



KO'OLAU POKO

SUSTAINABLE COMMUNITIES PLAN



City and County of Honolulu, Department of Planning and Permitting

August 2017

1 **TABLE OF CONTENTS**

2 **PREFACE** P-1

3 **EXECUTIVE SUMMARY** ES-1

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

5 **2. THE VISION FOR KO'OLAU POKO'S FUTURE** 2-1

6 2.1 **KEY ELEMENTS OF THE VISION** 2-2

7 2.1.1 **Adapt the Concept of *Ahupua'a* in Land Use and Natural Resource**

8 **Management**..... 2-2

9 2.1.2 **Preserve and Promote Open Space and Agricultural Uses** 2-4

10 2.1.3 **Preserve and Enhance Scenic, Recreational and Cultural Features that Define**

11 **Ko'olau Poko's Sense of Place**..... 2-5

12 2.1.4 **Emphasize Alternatives to the Private Passenger Vehicle as Modes for Travel ...** 2-6

13 2.1.5 **Protect and Enhance Residential Character While Adapting to Changing Needs.** 2-7

14 2.1.6 **Define and Enhance Existing Commercial and Civic Districts** 2-8

15 2.1.7 **Maintain the Community Growth Boundary to Protect Agricultural, Open Space,**

16 **and Natural Resources** 2-10

17 **3. LAND USE POLICIES AND GUIDELINES** 3-1

18 3.1 **OPEN SPACE PRESERVATION**..... 3-1

19 3.1.1 **Policies** 3-2

20 3.1.2 **Guidelines**..... 3-3

21 3.1.3 **Elements of Open Space Resources** 3-3

22 3.1.4 **Protection of Other Natural Resources**..... 3-20

23 3.1.5 **Relationship to Map A-1, Open Space** 3-20

24 3.2 **PARKS AND RECREATION**..... 3-21

25 3.2.1 **Island-Wide Parks**..... 3-21

26 **Policies** 3-23

27 **Guidelines**..... 3-23

28 3.2.2 **Community-Based Parks** 3-24

29 **Policies** 3-27

30 **Guidelines**..... 3-27

31 3.3 **Historic and Cultural Resources**..... 3-28

32 3.3.1 **Policies** 3-33

33 3.3.2 **Guidelines** 3-33

34 3.4 **AGRICULTURAL USE**..... 3-34

35 3.4.1 **Policies** 3-38

36 3.4.2 **Guidelines** 3-39

1	3.5	RESIDENTIAL USE.....	3-40
2	3.5.1	Policies	3-42
3	3.5.2	Guidelines.....	3-43
4	3.5.3	Relation to Map A-2, Land Use.....	3-46
5	3.6	COMMERCIAL AND INDUSTRIAL USES	3-47
6	3.6.1	Policies	3-49
7	3.6.2	Guidelines.....	3-53
8	3.6.3	Relation to Map A-2, Land Use.....	3-58
9	3.7	INSTITUTIONAL USES	3-59
10	3.7.1	Policies	3-59
11	3.7.2	Guidelines	3-60
12	3.7.3	Relation To Map A-2, Land Use	3-61
13	3.8	MILITARY USES	3-61
14	3.8.1	Policies	3-62
15	3.8.2	Guidelines.....	3-63
16	3.8.3	Relation to Map A-2, Land Use.....	3-64
17	4.	PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND GUIDELINES	4-1
18	4.1	TRANSPORTATION SYSTEMS.....	4-1
19	4.1.1	Roadway Network.....	4-1
20	4.1.2	Transit System.....	4-3
21	4.1.3	Bikeway System.....	4-3
22	4.1.4	Pedestrian Circulation.....	4-4
23	4.1.5	Policies	4-5
24	4.1.6	Guidelines.....	4-6
25	4.2	WATER SYSTEMS.....	4-7
26	4.2.1	Potable Water	4-7
27	4.2.2	Irrigation Water	4-7
28	4.2.3	Policies	4-8
29	4.2.4	Guidelines.....	4-8
30	4.3	WASTEWATER MANAGEMENT.....	4-9
31	4.3.1	Kailua-Kāneʻohe-Kahaluʻu Wastewater Service Area	4-9
32	4.3.2	Waimānalo Wastewater Service Area	4-10
33	4.3.3	Policies	4-11
34	4.3.4	Guidelines.....	4-12
35	4.4	ELECTRICAL AND COMMUNICATIONS SYSTEMS	4-12
36	4.4.1	Policies	4-13
37	4.4.2	Guidelines.....	4-14
38	4.5	SOLID WASTE HANDLING AND DISPOSAL	4-15

1	4.5.1	Policies	4-15
2	4.5.2	Guidelines.....	4-15
3	4.6	DRAINAGE SYSTEMS.....	4-16
4	4.6.1	Policies	4-20
5	4.6.2	Guidelines.....	4-21
6	4.7	SCHOOL AND LIBRARY FACILITIES	4-21
7	4.7.1	Policies	4-23
8	4.7.2	Guidelines.....	4-24
9	4.8	CIVIC AND PUBLIC SAFETY FACILITIES AND COMMUNITY RESILIENCE	4-24
10	4.8.1	Policies	4-26
11	4.8.2	Guidelines.....	4-26
12	5.	IMPLEMENTATION	5-1
13	5.1	OVERVIEW AND PLANNING IMPLEMENTATION TOOLS.....	5-1
14	5.2	PUBLIC FACILITY INVESTMENT PRIORITIES	5-2
15	5.3	DEVELOPMENT PRIORITIES.....	5-2
16	5.4	SPECIAL AREA PLANS	5-2
17	5.5	FUNCTIONAL PLANNING.....	5-3
18	5.6	REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS.....	5-5
19			
20	5.6.1	Adequate Facilities Requirement	5-5
21	5.7	FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW	5-6
22	5.7.1	Adoption of the Sustainable Communities Plan and Existing Land Use	
23		Approvals.....	5-6
24	5.8	Implementation Matrix.....	5-6
25		IMPLEMENTATION MATRIX.....	5-8
26	APPENDIX A: CONCEPTUAL MAPS	A-1	
27	Map A-1: Open Space.....	A-8	
28	Map A-2: Land Use.....	A-9	
29	Map A-3: Public Facilities.....	A-10	
30			
31			
32	LIST OF TABLES		
33	3.1: Golf Courses in Ko'olau Poko.....	3-18	
34	3.2: Island-Wide Parks in Ko'olau Poko.....	3-22	

1	3.3: Types of Community-Based Parks.....	3-24
2	3.4: Community-Based Parks in Ko'olau Poko.....	3-25
3	3.5: Significant Archaeological Sites in Ko'olau Poko.....	3-29
4	3.6: Major Shopping Centers in Ko'olau Poko.....	3-48
5	3.7: Office Space in Ko'olau Poko.....	3-48
6	3.8: Institutional Campuses in Ko'olau Poko.....	3-59
7	4.1: Environmental Quality and Flood Zones of Perennial Streams in Ko'olau	
8	Poko.....	4-17
9	4.2: Public School Enrollment and Capacity.....	4-22
10	4.3: Private Schools in Ko'olau Poko – 2008-2009.....	4-23
11	4.4: Emergency Shelters for Ko'olau Poko.....	4-25
12	5.1: Implementation Matrix.....	5-8

LIST OF EXHIBITS

16	Exhibit 1.1: General Plan Development Pattern.....	1-3
17	Exhibit 3.1: Streams, Wetlands, and Fishponds Relative to <i>Ahupua'a</i> Boundaries.....	3-11
18	Exhibit 3.2: Significant Cultural and Historic Sites and Trails.....	3-31
19	Exhibit 3.3: Crop Farms and ALISH Classifications Relative to the State	
20	Agricultural District.....	3-36
21	Exhibit 4.1: Flood Zones and Special Management Area.....	4-18

LIST OF ACRONYMS

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

1	DES	Department of Emergency Services
2	DFM	Department of Facility Maintenance
3	DHHL	State Department of Hawaiian Home Lands
4	DLNR	State Department of Land and Natural Resources
5	DOA	State Department of Agriculture
6	DOE	State Department of Education
7	DOH	State Department of Health
8	DOT	State Department of Transportation
9	DPP	Department of Planning and Permitting
10	DPR	Department of Parks and Recreation
11	DTS	Department of Transportation Services
12	EA	Environmental Assessment
13	EIS	Environmental Impact Statement
14	ENT	Department of Enterprise Services
15	ENV	Department of Environmental Services
16	FCC	Federal Communications Commission
17	FED	Federal Government Agency (other than military)
18	HFD	Honolulu Fire Department
19	HPD	Honolulu Police Department
20	HPHA	Hawai'i Public Housing Authority
21	HRS	Hawai'i Revised Statutes
22	IAL	Important Agricultural Lands
23	INF	Infrastructure System Plan (e.g., for regional wastewater, water, transportation systems)
24		
25	KPWMP	Ko'olau Poko Watershed Management Plan
26	LUC	State Land Use Commission
27	LUO	Land Use Ordinance
28	mgd	million gallons per day
29	MCB Hawai'i	Marine Corps Base Hawai'i
30	MCTAB	Marine Corps Training Area Bellows
31	MIL	Branch of the U.S. Military
32	OED	City Office of Economic Development
33	OMPO	O'ahu Metropolitan Planning Organization
34	OPS	Operations
35	PHS	Public Health Standards (e.g., for noise, sanitation, occupational safety)
36	PRIV	Private Landowner or Developer
37	PUC	Public Utilities Commission
38	RF	radio frequency
39	SAP	Special Area Plan (e.g., for local towns, circulation, parks, beach management)
40		
41	SCPA	Sustainable Communities Plan Area
42	SHPD	State Historic Preservation Division
43	SR&R	Subdivision Rules and Regulations (including street standards and planned widenings)
44		

1	SWM	Stormwater Management Standards
2	TAX	Tax-Related Legislation, Rules or Practices
3	TBD	To Be Determined
4	TDM	Transportation Demand Management
5	UH	University of Hawai'i
6	USFWS	U.S. Fish and Wildlife Service
7	UTIL	Utility Company (i.e., Hawaiian Electric, Hawaiian Telephone, Oceanic
8		Cable, other communications providers)
9	WCDP	Windward Capital District Plan
10	WWPS	wastewater pump station
11	WWTP	wastewater treatment plant
12	WWTPF	wastewater preliminary treatment facility
13		
14		
15		

1 **PREFACE**

2 The Ko'olau Poko Sustainable Communities Plan has been prepared in accordance
3 with the Charter-prescribed requirements for Development Plans and is to be
4 accorded force and effect as such for all Charter- and ordinance-prescribed
5 purposes. It is one of eight community-oriented plans intended to help guide public
6 policy, investment, and decision-making through the 2035 planning horizon. Each of
7 these eight plans addresses one of eight geographic planning regions on O'ahu,
8 responding to the specific conditions and community values of each region.

