advocate
Prohibit encroachment or intensification of residential or other urban uses near wildlife sanctuaries and nature parks.	Project Review	DPP	Implementer
Prepare wildlife preserve management plans emphasizing conservation and restoration of native plants, birds, fish and invertebrates.	SAP	DLNR USFWS	Implementer Implementer
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.	Project Review OPS	DPP DTS/DOT	Regulator Implementer
<b>Sec 3.1.3.4 Open Space Preservation - Natural Gulches, Streams and Drainageways</b>			
Preserve the natural aesthetic and biological values of gulches, streams and drainageways as part of the open space system by implementing the stream classifications, design guidelines and actions contained in the Ko'olau Poco Watershed Management Plan for the protection of natural stream beds and habitat and the restoration of degraded streams.	OPS SWM, Project Review	DFM DPP	Implementer Implementer
Alter natural drainageways only when necessary to provide flood protection for existing developed areas, and in a way that preserves aesthetic and biological values, and avoids degradation of stream, coastline and nearshore water quality. For example, impacts on biological conditions may be mitigated, as appropriate, by using v-shaped bottom channels for periods of low stream flow, rip-rap boulder lining of stream banks, streamside vegetation and similar strategies to shade, cool and aerate the waters of the stream and provide riparian and stream bottom habitat.	CIP OPS SWM	DDC DFM DPP	Implementer Implementer Regulator
Incorporate erosion control measures and best management practices, as cited in the Hawai'i's Coastal Nonpoint Pollution Control Program Management Plan to prevent pollution of wetlands, streams, estuaries and nearshore waters.	SWM, Project Review	DPP	Regulator
<b>Sec 3.1.3.4 Open Space Preservation – Other Open Space Elements</b>			
<i>Agriculture</i> <ul style="list-style-type: none"> <li>Design and locate buildings and other facilities that are accessory to an agricultural operation in a way that minimizes visual impacts within the view corridors identified in Appendix Map A-1.</li> </ul>	Project Review	DPP	Regulator

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>Retain the open space character of land adjacent to Kawainui Marsh and within the Hawai'i Youth Correctional Facility to visually separate and define the edges of the Maunawili, Olomana and Pōhākapu and Kukunono residential neighborhoods.</li> </ul>	Project Review	DLNR	Implementer
<b>Golf Courses</b> <ul style="list-style-type: none"> <li>Maintain golf courses to provide view amenities for adjacent urban areas, especially from well-used public rights-of-way, parks and vista points. Where necessary, redesign golf course facilities or layouts to reduce the visual prominence of protective screens or large accessory buildings.</li> <li>Design and maintain golf courses to avoid or minimize environmental impacts -- such as siltation, pesticide and fertilizer runoff, destruction of coastal, riparian and wetland habitat – using as a guideline the Office of Planning publication, Golf Course Development in Hawai'i – Impacts and Policy Recommendations.</li> <li>Optimize the function of golf courses as passive drainageways, maximizing their potential to retain or detain stormwater runoff.</li> <li>Provide safe access through golf courses, as necessary, for regional continuity of pedestrian and bicycle systems.</li> <li>When necessary for safety reasons, use landscape screening, setbacks and modifications to the golf course layout rather than fencing or solid barriers.</li> <li>Provide appropriate buffers between golf courses and surrounding residential areas.</li> </ul>	Project Review Project Review Project Review Project Review Project Review Project Review Project Review	DPP DPP DPP DPP DPP DPP DPP	Implementer Implementer Implementer Implementer Implementer Implementer Implementer
<b>Cemeteries</b> <ul style="list-style-type: none"> <li>Maintain the open space character of cemeteries through very low lot coverage ratios.</li> <li>Where located in the State Conservation District or in the preservation area designated by this Plan, limit above-grade structures to maintain open space character.</li> <li>Limit above-grade structures to ceremonial or religious buildings; grave markers of modest size; and necessary administrative and maintenance support buildings that are minimally visible from public rights-of-way, entries and vista points.</li> </ul>	Project Review Project Review Project Review	DPP DPP, DLNR DPP	Regulator Regulator Regulator
<b>3.1.4 Other Natural Resources</b>			
Require surveys to identify endangered species habitat, and require appropriate mitigation and protection measures to address impacts due to developments.	OPS	DLNR FED CBO	Implementer Implementer Implementer
Minimize glare and obtrusive light by limiting outdoor lighting that is misdirected, excessive, or unnecessary by fully shielding lighting (no light above the horizontal plane) fixtures and using lower wattage.	Project Review OPS	DPP DTS/DOT	Regulator Implementer
Adopt outdoor night lighting standards that help reinforce the difference between urban and rural communities.	Project Review	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<b>3.2.1 Island-Wide Parks</b>			
<i>Passive or Nature Parks</i>			
<ul style="list-style-type: none"> <li>• Acquire and develop the proposed Ha'ikū Valley Cultural and Nature Preserve, including access to Ha'ikū Stairs.</li> <li>• Improve the Waikāne Nature Preserve and Waihe'e Valley Nature Park.</li> </ul>	CIP CIP	DDC/DPR DDC/DPR	Implementer Implementer
<i>Active Recreation Areas</i>			
<ul style="list-style-type: none"> <li>• Acquire additional waterfront land for parks in Kāne'ohe and Kailua with particular attention to increasing shoreline access in Kāne'ohe.</li> <li>• Locate bus stops and loading areas at principal entries and adjacent to convenient pedestrian accesses to main activity areas within the park.</li> <li>• Provide amenities and service facilities to accommodate "tailgate" picnics in parking areas for sporting events, including shading canopy trees within the parking lot as well as nearby picnic tables and outdoor grills.</li> <li>• Locate areas designed for sporting events that attract high numbers of people along major collector streets and separate them as much as possible from residential areas and significant wildlife habitats.</li> <li>• Expand active recreational facilities by incorporating facilities such as playfields and playcourts in regional and beach parks and in the former sanitary landfill site at Kapa'a.</li> </ul>	CIP CIP CIP CIP CIP	DDC/DPR DDC/DPR DDC/DPR DDC/DPR DDC/DPR	Implementer Implementer Implementer Implementer Implementer
<b>Sec 3.2.2 Community-Based Parks</b>			
<i>Community-Based Parks</i>			
<ul style="list-style-type: none"> <li>• Design and site structural improvements and landscaping in community-based parks in such a way as to enhance the aesthetic value of these open space elements.</li> <li>• Mitigate visual impacts of large recreation buildings or structures, lighting, parking lots, perimeter fencing along major collector streets and other utilitarian elements through building design, plantings or other appropriate visual screens adjacent to residential areas and major roadways.</li> <li>• Encourage adaptive re-use and/or modest expansion of existing facilities over the construction of new structures to minimize impacts on open space.</li> </ul>	CIP, OPS CIP, OPS CIP, OPS	DDC/DPR DDC/DPR DDC/DPR	Implementer Implementer Implementer
Prepare a functional plan for the acquisition of new community-based parks in Kailua, Kāne'ohe, Kahalu'u, and Waimānalo.	SAP	DDC/DPR	Implementer
Have master plans for development of new parks or redevelopment of existing parks provide for facilities and accessible pathways from surrounding streets to facilitate pedestrian and bicycle access to parks.	SAP, CIP	DDC/DPR	Implementer