9
10 Two of the eight planning regions, 'Ewa and the Primary Urban Center, are the
11 areas to which major growth in population and economic activity will be directed over
12 the next 20 years and beyond. The plans for these regions continue to be titled
13 "Development Plans" and will serve as the policy guides for the development
14 decisions and actions required to support that growth.

15
16 The remaining six planning regions, including Ko'olau Poko, are envisioned to
17 remain relatively stable. The plans for those regions have been titled "Sustainable
18 Communities Plans" and are focused on serving as policy guides for public actions
19 in support of that goal. The vision statement and supporting provisions of the
20 Ko'olau Poko Sustainable Communities Plan are oriented toward maintaining and
21 enhancing the region's ability to sustain its unique character and lifestyle.

22
23 **P.1 THE SUSTAINABLE COMMUNITIES PLAN PROCESS**

24 This document is the culmination of a planning effort led by the City and County of
25 Honolulu's Department of Planning and Permitting. This effort comprised a process
26 that encouraged and enabled significant involvement from the community. In its final
27 form, this Plan will have considered input received from various community
28 members and organizations, three community-wide meetings, four focus group
29 meetings, and interested government agencies.

30
31 **P.2 THE HONOLULU LAND USE PLANNING AND MANAGEMENT**
32 **SYSTEM**

33 The City and County of Honolulu guides and directs land use and growth through a
34 three-tier system of objectives, policies, planning principles, guidelines and
35 regulations. The General Plan forms the first tier of this system. First adopted by
36 resolution in 1977, the General Plan is a relatively brief document, providing a broad
37 statement of objectives and policies to guide the City's future. It has been amended
38 several times, but the basic objectives and policies set forth in the 1977 plan remain
39 intact.

40

1 The second tier of the system is formed by the Development Plans, which are
2 adopted and revised by ordinance and are required to implement objectives and
3 policies set forth in the General Plan. These plans address eight geographic regions
4 of the island: the Primary Urban Center, East Honolulu, Central O’ahu, ‘Ewa,
5 Wai’anae, North Shore, Ko’olau Loa and Ko’olau Poko. The Ko’olau Poko
6 Development Plan was first adopted in 1983. The Development Plans for East
7 Honolulu, Central O’ahu, Wai’anae, North Shore, Ko’olau Loa, and Ko’olau Poko are
8 now referred to as Sustainable Communities Plans.

9
10 The third tier of the system is composed of the implementing ordinances, including
11 the Land Use Ordinance (Honolulu’s zoning code) and the City’s Capital
12 Improvement Program. Mandated by the City Charter, these ordinances constitute
13 the principle means for implementing the City’s plans. These ordinances are
14 required to be consistent with, and carry out the purposes of, the General Plan, the
15 Development Plans (or Sustainable Communities Plans), and each other.

16
17 In addition to these three Charter-mandated tiers, the Development Plans are
18 supplemented by two planning mechanisms that are not required by the Charter,
19 including the functional planning process and special area planning. Functional
20 planning activities, some of which are mandated by state or federal regulations,
21 provide long-range guidance for the development of public facilities such as the
22 water system, wastewater disposal, and transportation. Special area plans are
23 intended to give specific guidance for neighborhoods, communities or specialized
24 resources.

25 26 **P.3 AUTHORITY OF THE DEVELOPMENT PLANS AND SUSTAINABLE** 27 **COMMUNITIES PLANS**

28 The authority for the Development Plans and Sustainable Communities Plans
29 (hereinafter referred to as “Development Plans” for simplicity) is derived from the
30 City Charter, which mandates preparation of a General Plan and Development
31 Plans to guide “the development and improvement of the city.” Together with the
32 General Plan, the Development Plans provide policy guidance for the land use and
33 budgetary actions of the City.

34
35 The Charter provides that “public improvement projects and subdivision and zoning
36 ordinances shall be consistent with the development plan for that area.” Although
37 the Development Plans are not themselves regulatory and require implementing
38 ordinances (the “third tier” discussed in Section P.2 above), they guide the
39 regulators and decision-makers who are the implementers. They are policy tools
40 and are to be used, in conjunction with the programs and budgets of the City, to
41 accomplish the objectives of the City and as guides for decisions made by the
42 private sector. Consistent with the Charter’s description of the Development Plans

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

3

4 **P.4 1992 CHARTER AMENDMENT TO REVISE THE DEVELOPMENT** 5 **PLANS**

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

12

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

15

- 16 • “priorities... (for the) coordination of major development activities;” and
- 17
- 18 • sufficient description of the “desired urban character and the significant
19 natural, scenic and cultural resources...to serve as a policy guide for more
20 detailed zoning maps and regulations and public and private sector
21 investment decisions.”
- 22

23

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

29

30 **P.5 SUSTAINABILITY**

31 There has been a recent surge in wide-spread community discussions, actions and
32 laws to address sustainability. In 2005, the State Legislature convened a state-wide
33 group to draft a Hawai'i 2050 Plan, whose primary purpose is to provide policy
34 recommendations for creating a sustainable Hawai'i. In 2007, greenhouse gas
35 emissions goals for 2020 were enacted. Public service announcements dealing with
36 conserving water and electricity abound. The concept of buildings that are
37 designed, built and occupied with environmental considerations at the forefront
38 largely did not exist when the current Development Plans and Sustainable
39 Communities Plans were first adopted. This setting raises the question of the role of
40 the Development Plans and Sustainable Communities Plans. Are they the City's
41 version of a sustainability plan?

41

1 The answer is that they are the land development portion of a larger blueprint for
2 sustainability. As discussed below, the General Plan sets long term goals for the
3 City and County of Honolulu, across 11 major elements. Perhaps its most
4 substantive chapter deals with population, and hence land development. It sets the
5 growth management strategy for O’ahu. The Development Plans and Sustainable
6 Communities Plans provide more detail on this land management strategy, assuring
7 that how we use the land now, and in the future, responds to the three major
8 elements of a sustainable place: economic health, social equity, and environmental
9 protection.

10
11 The issues addressed either directly or indirectly by these regional plans certainly
12 overlap with other planning responsibilities of other departments, such as water
13 delivery and consumption, crime reduction, increasing public health, and developing
14 responsive transportation systems. Collectively, these efforts comprise the strategy
15 of developing a sustainable future for O’ahu.

16 17 **P.6 INTEGRATING PRINCIPLES OF SUSTAINABILITY INTO DECISION-** 18 **MAKING PROCESSES**

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

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

- 25
26
27 • Protect agricultural lands, physical and biological resources, and where
28 appropriate, open spaces and view planes.
- 29 • Use resources so they are not depleted, permanently damaged or destroyed.
- 30 • Require planning, development, and construction technologies that minimize
31 negative environmental impacts.
- 32 • Respect the cultural, social and physical resources that shape and reinforce
33 residents’ sense of community and quality of life.
- 34 • Guide the process of change. Strive to make decisions based on an
35 understanding of the effects such decision will have on the land and
36 community resources.
- 37 • Strive for balance between economic prosperity, social and community well-
38 being, and environmental stewardship.

- 1
 - 2
 - 3
- 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.

1 **EXECUTIVE SUMMARY**

2

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

4

- 5 • Chapter 1: Ko’olau Poko’s Role in O’ahu’s Development Pattern defines the
6 region’s role and identity within the overall framework of islandwide planning
7 and land use management.
- 8 • Chapter 2: The Vision For Ko’olau Poko’s Future describes the vision for the
9 future of the region and lists important elements of that vision.
- 10 • Chapter 3: Land Use Policies and Guidelines presents the Plan’s policies,
11 and provides policy guidance for the region’s various land use elements.
- 12 • Chapter 4: Public Facilities and Infrastructure Policies presents policies and
13 actions needed to support the land use policies of Chapter 3.
- 14 • Chapter 5: Implementation addresses needs for carrying out provisions
15 outlined by the Plan.

16 The key recommendations contained in each chapter are briefly summarized in the
17 following sections:

18 **E.1 CHAPTER 1: KO’OLAU POKO’S ROLE IN O’AHU’S DEVELOPMENT**
19 **PATTERN**

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

26 **E.2 CHAPTER 2: THE VISION FOR KO’OLAU POKO’S FUTURE**

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

31

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

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

- 1 E.3.1 OPEN SPACE PRESERVATION:
- 2 • Protect scenic views, provide recreation and promote access to shoreline and
3 mountain areas.
- 4 • Define the boundaries of communities and provide buffers between
5 agricultural uses, residential neighborhoods and other uses.
- 6 • Create a system of linear greenways along roadways and drainage ways.
- 7 E.3.2 PARKS AND RECREATION:
- 8 • Employ appropriate screening and siting.
- 9 • Ensure environmental compatibility in the design and construction of park
10 facilities.
- 11 • Integrate recreational opportunities with the characteristics of the surrounding
12 community.
- 13 • Establish the Kāneʻohe area as the top priority for creating new shoreline
14 access and/or beach parks in Koʻolau Poko.
- 15 • Take steps to make future beach accretion public land in perpetuity.
- 16 • Increase the inventory of community-based parks to provide appropriately
17 located sports and recreation facilities.
- 18 • Provide for more intensive use of some existing facilities serving areas in
19 which expansion of site area is constrained.
- 20 • Require developers of new residential projects to provide land for open space
21 and recreation purposes, rather than paying the park dedication fee.
- 22 • Pursue installation of greenways along streams and drainage channels where
23 feasible.
- 24 E.3.3 HISTORIC AND CULTURAL RESOURCES:
- 25 • Emphasize physical references to Koʻolau Poko’s history and cultural roots.
- 26 • Protect existing visual landmarks and support creation of new, culturally
27 appropriate landmarks.
- 28 • Preserve significant historic features.
- 29 • Retain significant vistas associated with archaeological features.
- 30 E.3.4 AGRICULTURE:
- 31 • Encourage small-lot agricultural uses and prevent conversion of agricultural
32 lands to non-agricultural uses.

- 1 • Adopt development and public works standards that are appropriate and cost-
- 2 effective for rural, agricultural areas.
- 3 • Provide supporting infrastructure, services and facilities to foster and sustain
- 4 agricultural operations.
- 5 • Implement policies and incentives to promote active, long-term agricultural
- 6 uses.
- 7 E.3.5 RESIDENTIAL USES:
- 8 • Modify residential street design to provide emphasis on safe, accessible,
- 9 convenient and comfortable pedestrian routes, bus stops and bike routes.
- 10 • Maintain the predominantly low-rise, low-density, single-family character of
- 11 the region.
- 12 • Protect the integrity of existing residential neighborhoods.
- 13 • Establish average density guidelines of 2-6 units maximum per acre in urban
- 14 fringe areas and 0.2 – 4 units per acre in rural areas.
- 15 E.3.6 COMMERCIAL AND INDUSTRIAL USES:
- 16 • Identify and define commercial and industrial uses in various categories
- 17 appropriate to the character and needs of Ko'olau Poko's communities,
- 18 including: rural commercial centers; suburban commercial centers;
- 19 community commercial centers; regional town centers; and areas supporting
- 20 light and extractive industries.
- 21 • Limit the area devoted to commercial and industrial centers to current sites.
- 22 • Expand the use of mixed-use commercial-residential designations, and apply
- 23 mixed-use industrial-commercial designations to existing industrial sites in
- 24 Kailua and Kāne'ohe.
- 25 E.3.7 INSTITUTIONAL USES:
- 26 • Retain the open space character of existing institutional campuses.
- 27 • Site and design campus facilities to respect the scenic context and adjacent
- 28 residential areas.
- 29 E.3.8 MILITARY USES:
- 30 • Assume Marine Corps Base Hawai'i (MCB Hawai'i) and Bellows Air Force
- 31 Station (AFS) will remain under military control.
- 32 • Encourage the State to continue to pursue the release of unused military
- 33 lands for civilian uses, with special attention to securing permanent civilian

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

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

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

8 E.4.1 TRANSPORTATION SYSTEMS:

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

17 E.4.2 WATER SYSTEMS:

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

29 E.4.3 WASTEWATER MANAGEMENT:

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

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

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

8 E.4.4 ELECTRICAL AND COMMUNICATIONS SYSTEMS:

- 9 • Design system elements and incrementally replace facilities such as sub-
10 stations, transmission lines and towers to avoid or mitigate any potential
11 adverse impacts on scenic and natural resource values and residential
12 neighborhoods, and to enhance system reliability.
- 13 • Place new utility lines underground and develop a long-range program for
14 systematically relocating existing overhead lines underground.
- 15 • Encourage co-location of antennas; towers should host the facilities of more
16 than one service provider to minimize their proliferation and reduce visual
17 impacts.
- 18 • Mount antennas onto existing buildings or structures so that public scenic
19 views and open spaces will not be negatively affected. However, except for
20 the occupant's personal use, antennas on single-family dwelling roofs in
21 residential districts are not appropriate.
- 22 • Use stealth technology (i.e. towers disguised as trees) especially on free-
23 standing antennas towers in order to blend in with the surrounding
24 environment and minimize visual impacts

25 E.4.5 SOLID WASTE HANDLING AND DISPOSAL:

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

30 E.4.6 DRAINAGE SYSTEMS:

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

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

14 E.4.7 SCHOOL AND LIBRARY FACILITIES:

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

22 E.4.8 CIVIC AND PUBLIC SAFETY FACILITIES AND COMMUNITY RESILIENCE:

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

29 **E.5 CHAPTER 5: IMPLEMENTATION**

30 This chapter discusses the various measures that support implementation of this
31 Plan, including the regulatory mechanisms, physical improvements, and other
32 actions that are needed to realize the Plan's vision. Section 5.8 presents an
33 Implementation Matrix to help organize and facilitate plan implementation. The
34 Implementation Matrix, which is based on the policies and guidelines presented in
35 Chapters 3 and 4, identifies the specific actions, corresponding plans and/or codes,
36 and public and private entities responsible for implementation.

1 **E.6 APPENDIX A**

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

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

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

9
10 The region also includes Kāne'ohe Bay, a unique open space resource known for its
11 beauty, rich cultural heritage, and recreational value. It is the largest sheltered body
12 of water in the main Hawaiian Islands. This reef-embayment dominates the majority
13 of Ko'olau Poko's northeastern coastal areas and is a significant scenic and
14 recreational feature along the coast. Kāne'ohe Bay and its stream tributaries is an
15 important ecosystem due to its combination of multiple stream estuaries influenced
16 by runoff from the watershed, the offshore barrier reef and open ocean waters
17 beyond. Beginning in the early 1900's, stream waters entering Kāne'ohe Bay was
18 diverted to Central O'ahu and the 'Ewa Plains by the construction of the Waiāhole
19 Ditch. The diversion negatively affected diverted stream habitats and the nearshore
20 estuarine waters and associated fisheries of Kāne'ohe Bay. Challenges to the
21 CWRM decision resulted in the Supreme and Appellate courts increasing the flow to
22 14.43 mgd back to windward streams including 2.43 mgd of unpermitted water which
23 could be used off-stream if the need arises.

24
25 The central portion of the bay accommodates many recreational activities due to the
26 ease of access from He'eia Kea Harbor, the only major public boat ramp and harbor.
27 The central barrier reef and sand flat is popular among locals and visitors and is
28 heavily used by many commercial and recreational boaters during weekends and
29 holidays. Two navigable channels cut across the northern and southern ends of the
30 barrier reef. The northeastern portion is the most rural in both land and water.
31 Activities in this portion of the bay are more reserved and quieter. The south and
32 southeastern portions of the bay are bordered by urban uses and military uses of the
33 Marine Corps. Several commercial fishponds provide seafood products and a
34 source for cultural education.

35
36 The General Plan of the City and County of Honolulu designates the central portion
37 of the SCPA, shown in Exhibit 1.1, as an urban fringe area to remain a
38 predominantly residential suburb with limited future population growth. The northern
39 and southern portions of Ko'olau Poko are designated rural areas to remain in
40 predominately agricultural and preservation land uses.

41

1 The present land use pattern in Ko'olau Poko began to take shape in the 1940's
2 during World War II. There was rapid growth in suburban development in the
3 following three decades, due largely to the opening of trans-Ko'olau highways which
4 made the region more accessible to Honolulu. In the 1960's, Kāne'ohe was the
5 proposed site of a deep-draft harbor and major new power generating plant, which
6 would have spurred an even faster pace of regional urban development. By the mid-
7 1970's, however, environmental concerns, focused especially on the quality of
8 Kāne'ohe Bay, led to the abandonment of these proposals and a shift in public
9 policy, as expressed in the 1977 General Plan, toward slower population growth and
10 urban development in the district. The 2010 resident population in Ko'olau Poko
11 was 115,164 persons, 2,835 persons fewer than the 2000 Census figure of 117,999
12 people. The region experienced an average annual population decline of
13 approximately 0.2 percent, in contrast to an estimated island-wide annual population
14 increase of 0.9 percent. Consequently, the region's share of O'ahu's total population
15 has declined from about 13 percent to about 12 percent. This declining trend is
16 projected to continue through 2035.