Policies/Guidelines	Program	Agency	Role
Explore ways, through cooperative agreements and mutual indemnifications with the UH, DOE and non-profit organizations, to design and operate facilities to achieve efficiencies and reduce duplication in the development and use of athletic, recreation, meeting, and parking facilities.	OPS	DDC/DPR, DOE, CBO	Implementer
Pursue the development of greenways along the following streams and drainage channels: Kāne'ohe Stream, from Kāne'ohe Bay to Kahekili Highway; Kawainui Stream, from Kailua Bay to Kawainui Marsh; Kawa Stream, from Mokulele Drive to Kāne'ohe Bay Drive; and Ka'elepulu Stream, from Kailua Bay to Ka'elepulu Pond	CIP, SAP, Project Review	DDC, DPP	Implementer
<b>Sec 3.3.2 Historic and Cultural Resources</b>			
<i>Cultural and Archaeological Sites</i>			
<ul style="list-style-type: none"> <li>Require preservation <i>in situ</i> only for those features that the State Historic Preservation Officer has recommended such treatment.</li> <li>Determine the appropriate preservation methods on a site-by-site basis in consultation with the State Historic Preservation Officer.</li> <li>Determine appropriate delineation of site boundaries and setback and restrictions for adjacent uses based on whether a site is listed and/or is eligible for listing on the State and/or National Register of Historic Places and on a site-by-site basis in consultation with the State Historic Preservation Office.</li> <li>Include sight lines that are significant to the original purpose and value of the site in criteria for adjacent use restrictions.</li> <li>Determine the appropriateness of public access on a site-by-site basis in consultation with the State Historic Preservation Office and the owner of the land on which the site is located.</li> </ul>	Project Review  Project Review  Project Review  Project Review  Project Review	DLNR  DLNR  DLNR  DLNR  DLNR PRIV, CBO	Implementer  Implementer  Implementer  Implementer  Implementer Advocate
<i>Historic Sites</i>			
<ul style="list-style-type: none"> <li>Promote the identification, survey and listing of sites that are eligible for the Hawai'i or National Registers of Historic Places.</li> <li>Preserve the architectural character, landscape setting and visual context of historic and cultural landmarks through appropriate zoning standards and development controls, as necessary, and public outreach programs such as design guidelines for the maintenance, renovation or expansion of older dwellings.</li> <li>Provide incentives for the preservation and maintenance of historic sites and allow for adaptive reuse through a permit review process.</li> </ul>	OPS  LUO, Project Review OPS  TAX, LUO	DLNR  DPP DLNR  DLNR, BFS DPP	Implementer  Implementer Implementer  Implementer Implementer

Policies/Guidelines	Program	Agency	Role
<b>Sec 3.4.2 Agricultural Use</b>			
Limit the floor area of dwellings and prevent inappropriate urban uses, such as meeting facilities and conditional uses that have no direct relationship to agricultural or local community needs. Permit a dwelling only if it is accessory to a verifiable agricultural use of the same lot.	LUO	DPP	Implementer
Require new residential development to maintain an adequate buffer when adjacent to agricultural lands, giving consideration to topographic barriers, prevailing winds, and the noise and air-borne emissions associated with the type of agricultural operation.	LUO, Project Review	DPP	Implementer
Adopt standards for roadway and other infrastructure design that are appropriate and intended for continued agricultural use rather than residential use.	SR&R	DPP	Implementer
Require the acknowledgement of agricultural standards in the subdivision process and in all deeds to lots.	SR&R	DPP	Implementer
Focus performance standards for agricultural zoning districts on preventing degradation of the natural environment, maintaining the viability of agricultural uses, and protecting the health and safety of agricultural workers rather than on disturbance to residential uses.	LUO PHS	DPP DOH	Implementer Implementer
2. Encourage development proposals of more than two lots to apply for cluster housing which provides a larger, contiguous area reserved for agriculture use.	SR&R, LUO	DPP	Implementer
Structure property tax assessments and rates to encourage long-term leases for agricultural operations. Also, adopt lower development fees and standards for agricultural subdivisions that do not involve the construction of dwellings.	TAX	BFS DPP	Implementer Advocate
Adopt zoning standards that promote the use of natural energy sources to support agricultural uses.	LUO	DPP	Implementer
Permit revenue-producing activities on lots where a commercial agricultural operation is being conducted, as ancillary uses. Allow these activities only if they do not interfere with surrounding agricultural uses. Examples of compatible activities include camping; picnicking, horseback riding, training and instruction; rodeos; polo matches; and tours of botanical gardens, fishponds, and <i>kalo lo'i</i> . Private parties promoting agricultural production or agriculture-related educational activities may be compatible, depending on the intensity of use and the location and size of the property. Recreational activities involving motorized vehicles and thrill craft are generally not be considered compatible.	LUO	DPP	Implementer
<b>Sec 3.5.2.1 Residential Use – Rural Communities</b>			
Adopt development standards and design guidelines for residential-designated areas in rural areas which: <ul style="list-style-type: none"> <li>• Minimize impervious surfaces</li> <li>• Require greater building setbacks than in suburban residential zoning districts;</li> </ul>	LUO	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>• Generally limit building heights to two stories;</li> <li>• Allow relatively narrow roadway widths</li> <li>• Allow alternative sidewalk designs, as compared to suburban residential neighborhoods, providing they comply with public safety and ADA standards;</li> <li>• Allow the use of detention basins and grassed swales for stormwater drainage instead of concrete curbs and gutters;</li> <li>• Avoid the geographic clustering and concentration of group living facilities and group homes;</li> <li>• Promote passive solar design, such as the use of sloped roof forms with wide overhangs, and residential-scaled energy conservation and natural energy harnessing devices;</li> <li>• Promote water conservation measures, such as flow constrictors, xeriscaping, and use of non-potable water sources for irrigation; and</li> <li>• Achieve an overall residential density of no greater than four principal dwelling units per acre.</li> </ul>			
<b>Sec 3.5.2.2 Residential Use – Suburban Communities</b>			
<p>Adopt development standards and design guidelines for lots designated for residential use in urban fringe areas in order to:</p> <ul style="list-style-type: none"> <li>• Retain the physical character and definition of neighborhoods and minimize long-term adverse impacts of expansions of existing homes and new infill development on surrounding neighborhoods;</li> <li>• Enhance the identities of neighborhoods through the use of landscaping, natural features, and building form and siting;</li> <li>• Encourage appropriate scale and privacy with respect to surrounding residential properties when infill development such as new homes or expansion of existing homes occurs;</li> <li>• Provide a range of housing at varying densities, depending on the characteristics of the surrounding neighborhood and the physical features of the site, but not to exceed six dwelling units per acre;</li> <li>• Limit building height to two stories;</li> <li>• Reduce the visual dominance of vehicular parking on residential lots and discourage the paving of yards;</li> <li>• Discourage the use of solid barrier walls that obscure views of the front yard and dwelling entrances from the street;</li> <li>• Prohibit development on slopes of 40 percent or greater that have soil characteristics indicating potential instability for building purposes;</li> </ul>	LUO, BLDG	DPP DPP DPP DPP DPP DPP DPP DPP DPP DPP DPP	Implementer Implementer Implementer Implementer Implementer Implementer Implementer Implementer Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>Avoid the geographic clustering or concentration of group living facilities and group homes that are licensed by the State;</li> <li>Promote passive solar design, such as the use of sloped roof forms with wide overhangs, and residential-scaled energy conservation and natural energy harnessing devices; and</li> <li>Promote water conservation measures, such as flow constrictors, xeriscaping, and use of non-potable water sources for irrigation.</li> </ul>	BWS	DPP DPP BWS	Implementer Implementer Advocate
Implement traffic safety measures for streets in residential neighborhoods, including: <ul style="list-style-type: none"> <li>Install traffic calming modifications at selected street locations where speeding is a chronic problem;</li> <li>Install additional lighting or more visually prominent crosswalks at selected intersections where pedestrian safety is a concern;</li> <li>Post signs or install striping for designated bike routes and bike lanes; and</li> <li>Make sidewalk or pathway improvements and undertake operational measures that are identified as part of a Safe Routes to Schools or Complete Streets program, or other pedestrian safety initiatives.</li> </ul>	CIP, OPS	DTS DOT	Implementer Advocate
Adopt zoning maps that recognize existing residential apartment developments, but allow new apartment development only under the following circumstances: <ul style="list-style-type: none"> <li>The site is at least one acre in size and is located in close proximity to a Regional Town Center;</li> <li>The building height does not exceed three stories; and</li> <li>The density does not exceed 30 units per acre.</li> </ul>	Zoning Maps, Project Review	DPP	Implementer
<b>Sec 3.6.1.1 Commercial and Industrial Uses – Rural Commercial Centers</b>			
Architectural Character and Building Mass <ul style="list-style-type: none"> <li>Encourage the rustic appearance in building forms, with pitched roof forms or “false-front” parapets characteristic of rural towns in Hawai‘i.</li> <li>Promote individual business establishments that are relatively small and focused on provision of goods and services primarily to the surrounding rural community or agricultural activities.</li> <li>Site buildings close to the roadway in the manner of a traditional rural village.</li> <li>Keep meeting facilities, other than public schools or service facilities, relatively small in area and focused on accommodating the needs of the surrounding rural community or agricultural activities.</li> <li>In Kahalu‘u, improve the commercial center in the vicinity of the Kamehameha Highway-Kahekili Highway intersection in accordance with the design recommendations of the Kahalu‘u Community Master Plan.</li> </ul>	LUO, Project Review  CIP	DPP  DDC	Implementer  Implementer