17

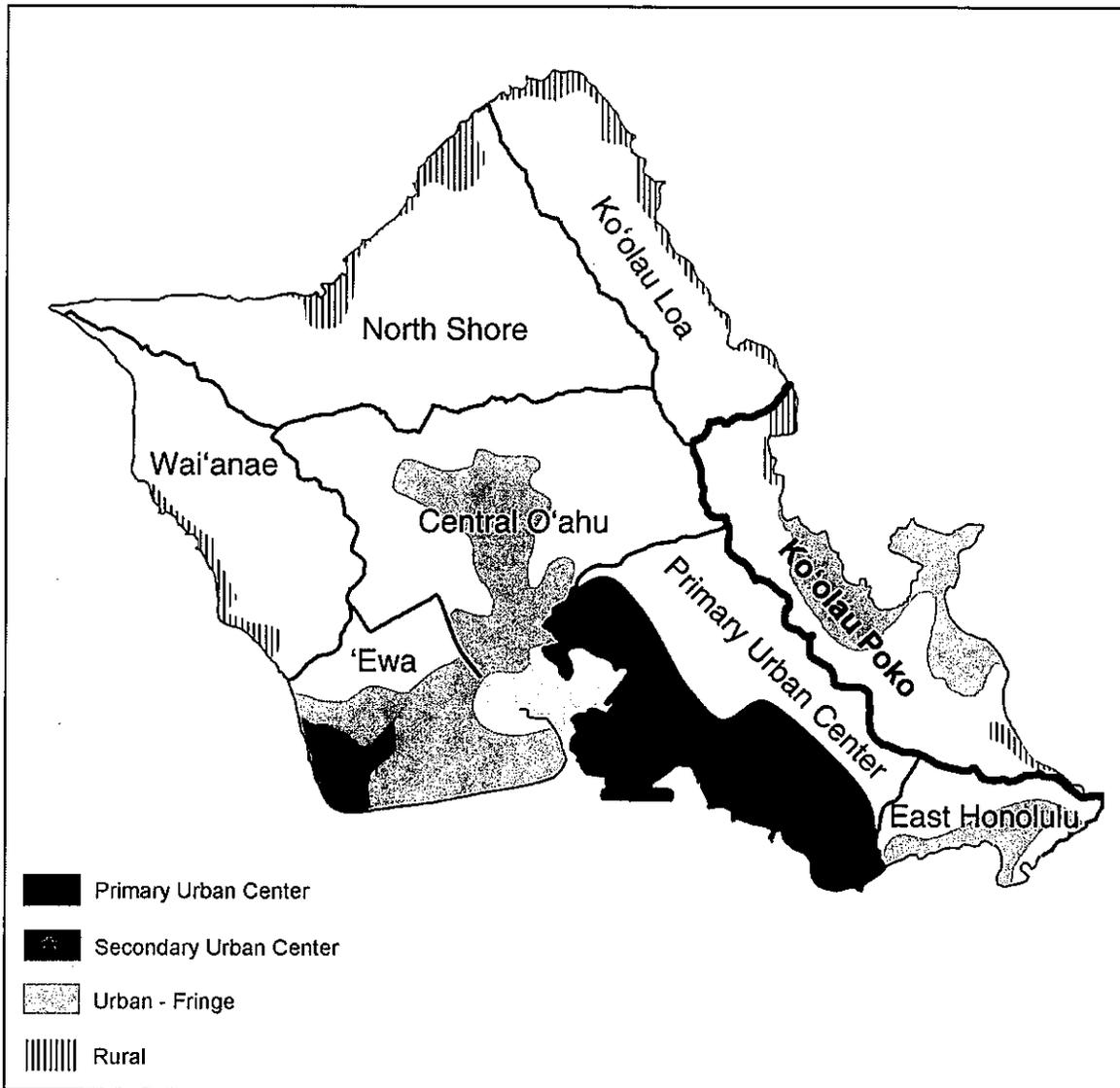
18 The Ko'olau Poko Sustainable Communities Plan reaffirms the region's role in
19 O'ahu's development pattern as intended by the General Plan by establishing the
20 following policies for future land use and development in Ko'olau Poko:

21

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

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

6



7

8 **Exhibit 1.1 General Plan Development Pattern**

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

1 **2. THE VISION FOR KO‘OLAU POKO’S FUTURE**

2 This chapter expresses and describes the vision for Ko‘olau Poko’s future and the
3 key elements of the vision.

4
5 The vision and plan for Ko‘olau Poko focuses on the long-term protection of
6 community resources, residential character, and the adoption of public improvement
7 programs and development regulations that reflect a stable population. The
8 following vision statement describes the desired future conditions in the year 2035
9 and beyond. This section is therefore written from the perspective of the year 2035
10 looking back into the past.

11
12 “Ko‘olau Poko’s natural, cultural, historic, agricultural, and aquacultural/fishpond
13 resources are protected and enhanced.

14
15 Significant scenic views of ridges, upper valley slopes, shoreline areas from major
16 public parks highways, coastal waters and hiking trails are protected. Access to
17 shoreline areas and mountainous regions are improved and provided for all to use
18 and enjoy.

19
20 Cultural and historical resources are preserved through the protection of visual
21 landmarks and significant views, protected access rights relating to traditional
22 cultural practices, and the protection of significant historic, cultural, and
23 archaeological features.

24
25 Ko‘olau Poko contains productive and potentially productive agricultural lands that
26 are preserved by adopted protective regulatory policies and implemented incentives
27 and programs that promote active agricultural use of these lands.

28
29 Consistent with the General Plan of the City and County of Honolulu, Ko‘olau Poko’s
30 share of O‘ahu’s population declined from 12.1 percent in 2010, to 10.7 percent in
31 2035. The region’s population also declined over this period from 115,164 to about
32 112,000 persons.

33
34 Although Ko‘olau Poko is nearly built-out, it is essential to continue to improve and
35 replace, as necessary, the district’s aging infrastructure systems to maintain
36 adequate capacity, improve operational performance or extend the useful life of
37 facilities. Infrastructure modifications are also made to enhance the quality of the
38 urban, rural, neighborhood, or natural environment.

39

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

9 **2.1 KEY ELEMENTS OF THE VISION**

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

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

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

24 **2.1.1 ADAPT THE CONCEPT OF AHUPUA’A IN LAND USE AND NATURAL RESOURCE** 25 **MANAGEMENT**

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

31 *Land division usually extending from the uplands to the sea, so called because the*
32 *boundary was marked by a heap (ahu) of stones surmounted by an image of a pig*
33 *(pua’a)¹.*

34 The *ahupua’a* has also been described as follows:
35

¹ Pukui and Ebert, Hawaiian Dictionary, 1986.

1
2 *A principle very largely obtaining in these divisions of territory was that a land should*
3 *run from the sea to the mountains, thus affording to the chief and his people a fishery*
4 *residence at the warm seaside, together with the products of the high lands, such as*
5 *fuel, canoe timber, mountain birds, and the right of way to the same, and all the*
6 *varied products of the intermediate land as might be suitable to the soil and climate*
7 *of the different altitudes from sea soil to mountainside or top.*²
8

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

18
19 In Ko'olau Poko, for example, natural wetlands and Hawaiian-built fishponds
20 preserve wildlife habitat, filter pollutants from stormwater runoff, and provide flood
21 protection. Over the years, the function of these wetlands and fishponds had
22 become impaired by accelerated siltation and polluted runoff from urban
23 development and agricultural activities. Some had vanished entirely due to
24 deliberate filling. The filling of wetlands and fishponds has been restricted for
25 decades, and regulatory and management practices have been improved to promote
26 more effective maintenance of these resources and deter land-based activities which
27 contribute to their degradation. Wetlands and fishponds existing in 2010 have been
28 successfully preserved and restored. In addition, new wetlands to detain and retain
29 stormwater have been created to protect flood-prone areas, increase infiltration, and
30 reduce polluted runoff into streams, estuaries and nearshore waters.

31
32 As applied to Ko'olau Poko's drainage system, the *ahupua'a* management concept
33 involves the retention of natural stream beds and, as feasible, partial or full
34 restoration of drainageways that have been altered by concrete-lined channels. A
35 streamside management zone or "buffer area" along natural streambeds defines
36 where uses or activities are controlled or modified to protect water quality and
37 aquatic resources. Revised or new public works standards have allowed the
38 dedication of passive stormwater drainage systems and minimal channel
39 modifications to provide flood protection for improved or developed properties.
40

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

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

10
11 The transition area between the Ko'olau Mountain Range and the urban and
12 agricultural uses in the valleys and on the coastal plain are preserved as a
13 permanent greenbelt to serve as a natural, recreational and scenic resource
14 conservation area; to prevent inappropriate development or use which may cause
15 hazards or other undesirable environmental consequences downstream; and to
16 provide opportunities for environmental and cultural research and education.
17

18 **2.1.2 PRESERVE AND PROMOTE OPEN SPACE AND AGRICULTURAL USES**

19 The preservation, continuation, and potential expansion of agricultural land use
20 provides jobs and economic activity; promotes food security; offers the choice of a
21 rural lifestyle proximate to a major metropolitan area; and maintains open space and
22 a rural ambience in a section of the island that is famed for its natural beauty. In
23 Ko'olau Poko, agricultural use is sustained by both commercially successful
24 operations and subsistence or culturally-based farming. There is a good
25 understanding of the region's strengths, future opportunities and challenges for
26 commercially viable agriculture. Land development, public works and environmental
27 codes and standards have been designed to prevent the gradual conversion of
28 agricultural areas into large-lot residential neighborhoods.
29

30 It is recognized that Ko'olau Poko has traditionally been one of O'ahu's principal
31 regions for wetland taro cultivation and aquaculture because of its wet climate and
32 abundant perennial streams. Restored fishponds and ancient irrigation systems
33 continue to be maintained to build upon the past and provide modern day utility.
34 Permanent instream flow standards have been established to maintain sufficient
35 quantity and quality of surface water to support fishpond operations and taro
36 cultivation. Educational tours of taro lo'i and fishponds help support these traditional
37 agricultural activities.
38

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

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

6
7 Other appropriate accessory uses including recreational or educational programs, or
8 other uses consistent with the character of a rural, agricultural area provide
9 supplemental income necessary to sustain the primary agricultural activity. There
10 are direct connections between these activities and the maintenance of agricultural
11 uses on the same properties.
12

13 **2.1.3 PRESERVE AND ENHANCE SCENIC, RECREATIONAL AND CULTURAL FEATURES** 14 **THAT DEFINE KO'OLAU POKO'S SENSE OF PLACE**

15 Ko'olau Poko's striking topographic features, outstanding beaches and bays, lush
16 valleys, perennial streams and other natural features and landmarks continue to
17 visually define the "windward" sense of place. Views of ridgelines or upper slopes of
18 coastal headlands and mountains from the vantage point of coastal waters, major
19 roads, parks and other public places, are kept free from land disturbance or the
20 encroachment of structures or other projects that would affect the scenic viewplanes.
21

22 Historic site restoration and interpretive programs are integrated into the
23 development of parks, shoreline, and mountain access systems in order to increase
24 awareness of the role of the natural environment in Ko'olau Poko's cultural history,
25 especially the importance of the *ahupua'a* in defining activities and communities.
26

27 In addition, *na wahi pana* (the special and significant places) and *na malae* (cultural
28 complexes) of Ko'olau Poko are appropriately identified and interpreted.