Policies/Guidelines	Program	Agency	Role
Visual Screening, Lighting and Signage <ul style="list-style-type: none"> <li>Encourage informal landscaping, subdued road signage and lighting, and parking lots visually subordinate to the buildings and landscaping.</li> <li>In Kahalu'u, implement the landscape, fencing and signage improvements in public rights-of-way and in lands recommended in the Kahalu'u Community Master Plan.</li> </ul>	LUO, Project Review	DPP	Implementer
	CIP	DOT	Implementer
Vehicular Access <ul style="list-style-type: none"> <li>Study the impact of large vehicles on residential streets and implement its recommendations where warranted.</li> <li>In Kahalu'u, implement the traffic calming and transportation measures, i.e., roadway treatments, bus stop relocation, and bikeway that are recommended in the Kahalu'u Community Master Plan.</li> </ul>	CIP	DTS Community DOT, DTS	Implementer Advocate Implementer
	CIP		
Outlying Commercial Uses <ul style="list-style-type: none"> <li>Outside of the Rural Commercial Centers, structures occupied by existing commercial, light industrial or community facility uses may be rebuilt or remodeled within their present floor area, provided they meet the design guidelines for Rural Commercial Centers.</li> <li>Further explore and define the needs for a community baseyard and vocational training center in Waimānalo, as part of the implementation of the Waimānalo Business Plan.</li> </ul>	LUO, Project Review	DPP	Implementer
	CIP	DDC	Implementer
<b>Sec 3.6.1.2 and 3.6.1.3 Commercial and Industrial Uses – Suburban and Community Commercial Centers</b>			
Architectural Character and Building Mass <ul style="list-style-type: none"> <li>Retain the residential character; height, size, and massing of buildings for compatibility with adjacent residential areas.</li> <li>Limit the total floor area of Suburban Community Centers to a maximum 100,000 square feet and limit aggregate floor area of all properties within Community Commercial Centers to 350,000 square feet.</li> <li>Encourage gable and hip-form roofs, using breaks in the roof line to reduce the apparent scale of large roof plates.</li> <li>Express residential character by using exterior materials and colors that are contextual with the neighborhood character.</li> </ul>	LUO, Project Review	DPP	Implementer
Vehicular Access <ul style="list-style-type: none"> <li>Provide access to the parking and loading areas from a collector street, when available.</li> <li>Encourage use of shared driveways to access parking areas between buildings.</li> <li>Permit access to a local residential street only if it is for emergency or secondary access and would not encourage through traffic along the local street.</li> </ul>	LUO, Project Review Subdivision	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<b>Pedestrian and Bicycle Facilities</b> <ul style="list-style-type: none"> <li>Provide pedestrian access from the public sidewalk or other off-site pedestrian pathway to the entrance of establishments in the commercial center that does not require crossing a traffic lane or parking lot aisle or driveway.</li> <li>Provide direct pedestrian connection from the interior walkways in the commercial center to a bus stop, if a bus stop is nearby.</li> <li>Provide bicycle racks for security. Locate bicycle racks to be visible and readily accessible from the street entry.</li> </ul>	LUO, Project Review	DPP, PRIV	Implementer
<b>Visual Screening, Lighting, and Signage</b> <ul style="list-style-type: none"> <li>Visually screen parking and service areas from streets and residential areas.</li> <li>Include a landscaped screen of trees and hedges along the street frontages and property lines.</li> <li>Use only fully-shielded lighting which does not exceed the minimum standards necessary to meet safety and security requirements in parking lots.</li> <li>Ensure compatibility between the type, size, design, placement, and color of signage and the context of adjacent facilities and uses.</li> </ul>	LUO, Project Review	DPP	Implementer
<b>Sec 3.6.2.3 Commercial and Industrial Uses – Regional Town Centers (Kailua and Kāne‘ohe)</b>			
<b>Mix of Uses</b> <ul style="list-style-type: none"> <li>Locate public uses serving a regional purpose -- such as Satellite City Halls, regional libraries, police substations, post offices, and civic centers -- within or adjacent to Regional Town Centers and not in outlying areas. Public facilities that have smaller service areas or that are an integral part of a regional network, such as elementary schools, fire stations, pump stations, and utility substations, may be located in outlying areas.</li> <li>Locate service industrial uses within enclosed buildings.</li> <li>Locate, design, and operate uses that generate undue noise levels in a way that will keep noise to an acceptable level in adjacent areas.</li> </ul>	CIP  LUO, Project Review  LUO, Project Review	DDC, DAGS DPP  DPP  DPP	Implementer Advocate  Implementer  Implementer
<b>Architectural Character and Building Massing</b> <ul style="list-style-type: none"> <li>Allow variation in architectural character, depending on the context, the theme, and the community's approved urban design guidelines for the particular center. For portions of commercial center buildings that are adjacent to, or readily visible from, residential areas, encourage architectural character that reflects and are compatible with the residential character; or screen from view from such areas by landscaping.</li> <li>Avoid blank facades on portions of buildings visible from public areas by using texture, articulation, color, and fenestration to create visual interest.</li> </ul>	LUO, Project Review	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>• Limit building heights to 40 feet, as is currently established, with height setback transitions from street frontages, the shoreline, and adjacent residential areas.</li> <li>• Limit the total floor area belonging to a single business to 90,000 square feet.</li> <li>• Locate street facades of buildings at or near the street property line and incorporate display windows. Orient the primary entries to commercial establishments toward the sidewalk.</li> <li>• Locate parking for individual commercial structures behind or to the side of the building. Secondary entries to business establishments may be provided from parking areas.</li> <li>• Encourage the development of cooperative parking agreements among neighboring businesses and landowners.</li> </ul>			
<b>Pedestrian, Bicycle, and Transit Facilities</b> <ul style="list-style-type: none"> <li>• Provide street frontage improvements for bus stops, including a bus shelter and a dedicated loading lane, along all abutting streets that have bus routes.</li> <li>• Provide a pedestrian pathway from the bus stop to an entrance to the main building of the commercial center. The pathway should be clearly indicated with special paving or markings and covered to provide weather protection, where feasible, if the commercial center building is not directly connected to the bus shelter.</li> <li>• Provide bicycle racks for security. Locate bicycle racks to be visible and readily accessible from the street entry to the commercial center.</li> </ul>	CIP  LUO, Project Review	DTS/DDC  DPP	Implementer  Implementer
<b>Visual Screening, Lighting and Signage</b> <ul style="list-style-type: none"> <li>• Buffer noise and other adverse impacts related to parking, loading and service areas from adjacent residential areas with proper siting and by landscaped berms or solid walls fronted by landscaping.</li> <li>• Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages.</li> <li>• Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping to soften the appearance of large solid walls.</li> <li>• Signage may be directly illuminated, but discourage use of direct illumination of building features. Use only fully-shielded lighting should be shielded to avoid direct visibility from residential areas.</li> </ul>	LUO, Project Review	DPP	Implementer
<b>Sec 3.6.2.4 Light and Extractive Industry</b>			
<b>Visual Screening, Lighting and Signage</b> <ul style="list-style-type: none"> <li>• Buffer noise and other adverse impacts from quarrying operations from adjacent urban uses, wildlife preserves and public roads by a combination of landscaped berms and setbacks.</li> </ul>	LUO, SWM, Project Review	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>For light industrial uses, buffer noise and other adverse impacts from parking, loading and service areas from adjacent urban uses, wildlife preserves and public roads by a combination of solid walls or berms and landscaped setbacks.</li> <li>Plant a landscape screen, consisting of trees and hedges, along roads fronting parking lots or garages.</li> <li>Visually screen storage areas for vehicles, equipment, and supplies from adjacent roads, wildlife preserves and urban uses by privacy walls and by building orientation. Soften the appearance of screening walls by landscaping in front.</li> <li>Use fully-shielded lighting that balances the needs for public safety, security, energy conservation, and wildlife protection.</li> </ul>			
<p>Drainage and Waste Material</p> <ul style="list-style-type: none"> <li>Manage stormwater runoff through application of Best Management Practices (BMPs) or containment or filtering onsite. To minimize the creation of impervious surfaces, alternatives to hardscape are encouraged. Avoid discharge into adjacent wildlife preserves, water resources, sanitary sewage systems, or other urban use areas.</li> <li>Prevent leachates from underground storage tanks or fill material from migrating offsite, applying particularly stringent measures to sites near wildlife preserves.</li> <li>Prevent litter and other waste material from encroaching into adjacent sites through the use of proper operational means, as well as landscaping.</li> </ul>	SWM, PHS	DPP, DOH	Implementer
<b>Sec 3.7.2 Institutional Uses</b>			
<p>Architectural Character and Building Massing</p> <ul style="list-style-type: none"> <li>Reflect in the site plan a campus-like environment with a relatively low building coverage ratio and low profile, emphasize open space and landscaping.</li> <li>Vary the architectural character, depending on theme and purpose of the use. Design portions of buildings that are adjacent to or readily visible from residential areas to reflect that residential character or be screened from view from such areas by landscaping.</li> <li>Limit building heights to two to three stories or 40 feet, including the roof form. Provide height setback transitions from street frontages, the shoreline, and adjacent residential areas.</li> </ul>	LUO, Project Review	DPP	Implementer
<p>Pedestrian, Bicycle, and Transit Facilities</p> <ul style="list-style-type: none"> <li>Provide street frontage improvements for bus stops, including a bus shelter and a dedicated loading lane, along all abutting streets that have bus routes.</li> <li>Provide a pedestrian pathway from the bus stop to an entrance to the main building of the institution. Clearly indicate the pathway with special paving or markings.</li> <li>Design and place bicycle racks to provide security and be visible from the main street or parking entry to the institution.</li> </ul>	CIP  Project Review  LUO, Project Review	DTS/DDC  DPP  DPP	Implementer  Implementer  Implementer

Policies/Guidelines	Program	Agency	Role
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> <li>• Buffer the noise and other adverse impacts from parking, loading, and service areas from adjacent residential areas by a combination of walls or berms and landscaped setbacks.</li> <li>• Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages. Plant shade trees throughout parking lots.</li> <li>• Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping used to soften the appearance of large solid walls.</li> <li>• Signage is non-illuminated or indirectly illuminated. Outdoor lighting is fully-shielded to avoid light trespass over residential areas.</li> </ul>	LUO, Project Review	DPP	Implementer
<b>Sec 3.8.2 Military Areas</b>			
<p>Architectural Character and Building Massing</p> <ul style="list-style-type: none"> <li>• When buildings and structures are visible from an adjacent non-military use, reflect the scale and design character of the adjacent non-military use or screen from view from such areas by landscaping.</li> <li>• Limit building heights to two to three stories or 40 feet, including the roof form, except to meet specific mission-critical design requirements. Height setback transitions are provided from streets, the shoreline, and adjacent residential areas.</li> </ul>	Base Master Plan	MIL DPP	Implementer Advocate
<p>Pedestrian, Bicycle, and Transit Facilities</p> <ul style="list-style-type: none"> <li>• Provide street frontage improvements for bus stops, including a bus shelter and a dedicated loading lane along all abutting streets that have bus routes.</li> <li>• Provide a clearly indicated pedestrian pathway, such as special paving or marking, from the bus stop to the base's main entrance.</li> <li>• Design and place bicycle racks to provide security and be visible from the main street or parking entry.</li> </ul>	Base Master Plan	MIL	Implementer
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> <li>• Buffer the noise and other adverse impacts from parking, loading, and service areas from adjacent residential areas by a combination of solid walls or berms and landscaped setbacks.</li> <li>• For parking lot lighting, fully-shielded fixtures and low intensity lamps.</li> <li>• Plant a landscape screen, consisting of trees and hedges, along streets fronting parking lots or garages. Plant shade trees throughout parking lots.</li> <li>• Visually screen storage areas for vehicles, equipment, and supplies from the street and adjacent lots by privacy walls and buildings, fronted by landscaping used to soften the appearance of large solid walls.</li> </ul>	Base Master Plan	MIL	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> <li>• Use non-illuminated or indirectly illuminated signage. Fully shield lighting to avoid light trespass into residential and public areas.</li> </ul>			
<b>Sec 4.1.6 Transportation Systems</b>			
Commuter Travel			
<ul style="list-style-type: none"> <li>• Encourage the Department of Transportation's Highways Division to construct new bridges that do not flood at Waiāhole and Waikāne stream crossings at Kamehameha Highway.</li> <li>• Provide improved services and facilities for express buses, such as more frequent, larger-capacity and more comfortable vehicles.</li> <li>• Provide park-and-ride and bus transfer facilities as a joint or modified use of an existing parking area or adjacent to uses that are related to commuter trips, such as child-care centers and convenience stores.</li> <li>• Establish transit centers to function as collector or distribution hubs which provide an interface between "circulator" shuttle and trunk bus routes.</li> <li>• Promote ridesharing and vanpooling.</li> <li>• Increase person-carrying capacity on trans-Ko'olau highways and Kalaniana'ole Highway for commuter travel without expanding rights-of-way or exacerbating delays in access to the highway from collector streets during peak periods.</li> </ul>	INF, CIP, OPS  INF, CIP, OPS  INF, CIP, OPS  INF, CIP, OPS  OPS  INF, CIP, OPS	DOT  DTS  DTS  DTS  DOT  DOT	Implementer  Implementer  Implementer  Implementer  Implementer  Implementer
Local Trips			
<ul style="list-style-type: none"> <li>• Identify and take measures to reserve the option for potential future right-of-ways acquisitions at locations where minor connections between existing local street would improve mobility and reduce congestion on collector streets.</li> <li>• Implement roadway modifications recommended in the Kahalu'u Community Master Plan and the Kāne'ohe Town Plan.</li> <li>• Modify rights-of-way by changes to travelway widths, curb radii, pavement width, pavement texture, installation of appropriate signage, and more generous landscape planting in selected areas; especially along designated bike lanes and routes, principal pedestrian routes and street crossings, and near bus stops. Expand the bikeway network by implementing the proposals in the State of Hawai'i Bikeway Master Plan and the City and County of Honolulu O'ahu Bike Master Plan.</li> <li>• Design streets to accommodate personal mobility vehicles for travel within and between town cores and residential areas.</li> </ul>	INF, CIP  INF, CIP  SR&R  OPS  CIP	DTS, DOT DPP  DTS, DDC  DPP DTS, DDC  DOT, DTS, DDC	Implementer Advocate  Implementer  Implementer  Implementer  Implementer
<b>Sec 4.2.4 Water Systems</b>			
Where new reservoirs and other above-ground infrastructure is necessary, avoid impacts to significant scenic resources; where such impacts are unavoidable, implement appropriate mitigation measures.	CIP	BWS	Implementer