29 Community-based organizations are encouraged to develop and maintain programs
30 that heighten appreciation for Ko'olau Poko's *na wahi pana* as *na malae* for Ko'olau
31 Poko *na ahupua'a*.
32

33 Streams have been made more physically and visually accessible as routes for
34 pedestrians or bicyclists, especially in urbanized areas. Maintenance easements or
35 rights-of-way along several streams and drainage channels have become public
36 greenways where feasible.
37

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

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

4
5 Improved access to mountain areas has been achieved by developing the Ko'olau
6 Poko Trail Complex and the Waikāne Trail. Complementary to this is the public
7 acquisition and development of cultural and nature parks in Ha'ikū Valley and
8 Waikāne Valley, where interpretive centers, vehicular parking and other facilities are
9 provided near the trailheads.

10

11 **2.1.4 EMPHASIZE ALTERNATIVES TO THE PRIVATE PASSENGER VEHICLE AS MODES FOR**
12 **TRAVEL**

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

24

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

38 Transportation system improvements in Ko'olau Poko have been directed instead
39 towards alternative travel modes, including public transit and pedestrian and bicycle
40 facilities.

41

1 **2.1.5 PROTECT AND ENHANCE RESIDENTIAL CHARACTER WHILE ADAPTING TO**
2 **CHANGING NEEDS**

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

13
14 New, expanded or remodeled dwellings in recent decades have been proportionate
15 in size to their lot area and the district in which they are located. The prevailing
16 building-to-lot size ratio was lowered in both urban and rural areas, but particularly in
17 the latter. New single-family dwellings have pitched roofs with relatively wide
18 overhangs in response to the warm, rainy climate of the region, as well as other
19 design features that conserve natural resources and are compatible with the natural
20 environment.

21
22 Design standards for streets and front yards define neighborhood identity and places
23 for informal recreation and neighborly interaction. Landscaped front yards and
24 pedestrian entries are visible from the street to promote a sense of neighborhood
25 and a sense of security for residents and their homes.

26
27 Traffic calming measures have been installed along existing residential streets with
28 wide roadways serving as through-routes, in order to reduce traffic speeds which
29 threaten pedestrian and bicycle safety and increase traffic noise. Examples include
30 the use of intersection narrowing, speed tables and similar measures to reduce
31 traffic speed. Priority for such traffic calming has been given to those residential
32 streets of Kāne’ohe and Kailua where more conventional traffic control measures,
33 such as traffic signals and signage, had either failed to achieve the desired results or
34 had been resisted by residents of the area or the responsible transportation
35 agencies.

36
37 Some new housing has been developed as multi-family residential buildings to
38 provide for a choice in living environments, especially for the elderly population and
39 smaller households. Multi-family housing is located in the town core areas of
40 Kāne’ohe and Kailua or in other appropriately designated areas in this Plan and
41 designed to reflect the suburban residential character of the surrounding

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

3

4 **2.1.6 DEFINE AND ENHANCE EXISTING COMMERCIAL AND CIVIC DISTRICTS**

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

14

15 The older commercial areas of Ko'olau Poko, which were developed primarily in the
16 1950's through the early 1980's following the development of suburban housing,
17 were typically oriented to the automobile. On larger lots, commercial developments
18 tended to follow the shopping center model. On smaller lots fronting arterial
19 highways, such as Kamehameha Highway in Kāne'ohe, the predominant
20 development form was "strip commercial." In either case, commercial
21 establishments were divorced from the sidewalk and the streets and highways that
22 front them are congested with traffic as cars enter and exit from parking lots. There
23 was no clear distinction between the central commercial districts of Kāne'ohe and
24 smaller, outlying community shopping centers. In Kailua, the central business
25 district had been fairly clearly defined. However, both business districts had clusters
26 of civic uses on their edges that establish their identities as regional town cores.
27 Also, there are pockets within both districts - especially in Kailua - where the
28 development pattern resembles a traditional commercial street, with storefronts and
29 entries facing the public sidewalk.

30

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

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

7
8 The pedestrian orientation of the town centers has been strengthened by
9 implementing a circulation plan that improves public sidewalks, links them with
10 through-block walkways and parking lots, and expands transit services and
11 amenities.

12
13 Outside of the Kailua and Kāneʻohe central business districts, the smaller
14 community-oriented shopping centers and environs of Temple Valley, Windward
15 City, Aikahi, and Enchanted Lake retain their suburban character and are limited to
16 their present land area and approximate floor area. Zoning for the light industrial
17 area near Windward City allows a mix of commercial and industrial uses to reflect
18 the actual pattern of development in that area and establish a more desirable
19 streetscape.

20
21 In the commercial districts of Waimānalo and Kahaʻulu, building scale and design
22 character are appropriate to a rural area. They have a “village center” ambiance
23 where uses and activities such as farmers’ markets and feed stores have a visible
24 presence. Also, provisions are made for roadside vending, outside of the right-of-
25 way, for the sale of agricultural products in a manner that is consistent with traffic
26 safety and rural ambiance.

27
28 To stimulate and continue the revitalization of the town centers of Kailua and
29 Kāneʻohe, land use and zoning policies discourage the introduction of “big box” retail
30 stores or shopping centers consisting predominately of discount or factory outlet
31 stores within the region. This type of commercial development often results in
32 inappropriate building scale, localized traffic and parking demand impacts, and the
33 economic decline of existing businesses. Where “big box” stores have been built,
34 their impact has been mitigated by retrofitting smaller retail stores and rental spaces
35 along the street frontages of those large buildings in order to create a more
36 pedestrian-oriented environment along the sidewalks.

37
38 Large-scale commercial development is directed to more favorable sites in Leeward
39 and Central Oʻahu, where there are large and readily-available parcels better
40 situated to capture patronage from the island’s major population growth area. The
41 H-3 Freeway also makes these “value retail” stores more accessible to Koʻolau
42 Poko’s residents.

1 Ko'olau Poko maintains six major institutional campuses, including two colleges, two
2 hospitals and two correctional facilities. No new institutional campuses are
3 envisioned for Ko'olau Poko, but minor expansion and redevelopment within the
4 existing grounds of the region's major institutions are expected to continue to occur.
5

6 **2.1.7 MAINTAIN THE COMMUNITY GROWTH BOUNDARY TO PROTECT AGRICULTURAL,**
7 **OPEN SPACE, AND NATURAL RESOURCES**

8 The Community Growth Boundary was established to define and contain the
9 intended extent of urbanized or "built-up" areas within those districts designated as
10 "urban fringe" and "rural" by the General Plan. The purpose is to accommodate
11 modest increases in population, to provide adequate lands for facilities or other
12 groupings of built uses needed to support established communities while protecting
13 lands outside this boundary for agriculture and other resource and open space
14 values. Areas within this boundary characteristically include extensive tracts of low-
15 rise, low-density residential, commercial, industrial or mixed-use development clearly
16 distinguishable from undeveloped or more "natural" portions of the region's
17 environment. While the Community Growth Boundary includes some lands
18 designated "park," "agriculture," "preservation," or areas with development-related
19 hazards such as steep slopes or unstable soils, these areas have not been
20 developed with uses unsuitable to their designations or in ways that may tend to
21 exacerbate those hazards.
22

23 The Community Growth Boundary confined new urban and suburban development
24 to "infill" sites within existing urbanized areas and prohibited continuous sprawl. This
25 more compact form of development helped achieve relatively lower site development
26 costs, more efficient utilization of existing urban infrastructure systems, and reduced
27 reliance on the automobile and made transit ridership, walking, and bicycling more
28 feasible and attractive modes of travel.
29

30 The Community Growth Boundary generally circumscribes the "urban fringe"
31 suburban communities of Kāne'ohe, Kailua, Olomana subdivision, Mokapu
32 Peninsula, Maunawili and 'Āhuimanu within the State Urban District boundary,
33 including the following areas:
34

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

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

9
 10 The following "urban fringe" areas are located outside of the Community Growth
 11 Boundary:

- 12
- 13 • Undeveloped parcels on the slopes of Ka'iwa Ridge, Oneawa Hills and Pu'u o
- 14 'Ehu;
- 15 • Undeveloped lands within and directly adjacent to Kawainui Marsh, and the
- 16 wetlands of He'eia and Ka'elepulu;
- 17 • Most of He'eia Kea valley;
- 18 • The slopes of Mount Olomana;
- 19 • Areas within the State Conservation District;
- 20 • Military lands, except those at MCB Hawai'i developed with uses associated
- 21 with the residential, apartment, commercial, industrial and mixed-use districts;
- 22 and
- 23 • Portions of the slopes of Pu'u Ma'eli'eli and the valleys of 'Āhuimanu,
- 24 Maunawili and Ha'ikū where lots typically exceed one acre in size.

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

33

1 Included within the "rural" portion of the Community Growth Boundary are the
2 following areas:

- 3
- 4 • Residential, apartment, commercial, industrial and mixed-use districts;
 - 5 • Areas developed for the beneficiaries of the Department of Hawaiian Home
6 Lands;
 - 7 • Public schools serving these communities;
 - 8 • The campus of the Hawai'i Job Corps; and
 - 9 • Areas not designated as Agricultural Lands of Importance to the State of
10 Hawai'i that are directly adjacent to or surrounded by residential or other
11 urban uses and are suitable for minor infill development for residential,
12 community or commercial purposes.