Policies/Guidelines	Program	Agency	Role
Require installation of low-flush toilets, flow constrictors, and other water conserving devices in commercial and residential developments.	BLDG	DPP BWS	Implementer Advocate
Investigate the feasibility of bulk-heading Waiāhole Ditch to restore water in the natural dikes.	INF	BWS	Implementer
Utilize climate-appropriate, indigenous plant material and drip irrigation systems in newly installed, smaller-scale landscaped areas.	LUO, Project Review CIP	DPP, BWS DDC/DPR, PRIV	Implementer Implementer
Use recycled (R-1 or R-2) water for the irrigation of golf courses, as well as for landscaping, and agricultural areas where this would not adversely affect potable groundwater supply or other aspects relating to public health.	CIP, OPS Project Review	PRIV, ENV BWS, DPP	Implementer Implementer
Investigate the feasibility of small-scale rain catchment systems in agricultural areas to use for irrigation, groundwater recharge and filtering of stormwater runoff sediments.	INF	BWS, U.S.D.A. Soil Conservation Service	Implementer
Confirm that adequate potable and non-potable water is available prior to approval of new residential and commercial development.	Project Review	BWS	Implementer
<b>Sec 4.3.4 Wastewater Management</b>			
Complete improvements to the Kailua WWTP service area facilities	INF, CIP OPS	DDC ENV	Implementer Implementer
Complete planned improvements to the Waimānalo WWTP service area facilities.	INF, CIP OPS	DDC ENV	Implementer Implementer
Replace outdated individual cesspools with septic tanks and individual wastewater systems in areas outside of planned municipal wastewater service areas, employing public programs or policies to support private conversion efforts.	PHS	DOH, ENV, PRIV	Implementer
Provide adequate horizontal separations and landscape elements (e.g. berms and windrows) between wastewater facilities and adjacent residential designated areas.	INF, CIP OPS	DDC ENV	Implementer Implementer
<b>Sec 4.4.2 Electrical and Communications Systems</b>			
Initiate a region-wide program to place utility lines underground and relocate and/or streamline existing overhead utility and communications lines, focusing on the following priority areas: <ul style="list-style-type: none"> <li>• Streets within Regional Town Centers, especially where overhead utility lines conflict with existing or planned street tree canopies;</li> <li>• Locations where overhead utility lines are prominently visible within a scenic viewshed identified in Exhibit 3.2.</li> </ul>	INF, CIP	UTIL DDC, DOT, DPP	Implementer Advocate

Policies/Guidelines	Program	Agency	Role
Locations where major construction projects within rights-of-way present the opportunity to coordinate the undergrounding of facilities through shared trenching and to minimize construction-related disruptions.			
Where full undergrounding of utility lines is cost-prohibitive or impractical due to disruption of existing uses and utility connections, utility poles may be visually streamlined by undergrounding lower-hanging communications lines and related equipment, if this would result in substantial visual improvement at a much lower cost.	INF, CIP	UTIL DDC, DOT, DPP	Implementer Advocate
Promote the use of renewable energy sources and energy conservation measures through both regulatory and tax incentive measures.	OPS, TAX, BLDG, LUO	UTIL,PUC, TAX, DBEDT DPP	Implementer Implementer
Co-locate communications and power equipment and devices with similar facilities in order to minimize the number of supporting structures and dispersal of sites.	Project Review	DLNR, DPP	Implementer
<b>Sec 4.5.2 Solid Waste Handling and Disposal</b>			
Promote the recycling of waste materials by providing expanded collection facilities and services, and public outreach and education programs	OPS	ENV	Implementer
Expand the use of automated refuse collection in residential areas.	OPS	ENV	Implementer
Develop programs for reducing the production of solid waste.	OPS	ENV	Implementer
Provide a convenience refuse transfer station, including a green-waste drop-off site, to serve Kahalu'u at a location close to Kamehameha Highway between 'Ahuimanu and Waikāne.	INF, CIP, OPS	ENV	Implementer
Analyze and approve siting and/or expansion of sanitary landfills based on island-wide studies and siting evaluations.	INF	ENV	Implementer
<b>Sec 4.6.2 Drainage Systems</b>			
Emphasize retaining or detaining storm water for gradual release into the ground as the preferred strategy for management of storm water.	SWM, Project Review	DPP, DFM	Implementer
Prevent the blocking of downstream channels during major storm events by properly maintaining large-capacity boulder and debris basins in upper valleys above urbanized areas.	OPS	DFM	Implementer
Integrate planned improvements to the drainage system into the regional open space network by emphasizing the use of retention basins, creation of passive recreational areas, and recreational access for pedestrians and bicycles without jeopardizing public safety.	CIP, INF	DDC,DTS, DFM DPR	Implementer Advocate

Policies/Guidelines	Program	Agency	Role
In places where the hardening of stream channels is unavoidable or highly desirable to prevent significant loss of property or threat to public health and safety, design improvements in a manner which protects natural resource and aesthetic values of the stream, consistent with the guidelines expressed in Section 3.1.3.4.	CIP	DDC ENV	Implementer Advocate
Emphasize periodic maintenance of stream channels and stormwater detention basins, including natural wetlands, to improve and retain their capacity for flood conditions while taking care to maintain their biological and aesthetic values.	OPS	DFM ENV	Implementer Advocate
Designate a public agency to assume jurisdiction over abandoned irrigation ditches and reservoirs for the purpose of maintaining them as important elements of the flood control system.	OPS	DLNR	Implementer
<b>Sec 4.7.2 School and Library Facilities</b>			
Encourage coordination between the Department of Parks and Recreation and the DOE regarding the development and use of athletic facilities such as playgrounds, play fields and courts, swimming pools, and gymnasiums where the joint use of such facilities would maximize use and reduce duplication of function without compromising the schools' athletic programs.	OPS	DOE, DPR	Implementer
Support the DOE's requests for fair share contributions from developers to ensure that adequate school facilities are in place.	OPS	DPP, LUC	Implementer
Apply the guidelines for institutions in Section 3.7.2 when a new public or private school campus or a significant increase in enrollment capacity at one of the existing campuses is proposed.	Project Review CIP	DPP DAGS, DOE, PRIV	Implementer Implementer
<b>Sec 4.8.2 Civic and Public Safety Facilities and Community Resilience</b>			
Locate permanent Satellite City Halls in the Regional Town Centers of Kāne'ohe and Kailua to reinforce these areas as a regional focal point or gathering spot for activities and services.	CIP, OPS	DDC, DCS	Implementer
Design new public buildings such as schools and recreation centers to serve a secondary function as an emergency shelter.	OPS, CIP	DAGS, DOE, DDC DEM	Implementer Advocate
Design new City buildings which are used for public assembly and able to serve as emergency shelters such that they can withstand a category 3 hurricane.	OPS, CIP	DDC DEM	Implementer Advocate
Survey and retrofit, as appropriate, existing public buildings to serve a secondary function as hurricane-resistant emergency shelters.	OPS, CIP	DAGS, DOE, DDC DEM	Implementer Advocate