13
14 The Community Growth Boundary excludes much of the State Urban District land in
15 the vicinity of Kahalu'u where a predominately agricultural use pattern currently
16 prevails.

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

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

4
5 This chapter is organized under the following headings:

- 6
7 Section
- 8 3.1 Open Space Preservation
 - 9 3.2 Parks and Recreation
 - 10 3.3 Historic and Cultural Resources
 - 11 3.4 Agriculture
 - 12 3.5 Residential Use
 - 13 3.6 Commercial and Industrial Uses
 - 14 3.7 Institutional Uses
 - 15 3.8 Military Uses
- 16

17 **3.1 OPEN SPACE PRESERVATION**

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

27
28 Open space preservation is a key element of the vision for Ko'olau Poko's future.
29 Long-term protection and preservation of scenic resources, agricultural areas,
30 natural areas, and recreational areas are important to maintaining the character and
31 attractiveness of Ko'olau Poko for both residents and visitors. Open space also
32 functions to provide access to shoreline and mountain areas, define community
33 boundaries, prevent urban sprawl, provide buffers between agricultural uses and
34 residential neighborhoods, create a system of linear greenways along roadways and
35 drainage channels, provide flood storage and habitat where functionally necessary
36 and feasible, and prevent development in areas susceptible to landslides and similar
37 hazards.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34

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.

1 **3.1.2 GUIDELINES**

- 2 • Require surveys to identify endangered species habitats and require
3 appropriate mitigation measures to address impacts due to new
4 developments.
- 5 • Allow outdoor lighting at the minimum level necessary for public safety,
6 security, and community aesthetics consistent with the goals of energy
7 conservation and environmental protection.
- 8 • Adopt outdoor night lighting standards that encourage efforts to minimize
9 glare and stray light, and reinforce the difference between urban and rural
10 communities.

11
12 **3.1.3 ELEMENTS OF OPEN SPACE RESOURCES**

13 The following provides a brief description of the elements of open space resources
14 in Ko'olau Poko, followed by guidelines for each element, to carry out the policies for
15 the region's open space resources.
16

17 **3.1.3.1 Mountain Areas**

18 Mountainous regions in Ko'olau Poko are in the State Conservation District and thus
19 the State Board of Land and Natural Resources (BLNR) oversees uses in these
20 areas. Limited public access to upper reaches of valleys and mountain areas is
21 presently available via the hiking trails described below.
22

23 ***Ko'olau Poko Trail Complex.*** This is a proposed 15-mile system of interconnected
24 trails, most segments of which are already open, including the Likeke Trail,
25 Maunawili Trail, and Maunawili Falls Trail. This trail complex features opportunities
26 for hiking, hunting, nature study, bird watching and photography. Horseback riding is
27 possible in some sections, as is mountainbiking. Points of interest along the route
28 include Maunawili Falls, the Maunawili Ditch irrigation flumes, and numerous
29 archaeological sites, including *kalo* (taro) *lo'i* and *heiau*. The area's rich history adds
30 to the interpretive potential of the trails.
31

32 ***Waikāne Trail.*** This trail begins in Waikāne Valley and extends to the crest of the
33 Ko'olau Mountain Range, where it intersects with the Ko'olau Poko Trail Complex.
34 The trailhead is within the site of Waikāne Nature Preserve, which presents an
35 excellent opportunity for related interpretive and educational programs and improved
36 facilities for hikers.
37

1 ***Ka'iwa Trail.*** This trail, following the crest of Ka'iwa Ridge from Lanikai to a WWII
2 bunker, is in a relatively urban setting. It is a good vantage point for striking
3 panoramic views of the adjacent Bellows Air Force Base and suburban communities
4 backdropped by natural features such as Kailua Bay, Waimanālo Bay, the Ko'olau
5 Mountain Range, and Mount Olomana. Currently, access is limited, but parking and
6 maintenance issues are being addressed to improve the situation.

7
8 The State's Na Ala Hele Program manages and maintains public trails. Of the trails
9 mentioned above, only the Ka'iwa Trail and portions of the Ko'olau Poko Trail
10 Complex are Na Ala Hele Program trails. Na Ala Hele trails that are part of the
11 Ko'olau Poko Trail Complex are the:

- 12 • Maunawili-Waimanālo Access Road
- 13 • Maunawili Trail
- 14 • Maunawili Ditch Trail

15
16 Other trails may be privately owned and/or managed. Issues regarding ownership,
17 safety and liability must be further addressed before official access to trails can be
18 assured. Planning and development of public access to mountain areas should
19 incorporate provisions for adequate parking and means for minimizing and
20 addressing complaints from neighbors near trailheads.

21
22 Because the mountains and coastal headlands are prominently visible from long
23 distances and are a fundamental element of the regional identity, it is important to
24 preserve their visual integrity by avoiding encroachment of land disturbances and
25 structures on upper slopes and ridgelines.

26
27 Moreover, to protect important resource values in the State Conservation District,
28 steps need to be taken to control the number and range of feral animals and other
29 alien species and prevent overuse and misuse by humans in selected areas, such
30 as habitats of native and endangered species. Control of feral animals in the
31 mountain areas is also needed to prevent accelerated vegetation loss and soil
32 erosion.

33 34 GUIDELINES FOR MOUNTAIN AREAS

- 35 • Improve access to mountain areas and enhance the physical condition and
36 recreational and educational value of Ko'olau Poko's hiking trails by fully
37 implementing the recommendations in the State of Hawai'i's Na Ala Hele

- 1 Program Plan.³ Accompany access improvements with funding for
2 management of associated problems through increased trail maintenance,
3 weed control and eradication of non-native predators.
4
- 5 • Create public access to the former U.S. Coast Guard Omega Station site,
6 including Ha'ikū Stairs, and combine this parcel site with the adjoining City
7 and County of Honolulu parcel for the proposed Ha'ikū Valley Cultural and
8 Nature Preserve in order to:
9
 - 10 ○ Provide recreational, cultural and educational benefits; and
11
 - 12 ○ Help protect resources in the *makai* portion of the He'eia watershed,
13 including a high-quality perennial stream, a significant wetland habitat
14 for waterbirds, migratory waterfowl and shorebirds, and an ancient
15 Hawaiian fishpond.
16
 - 17 • Improve the sites that have been acquired for Waihe'e Valley Nature Park
18 and Waikāne Nature Preserve in a manner that preserves the area's natural
19 scenic quality and provides educational and passive recreation opportunities.
 - 20 • Promote the preservation of remaining undeveloped lands at the foot of the
21 Ko'olau Mountain Range through protective regulatory measures, tax
22 incentives for the establishment of conservation easements and management
23 programs on private properties, and public acquisition of fee simple or partial
24 interest, where necessary to create the Ko'olau scenic resource area or
25 "greenbelt" from Waimanālo to Kualoa. (See *Ko'olau Greenbelt* under Section
26 3.1.3.3)
 - 27 • Locate structures at higher elevations of slopes only for purposes of public
28 safety when there is no feasible alternative, and when adequate mitigation
29 measures have been taken to reduce or avoid impact on the scenic and
30 natural environment.
 - 31 • Maintain, protect, and/or restore native forests in the State Conservation
32 District, especially by identifying and protecting endangered species habitats
33 and other sensitive ecological zones from threats such as fire, alien species,
34 feral animals, and human activity and disturbance.

³ State of Hawai'i Department of Land and Natural Resources, Na Ala Hele - Hawai'i Trail and Access System Program Plan, May 1991.

- 1 • Provide access to existing mountain trails through acquisition of easements or
2 rights-of-way, if necessary. Work with property owners to provide access
3 over their lands to mountain trails.
4

5 **3.1.3.2 Shoreline Areas**

6 Ko'olau Poko's shoreline displays a variety of physical characteristics, from the rocky
7 headlands of Makapu'u at the south end of the district, to wide sandy beaches
8 fronting Waimanālo and Kailua Bays, to mud flats and fishponds which rim much of
9 Kāne'ōhe Bay. This signature region asset also possesses multiple values which
10 are important to residents of the district and the island at large. It is valued for its
11 natural and cultural resources, recreational opportunities, scenic amenities, and
12 economic aquaculture potentials. Management of this shoreline, then, must
13 carefully consider the relationship of various activities and the integrity of assets they
14 may affect. They include active and passive recreation, lateral and *mauka-makai*
15 public access, scenic interludes and vistas, fishpond restoration and appropriately
16 selected and managed aquacultural activity. While all these opportunities merit
17 enhancement, this must be pursued while maintaining the integrity of the shoreline's
18 natural, cultural, and scenic qualities, as well as considering impacts to coastal
19 processes. Individual beach management plans, such as the Kailua Beach and
20 Dune Management Plan, should be developed, and modification of shoreline
21 setbacks and impacts from sea level rise must be considered. Views from public
22 roads toward the shoreline should be maintained or enhanced. Where appropriate,
23 create new *makai* views. Notable segments of the shoreline are discussed below.
24

25 ***Kualoa Point to Moli'i Fishpond.*** Kualoa Regional Park, a major recreational
26 asset with cultural significance and numerous pre-contact archaeological sites,
27 provides access to the shoreline, coastal waters and Mokolii Island ("Chinaman's
28 Hat"). Severe, long-term erosion of the shoreline of the park has damaged park
29 landscaping and structures. Littoral drift has deposited sand from this beach to the
30 shoreline fronting Moli'i Fishpond.
31

32 ***Kāne'ōhe Bay, from Moli'i Fishpond to Ke Alohi Point (He'eia State Park).*** The
33 narrow but stable beach is comprised of silty sand. There are relatively few
34 structures in the shoreline area. Physical and visual access to the shoreline from
35 Kamehameha Highway was improved significantly with the expansion and clearing
36 of Waiāhole Beach Park in the early 1990's. Intermittent views of the shoreline are
37 available along the stretch of Kamehameha Highway between Kahalu'u Fishpond
38 and He'eia Landing. He'eia State Park, Laenani Beach Park and Kahalu'u Beach
39 Park provide physical access to the shoreline and vantage points for views of
40 Kāne'ōhe Bay. The expansion of Kahalu'u Regional Park to include the beach park

1 area on the *makai* side of Kamehameha Highway is intended to provide viewplane
2 enhancement from the highway. Kapapa Island, the central barrier reef and “sand
3 bar” (*Ahu o Laka*) in this section of Kāne’ohe Bay is an attraction for recreational and
4 commercial boating. He’eia Kea Harbor provides public boating launching ramps
5 and mooring spaces. Other launching ramps are available for small craft at Laenani
6 Beach Park and Kahalu’u Beach Park.