<b>Policies/Guidelines</b>	<b>Program</b>	<b>Agency</b>	<b>Role</b>
Provide incentives for private organizations to create hurricane-resistant shelter areas in their facilities and for homes to include hurricane-resistant safe rooms.	LUO,TAX CIP	DPP, TAX DEM	Implementer Advocate

## **APPENDIX A: CONCEPTUAL MAPS**

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This appendix includes three conceptual maps used to illustrate the vision for Ko'olau Poko's future development. The maps include:

Map A-1: Open Space

Map A-2: Land Use

Map A-3: Public Facilities

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

1. These maps are general and conceptual, and are not intended to be used to determine specific land use boundaries. Such boundaries are to be determined during the review of specific land use or public facilities investment decisions, and their exact locations are to be guided by the vision and policies of this Plan.
2. These maps illustrate the Plan's visions and policies which are presented in Chapters Two, Three, and Four. These policy statements are considered the most important elements of the Plan.

The maps are considered illustrations of policies. However, the text should be consulted to determine the appropriate application of the Plan vision, policies, and guidelines for any specific project or location. In case of disagreement, the text should prevail over the map depiction.

A brief explanation of the terms used in each of these maps follows.

### **A.1 COMMUNITY GROWTH BOUNDARY**

The Community Growth Boundary (CGB) is intended to define and contain the extent of developed or "built" areas of Ko'olau Poko's urban fringe and rural communities. Its purpose is to provide an adequate supply of land to support the region's established suburban and rural communities while protecting lands outside the boundary for agricultural and open space preservation values. Areas within the CGB are generally characterized by significant tracts of residential, commercial, industrial or mixed-use development, and smaller, more dispersed, less intensively developed residential communities and towns areas that are clearly distinguishable from the unbuilt or more "natural" portions of the region. Each generation should re-evaluate the relevance of the boundary in light of their own time.

From north to south, the Ko'olau Poko CGB generally circumscribes the residential district of Waikāne, the residential, business, and industrial districts of

Waiahole and Waihee; and the residential, low-density apartment and business districts of Kahalu'u and 'Āhuimanu. The CGB should also include approximately 24 acres of land in 'Āhuimanu (TMK Nos. 4-7-032:001 through 4-7-032:005; 4-7-032:007 through 4-7-032:009; 4-7-032:025; 4-7-032:036; and 4-7-032:51) to allow for rezoning from the agricultural district to the residential district, for the development of individual homes for the existing long-time residents.

In Kāne'ohe, the CGB begins at the southern end of He'eia Fishpond and follows the residential district towards Kahekili Highway, and encompasses almost all of the country district lots of the Ha'ikū Plantation. Thereafter, the CGB follows the residential district towards and encompasses the Ha'ikū Village, Windward Community College and the Hawai'i State Hospital, including the Keapuka residential district and an agricultural district located between the H-3 Highway and the Keapuka residential district. Thereafter, the CGB heads north to the Likelike Highway and Kahekili Highway intersection before heading south and then east along the residential district of Keapuka towards and encompassing most of Hawaiian Memorial Park, the proposed expansion of the Hawaiian Memorial Park, the proposed Kawa'ewa'e Heiau cultural preserve, and the Hawai'i State Veterans Cemetery before heading northeast to Kokokahi. The extension of the CGB in this area is solely limited to 28.2 acres for the expansion of the active cemetery area, and 14.5 acres for the proposed Kawa'ewa'e Heiau cultural preserve, and should not be construed to be suitable for any other urban-type development on the old 156-acre Pikoiloa Tract. The CGB contains the residential districts of Waikalua, Kokokahi, Mahinui before terminating at the intersection of H-3 Highway and Kāne'ohe Bay Drive. In this area, the CGB includes the Kapa'a industrial district and further north, portions of the military installation at Mōkapu Peninsula are also included in the CGB.

At north Kailua, from the coast, the CGB follows the residential district adjacent to the Nu'upia Fishpond, heading south along Kawainui Marsh to Kailua Town Center, then along the base of the ridge line above Enchanted Lakes Subdivision and thereafter, along Kalaniana'ole Highway. Ka'elepulu Pond and its drainage outlet to the Kailua Beach are excluded from the CGB. From Kalaniana'ole Highway, the CGB winds northward along the Kailua Heights, Keolu Hills, and Ka'iwa Ridge residential districts. Thereafter, the CGB follows the Lanikai residential district until its terminus at Wailea Point. South of Kawainui Marsh, the CGB encompasses the residential districts of Pohakupu and Maunawili. On the east, the CGB generally encompasses the residential and business districts of Waimānalo Town, including recent expansions to Hawaiian homesteads. Further east, the CGB includes the Waimānalo Beach residential districts on either side of Kalaniana'ole Highway including recent Hawaiian Homestead lot additions located in the agricultural district.

## **A.2 AGRICULTURAL AREA**

Agricultural areas are 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 Important to the State of Hawai'i (ALISH) maps. These are lands suitable for crop growing, grazing and livestock raising, flower cultivation, nurseries, orchards, aquaculture, or similar activities.

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. To date, IAL lands have not been identified. In 2005, Act 183 was adopted to address this mandate. It established a two-step process:

- The State Legislature would adopt incentives to assure the long term use and protection of IAL.
- The State Legislature would approve adequate funding to allow the counties to prepare maps identifying IAL lands which would then be adopted by the State Land Use Commission.

Act 233, enacted in 2008, adopted the incentive programs. To date, no state funding has been appropriated to the City and County of Honolulu for the mapping; however, the Department of Planning and Permitting has begun the mapping process. Lands identified for agricultural purposes by this Plan are serving as a basis for the county mapping process.

In Ko'olau Poko, the Agricultural Areas include the following:

- Areas in the agricultural districts, except areas in the inventory of Hawaiian Memorial Park and the Hawai'i State Veterans Memorial Cemetery, developed golf courses, and public nature preserves or nature parks;
- Areas in the country district, except those parcels immediately adjoining a residential district lying within the Community Growth Boundary; and
- The campus of Le Jardin Academy.

## **A.3 PRESERVATION AREA**

The Preservation Area is established to protect undeveloped lands which form an important part of the region's open space fabric, but that are not valued primarily for agricultural uses. Such lands include important wildlife habitat, archaeological or historic sites, significant landforms or landscapes over which significant views are available, and development-related hazard areas.

The Preservation Area generally includes undeveloped lands that:

- Are necessary for protection of watersheds, water resources and water supplies;
- Are necessary for the conservation, preservation and enhancement of sites with scenic, historic, archaeological or ecological significance;
- Are 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 activities related to these uses;
- Are located at an elevation below the maximum inland line of the zone of wave action, and marine waters, fishponds, and tidepools unless otherwise designated;
- Comprise offshore and outlying islands unless otherwise classified;
- Are generally characterized by topography, soils, climate or other related environmental factors that may not be normally adaptable or presently needed for urban community or agriculture use;
- Have general slopes of 20 percent or more that provide for open space amenities and/or scenic values;
- Are susceptible to floods and soil erosion, lands undergoing major erosion damage and requiring corrective attention, and lands necessary to the protection of the health, safety and welfare of the public by reason of soil instability or the land's susceptibility to landslides and/or inundation by tsunami and flooding;
- Are used for state or city parks outside the Community Growth Boundary; or
- Are suitable for growing commercial timber, grazing, hunting, and recreation uses, including facilities accessory to such uses when such facilities are compatible with the natural and physical environment.

The Preservation Area is intended to include the following:

- Areas within the State Conservation District and other areas within the preservation district, but not located within the Community Growth Boundary or Agricultural Areas as described above;
- Public nature preserves and nature parks;

- Golf courses and cemeteries not located within the Community Growth Boundary and/or Agricultural Areas as described above;
- Military lands, except those at MCB Hawai‘i developed with uses associated with the residential, apartment, commercial, industrial and mixed-use districts;
- Correctional and detention facilities mauka of Kalaniana‘ole Highway; and
- The campuses of the Oceanic Institute and Sea Life Park.

The Preservation Area excludes such features, sites or areas located within the Community Growth Boundary or Agricultural Areas.

#### A.4 MAP A-1: OPEN SPACE

The Open Space Map illustrates 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 parks and golf courses, important views, and important boundaries.

This map also indicates the general locations of community and neighborhood parks, public access points along the shoreline, and major trails providing mountain access.

#### A.5 MAP A-2: LAND USE

The Land Use Map shows the desired long-range land use pattern for Ko‘olau Poko, i.e., the land use pattern that will be realized through implementation of the Ko‘olau Poko Sustainable Communities Plan. The map contains the following plan elements within the Community Growth Boundary:

**RESIDENTIAL.** The category consists of single-family homes in areas currently configured with relatively large lots, e.g., lots of one acre or more and referred to as “rural communities”. Also within the “rural communities” the category consists of single-family homes in “country” settings, in areas with current lot sizes ranging from just less than one acre to about one-eighth acre (future subdivisions, if any, of “rural communities” areas are anticipated to have lots no smaller than about one-quarter acre). Within the “suburban communities”, the “Residential” category consists of single-family homes or townhouses with individual entries.

**LOW-DENSITY APARTMENT.** These uses generally refers to low-density, low-rise multi-family residences, including townhouses, stacked flats and apartment buildings. Dwelling units in these buildings may share common exterior entries.

**RURAL COMMERCIAL CENTER.** These centers are labeled “RC” and generally represent clusters of commercial establishments intended to service the surrounding rural community. Uses typically include grocery and sundry stores and other services and shops catering to common household convenience items, as well as establishments providing goods and services in support of agricultural activities.

**SUBURBAN COMMERCIAL CENTER.** These centers are labeled “SC” and generally represent clusters of commercial establishments intended for neighborhood service. Uses typically include grocery and sundry stores and other services and shops catering to common household- or neighborhood-level convenience items.

**COMMUNITY COMMERCIAL CENTER.** These centers are labeled “CC” and generally represent clusters of commercial establishments with a retail shopping center as a nucleus and encompassing up to 50 acres. In addition to the uses found in Neighborhood Commercial Centers, Community Commercial Centers may include offices, service industrial establishments, entertainment facilities and social centers.

**REGIONAL TOWN CENTER.** The Regional Town Centers for Ko‘olau Poko are comprised of the main town areas of Kailua and Kane‘ohe. These centers are labeled with the designation “TC.” The Regional Town Centers may contain a wide variety of uses, including commercial establishments, civic services, mixed use commercial-residential areas, and mixed use industrial-commercial areas.

**INDUSTRIAL.** Industrial areas lying outside the Regional Town Centers are found at Kapa‘a and the MCB Hawai‘i.

**INSTITUTIONAL.** Major institutional uses include: the Oceanic Institute near Makapu‘u; the Job Corps campus in Waimānalo; the correctional and detention facilities and corporation yards adjacent to Mount Olomana and the Pohakupu neighborhood; Castle Medical Center; the windward campus of Hawai‘i Pacific University; and the combined campus areas of Windward Community College and the Hawai‘i State Hospital.

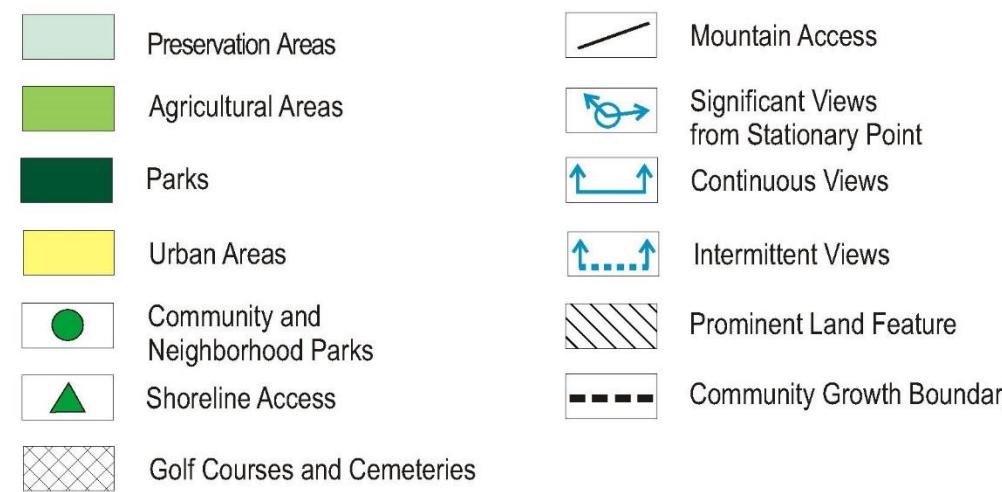
**MILITARY.** The general areas of MCB Hawai‘i and Bellows that are used primarily for activities related to national defense are shown on the Land Use Map. At MCB Hawai‘i, these areas are distinguished from other support areas used for housing, preservation, recreation, and commercial and industrial activities although it is recognized that those support areas will remain integral to the base.

**PUBLIC FACILITIES.** The existing highways and major roads, the Kailua and Waimanalo wastewater water treatment plants, and public intermediate and high

schools are depicted with appropriate symbols, and are shown primarily to provide points of orientation.

#### **A.6 MAP A-3: PUBLIC FACILITIES**

The Public Facilities Map illustrates major existing and future public facilities and major privately-owned facilities including golf courses. Its purpose is to display the public resources or assets available within the region. It also depicts general locations of future transit centers and future bike facilities.