7

8 ***Kāne’ohe Bay, from He’eia Fishpond to Nu’upia Pond.*** Similar to the northern
9 end of Kāne’ohe Bay, most of the shoreline in this section is stable. Vertical
10 retaining walls have been constructed along many of the properties to support docks
11 or to prevent soil banks from slumping into the water, but there are no chronic or
12 significant patterns of erosion or accretion. Physical and visual access to the
13 shoreline is very limited due to residential and other private urban or marina
14 development along almost the entire length. Public access is available at the small
15 Kāne’ohe Beach Park, where parking and facilities are very limited. There are five
16 pedestrian rights-of-way to the shoreline at other points, but none of these have off-
17 street parking.

18

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

25

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

38

39 ***Kailua Bay, from Alāla Point to Wailea Point (Lanikai).*** Severe erosion is
40 occurring at either end of Lanikai Beach, where adjacent residential property owners
41 have built seawalls and revetments along most of the shoreline. The remaining

1 sandy beach in the central portion is popular for recreation. Public access for
2 pedestrians is provided at eleven points along the parallel public street, Mokulua
3 Drive, but no off-street vehicular parking, public restrooms or showers are available
4 for beach-goers. Visual access to the shoreline from the street is very limited.

5
6 **Waimanālo Bay, from Wailea Point to Makapu‘u Point.** Wide sandy beaches
7 front almost the entire length of Waimanālo Bay. There is a narrower beach and
8 emerging reef rock in the vicinity of Pāhonu Pond in the mid-section of the Bay
9 shoreline. While Kalaniana‘ole Highway is relatively distant from the shoreline at the
10 northern portion of the beach, physical access is readily available during peak
11 recreation periods at Bellows Air Force Station and Waimanālo Bay State
12 Recreation Area. In the beachfront residential area of Waimanālo, there are three
13 pedestrian rights-of-way to the shoreline along Laumilo Street. Further south, at
14 Waimanālo Beach Park and Kaiona Beach Park, the highway is close enough to the
15 shoreline to afford both visual and physical access. In the southernmost stretch,
16 along Kaupō Beach Park and Makapu‘u Beach Park, visual and physical access to
17 the shoreline is virtually unimpeded. From the highway, dramatic vistas of coastal
18 headlands and cliffs, ocean waters, and off-shore islands can be seen.

19 20 GUIDELINES FOR SHORELINE AREAS

- 21 • Maintain existing *makai* view channels along Kalaniana‘ole Highway between
22 Makapu‘u Point and Waimanālo Beach Park; along Kawailoa Road and North
23 Kalāheo Avenue in Kailua; along Lilipuna Road in Kāne‘ohe; and along
24 Kamehameha Highway north of Kāne‘ohe. Avoid visual obstructions, such as
25 walls and dense landscaping.
- 26
27 • Create and maintain new *makai* view channels along Kamehameha Highway
28 and Kahekili Highway north of Kāne‘ohe by:
 - 29 ○ Acquiring shoreline properties along the highway either in fee or by
30 obtaining easements and maintenance agreements with private
31 landowners, giving priority to locations where there are actual or
32 potential vistas of perennial streams, wetlands, fishponds and off-shore
33 islands; and
 - 34 ○ Selective clearing of dense vegetation and the removal of structures.
- 35
36 • Maintain the untamed landscape quality of the Makapu‘u viewshed, with any
37 modification to this area being done for the purpose of health and safety and
38
39

- 1 in a manner that continues the landscape character of the scenic shoreline
2 corridor on the East Honolulu side of Makapu'u Point.
3
- 4 • Establish buffer zones for the protection of rare coastal resources and
5 recognition that such resources should be defined and identified.
6
 - 7 • Increase opportunities for physical access to the shoreline areas of Kāne'ōhe
8 and Kailua by acquiring additional shorefront areas, with following locations
9 as priorities:
10
 - 11 ○ The site of the Kāne'ōhe Wastewater Pre-Treatment Facility, to be
12 named Waikalua Bayside Park, with possible expansion into Kokokahi
13 YWCA facility through either acquisition or joint use agreement;
14
 - 15 ○ King Intermediate School and an area north of He'eia Kea Landing,
16 which may require some realignment of a portion of Kamehameha
17 Highway to create adequate land area *makai* of the roadway; and
18
 - 19 ○ A site in either the Oneawa Beach area, near the surf spot known as
20 "Castles" or in the frontage along Kalaheo Avenue between Kailua
21 Beach Park and Kalama Beach Park.
22
 - 23 • Improve existing pedestrian rights-of-way to the shoreline by providing on-
24 street or off-street parking nearby; secured bicycle racks where the access
25 point adjoins an existing or planned bikeway, such as along Mokulua Drive in
26 Lanikai and Kāne'ōhe Bay Drive in Kāne'ōhe; and provisions for emergency
27 vehicle access and lateral access along the shoreline.
28
 - 29 • Prepare beach management plans to maintain lateral access along popular
30 beaches that are subject to long-term and seasonal erosion, particularly at
31 Lanikai and Kualoa, emphasizing non-structural approaches and prevention
32 of adverse effects on adjacent coral reef ecosystems such as greater
33 shoreline setbacks for new structures along these and other unstable
34 shoreline areas. The Kailua Beach and Dune Management Plan could serve
35 as a prototype for beach management plans at other locations. Effective
36 beach management plans are very location-specific and incorporate the
37 consideration of long-term effects such as climate change and sea level rise,
38 as well as seasonal and long-term erosion and accretion.
39
 - 40 • Locate and design exterior lighting to avoid disturbance to seabirds and
41 marine mammals, using DLNR guidelines.

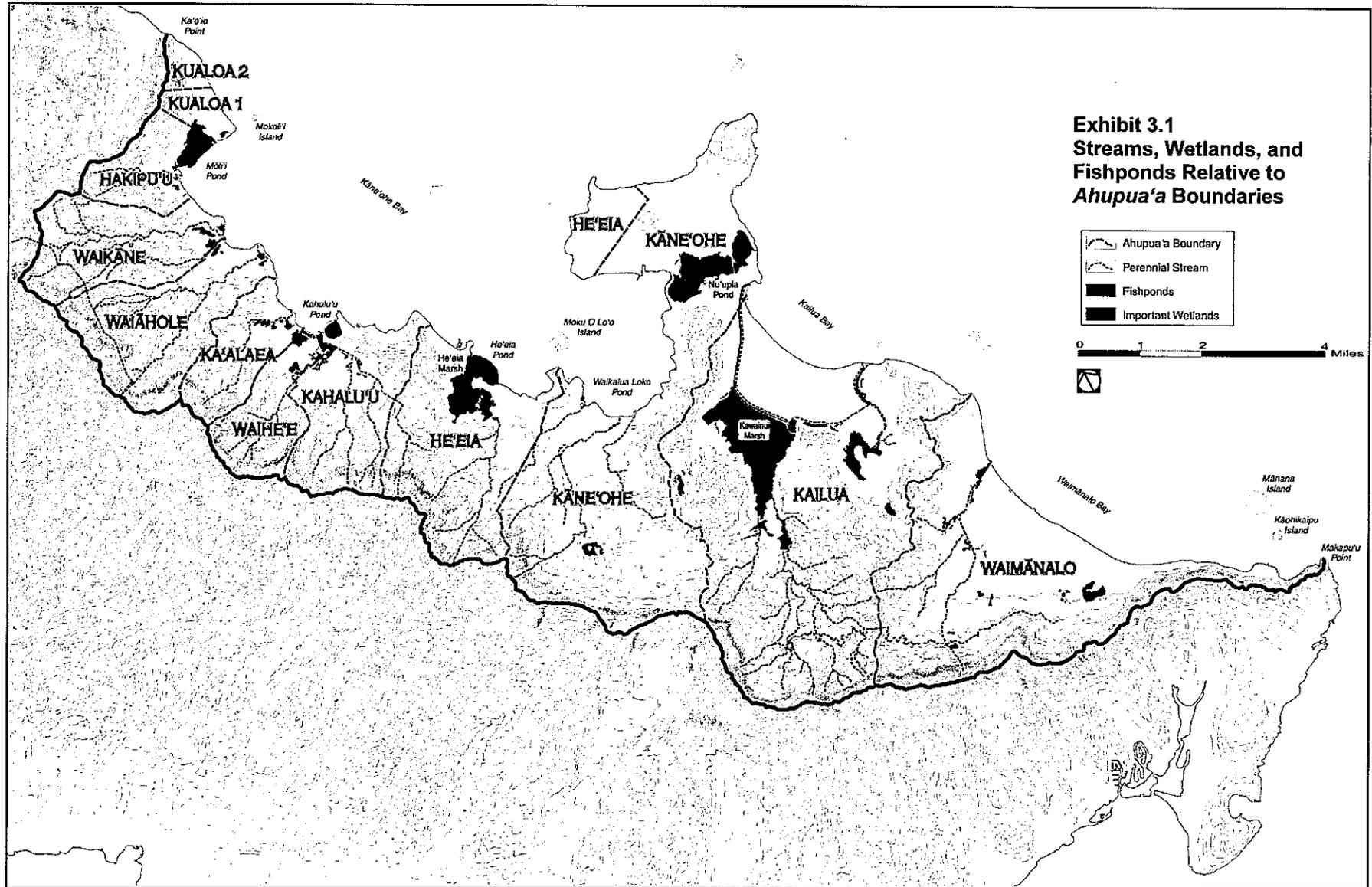
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23

- 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.