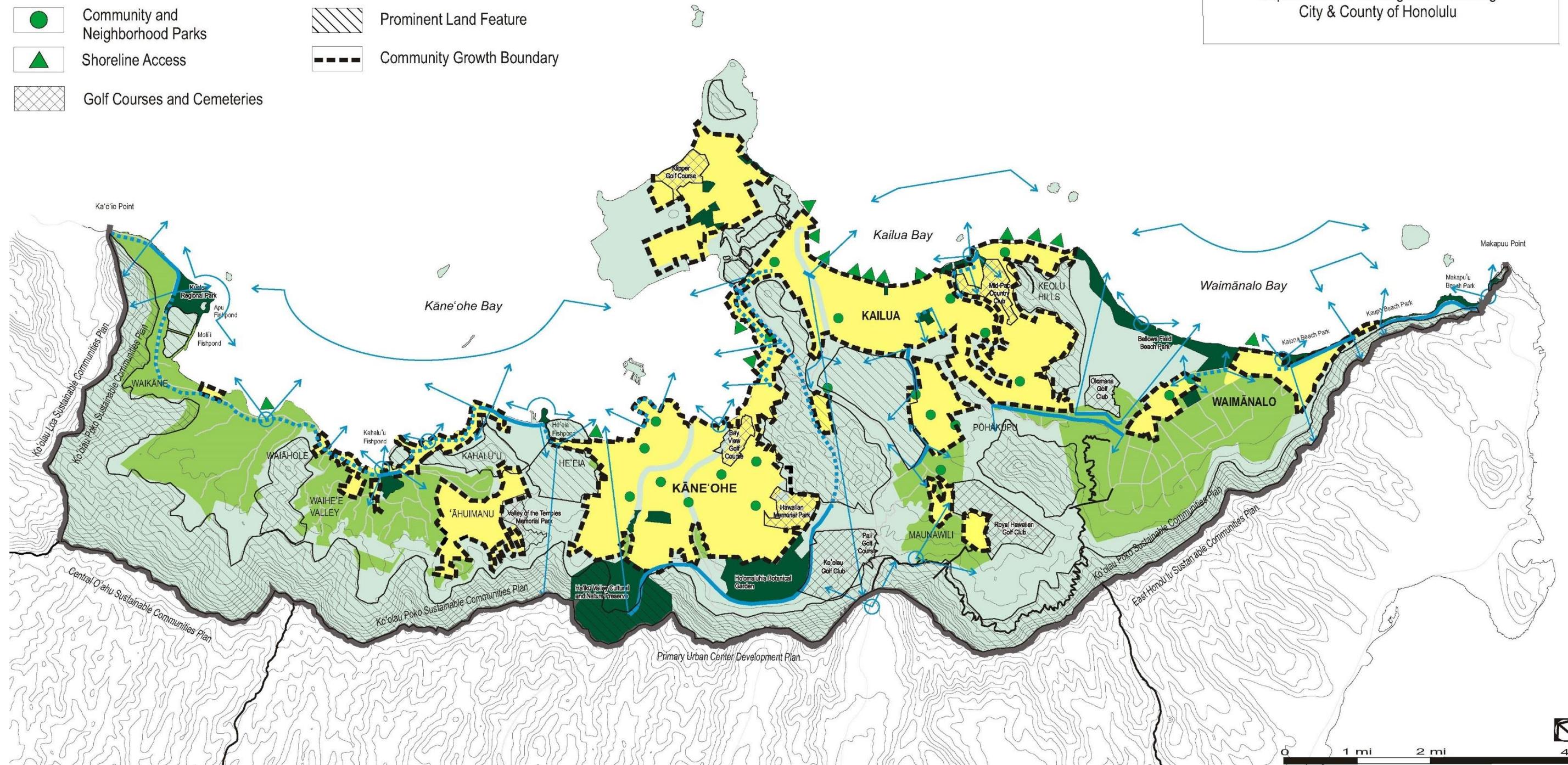


## KO' OLAU POKO SUSTAINABLE COMMUNITIES PLAN

### Map A-1: Open Space



Department of Planning and Permitting  
City & County of Honolulu



Preservation Areas  
 Agricultural Areas  
 Parks  
 Medium Density Residential  
 Low Density Residential  
 Industrial  
 Institutional  
 Military  
 Rural Commercial Center (RC)  
 Suburban Commercial Center (SC),  
 Community Commercial Center (CC), and  
 Regional Town Center (TC)

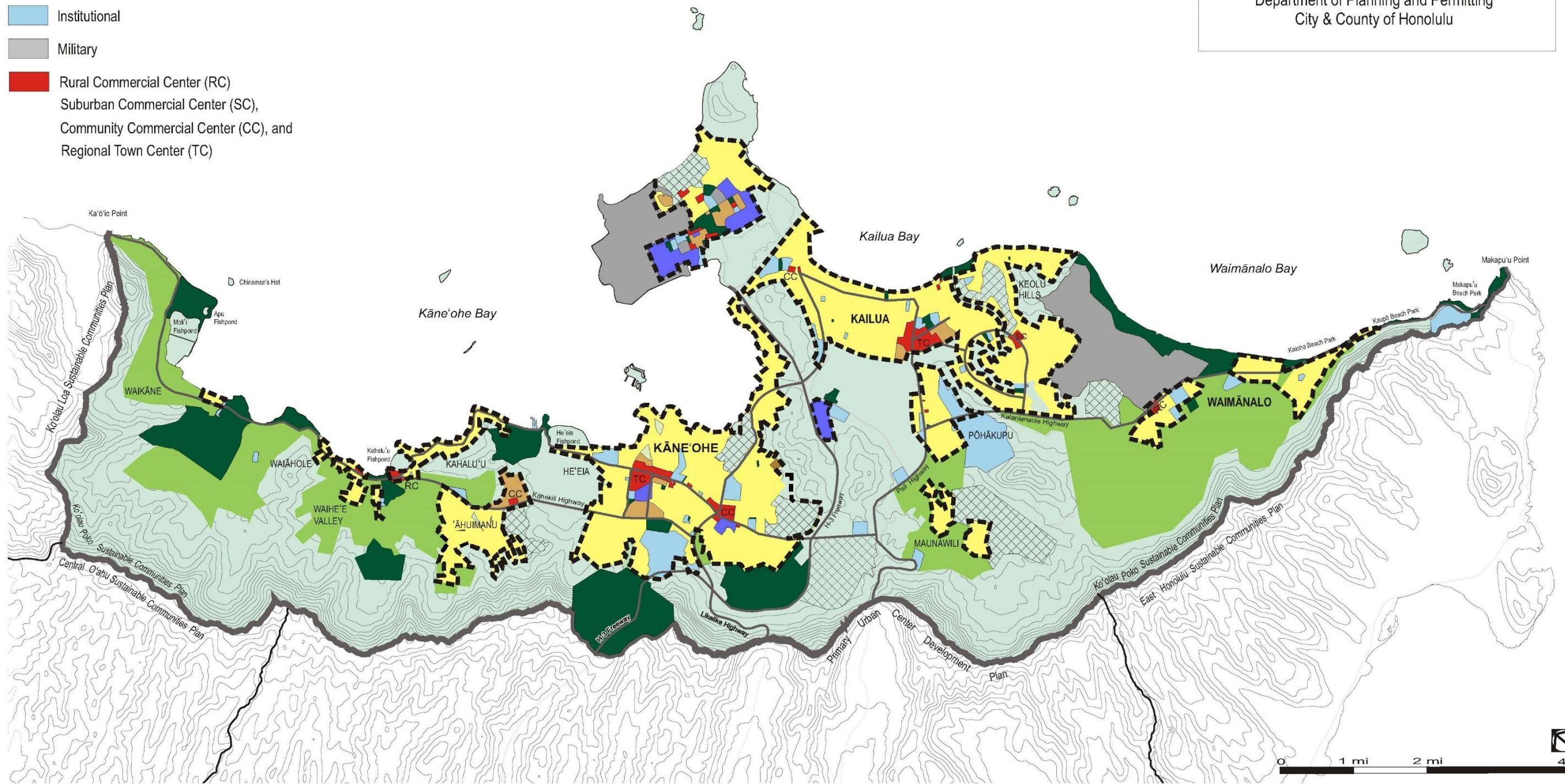
Freeways, Highways, and Major Roads  
 Community Growth Boundary  
 Golf Courses and Cemeteries

## KO' OLAU POKO SUSTAINABLE COMMUNITIES PLAN

### Map A-2: Land Use



Department of Planning and Permitting  
City & County of Honolulu



	EXISTING	FUTURE
Preservation Areas		
Nature Parks (Future)		
Agricultural Areas		
Urban Areas		
Parks		
Shoreline Access	▲	
Community Growth Boundary	- - -	
Golf Courses and Cemeteries		
		Bike facilities based on the O'ahu Bike Plan, August 2012
		Freeways, Highways, Major Roads
		Bike Lane
		Bike Path
		Bike Route

# KO' OLAU POKO

## SUSTAINABLE COMMUNITIES PLAN

### Map A-3: Public Facilities



Department of Planning and Permitting  
City & County of Honolulu