24 **3.1.3.3 Wetlands, Wildlife Preserves and Nature Parks**

25 Ko‘olau Poko is home to several wetlands listed as significant by the U.S. Fish and
26 Wildlife Service (USFWS) O‘ahu Team because of the occurrence and abundance
27 of native waterbirds, including the endangered Hawaiian Stilt (*ae‘o*), Hawaiian Coot
28 (*‘alae ke‘oke‘o*), Hawaiian Duck (*koloa maoli*), Hawaiian Moorhen (*‘alae ‘ula*), and
29 migratory waterfowl and shorebirds. Policies on the management of wetlands have
30 been prepared by the U.S. Environmental Protection Agency, in cooperation with the
31 State Department of Health⁴. Ko‘olau Poko hosts a variety of venues which serve as
32 habitat for avian, terrestrial, aquatic, and marine wildlife. In addition to onshore
33 habitat, offshore islands which lie seaward of the planning region also serve as
34 habitat which may merit protection as such. Major onshore wetlands, proposed
35 nature parks/preserves and botanical gardens of Ko‘olau Poko (see Exhibit 3.1) are
36 described below:

⁴ 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.



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19

This page intentionally left blank.

- 1 • ***Ho‘omaluhia Botanical Garden.*** This 211-acre park, maintained by the City, was
2 originally developed as a Federally-funded flood control project and includes a
3 large stormwater impoundment basin. It includes limited facilities for camping,
4 horse-back riding, hiking, camping and environmental education as well as
5 botanical gardens.
6
- 7 ▪ ***Kawainui Marsh.*** Since 2005, Kawainui-Hamakua Marsh Complex has been on
8 the Ramsar List of Wetlands of International Importance, serves multiple
9 purposes as a flood storage basin, wetland filter, wildlife habitat and cultural and
10 scenic resource pursuant to a master plan prepared in 1994⁵. (Note that the
11 1994 plan was never officially adopted by the State DLNR.) The master plan
12 includes hiking trails through the marsh. Also proposed are an environmental
13 education center and a pedestrian path around the perimeter of the marsh. A
14 large restoration project by the Army Corps of Engineers and the DLNR began in
15 2013. The project will restore nearly 40 acres and includes habitat restoration for
16 endangered native waterfowl. In 1979, the National Registrar for Historic Places
17 determined that the Marsh is eligible for listing in the National Register of Historic
18 Places.

19
20 The Kawainui-Hamakua Marsh Complex, endangered waterbird habitat, and
21 archaeological and cultural sites should be improved and protected by:

- 22 • Improving water quality in contributing Kapaa and Maunawili streams;
23 • Improving water quality in the marsh;
24 • Establishing a comprehensive and coordinated land and water
25 management plan, including a long-term water monitoring and testing
26 schedule;
27 • Establishing a buffer zone surrounding existing waterbird habitats on the
28 marsh side of the Kapaa Quarry Road;
29 • Removing invasive plant species to open up water flow;
30 • Establishing long-term plans for removing and controlling invasive plants
31 in the ditches on both sides of Kapaa Quarry Road so that runoff from
32 industrial areas can be filtered as designed;
33 • Implementing predator control measures;

34

⁵ 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.

- 1 • Expanding Kapaa and Maunawili stream courses by removing vegetation
- 2 from their entrances into the marsh;
- 3 • Developing criteria for monitoring discharge of sediments into the marsh;
- 4 • Investigating and recording the sacred nature and cultural significance of
- 5 the birds in the Kawainui area;
- 6 • Conducting specific archaeological research studies of entire primary and
- 7 secondary areas of the marsh, which includes the slopes above the
- 8 marsh; and
- 9 • Preserving and enhancing identified wildlife species, their habitats, and
- 10 related ecological systems.
- 11 ▪ **He'eia Wetland.** He'eia Wetland was acquired by the State in 1991 and is under
- 12 the jurisdiction of the Hawaii Community Development Authority. In 2010, a non-
- 13 profit group, Kāko'o 'Ōiwi, acquired a long-term lease to the wetland. Their goal
- 14 is to implement the community-driven vision of restoring agricultural productivity
- 15 and environmental quality of the wetland. Wetland *kalo* was traditionally grown
- 16 at He'eia. The vision is to produce *kalo* once again, to serve to educate, feed,
- 17 and sustain the He'eia community.
- 18
- 19 ▪ **Nu'upia Pond.** This large waterbody at the neck of Mōkapu Peninsula is within
- 20 the Marine Corps Base Hawai'i and is under Federal protection and management
- 21 as a habitat for endangered species.
- 22
- 23 ▪ **Waikalua Loko Fishpond.** This fishpond in Kāne'ohe is an active site for
- 24 resource management training and education that is managed by the Waikalua
- 25 Loko Fishpond Preservation Society.
- 26
- 27 ▪ **Waihe'e Valley Nature Park.** This site covering nearly 150 acres was acquired
- 28 by the City and is designated as a Nature Park, but remains undeveloped.
- 29
- 30 ▪ **Ha'ikū Valley Cultural and Nature Preserve.** The City proposed to acquire the
- 31 former Omega Station site from the State Department of Hawaiian Home Lands.
- 32 Combined with the adjoining City and County of Honolulu parcel, this could
- 33 create a large nature and cultural preserve. The site includes Ha'ikū Stairs and
- 34 potential access to the Ko'olau Poko Trail Complex. In addition to its recreational
- 35 and education purposes, this park would help protect the He'eia watershed,
- 36 which includes a high-quality perennial stream, a significant wetland habitat for
- 37 native endangered Hawai'ian waterbirds and migratory waterfowl and shorebirds,
- 38 and an ancient Hawai'ian fishpond in relatively good condition.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17

- **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.

- **Koʻolau Greenbelt.** This describes the transition area between the Koʻolau 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.

18 GUIDELINES FOR WETLANDS, WILDLIFE PRESERVES, AND NATURE PARKS

- 19 • Prepare use and management plans for Heʻeia Marsh, Waiheʻe Valley Nature
20 Park, Haʻikū Valley Cultural and Nature Preserve, and Waikāne Nature
21 Preserve and develop those sites pursuant to those plans.

- 22 • Encourage owners of private wetlands, such as Waiheʻe Marsh (also known
23 as “Haia Mōa”), and other wildlife habitats, to prepare and abide by use and
24 management plans for those resources, and to investigate the various State
25 and Federal programs that provide incentives for landowners to manage their
26 lands for the benefit of wildlife.

- 27 • Prepare and implement a plan to establish a Koʻolau Greenbelt.

- 28 • Prohibit encroachment or intensification of residential or other urban uses
29 near wildlife sanctuaries and nature parks.

- 30 • Prepare wildlife preserve management plans emphasizing conservation and
31 restoration of native plants, birds, fish and invertebrates.

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

1 **3.1.3.4 Natural Gulches, Streams and Drainageways**

2 According to the Ko'olau Poko Watershed Management Plan, the Ko'olau Poko
3 region contains 20 watersheds (systems of natural gulches and streams) and 13
4 perennial streams. These stream channels are the primary means for carrying water
5 from the inland areas to the sea and are generally capable of handling runoff from
6 normal rainfall amounts. During periods of intense rainfall, however, a number of
7 these drainageways overflow and create flooding problems (see discussion in
8 Section 4.6, *Drainage Systems*).
9

10 GUIDELINES FOR NATURAL GULCHES, STREAMS AND DRAINAGeways

- 11 • Preserve the natural aesthetic and biological values of gulches, streams and
12 drainageways as part of the open space system by implementing the stream
13 classifications, design guidelines and actions contained in the Ko'olau Poko
14 Watershed Management Plan for the protection of natural stream beds and
15 habitat and the restoration of degraded streams.
- 16 • Alter natural drainageways only when necessary to provide flood protection
17 for existing developed areas, and in a way that preserves aesthetic and
18 biological values, and avoids degradation of stream, coastline and nearshore
19 water quality. For example, impacts on biological conditions may be
20 mitigated, as appropriate, by using v-shaped bottom channels for periods of
21 low stream flow, rip-rap boulder lining of stream banks, streamside vegetation
22 and similar strategies to shade, cool and aerate the waters of the stream and
23 provide riparian and stream bottom habitat.
- 24 • Incorporate erosion control measures and best management practices, as
25 cited in the Hawai'i's Coastal Nonpoint Pollution Control Program
26 Management Plan⁶ to prevent pollution of wetlands, streams, estuaries and
27 nearshore waters.
28

29 GUIDELINES FOR OTHER OPEN SPACE ELEMENTS

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

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40

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:

- 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.

1 Golf courses also serve a practical purpose by reducing flooding and non-point
 2 pollution by helping retain storm waters. However, they are highly land intensive,
 3 typically occupying 150 to 200 acres, and thus plans for future golf courses or
 4 redevelopment of existing golf courses must undergo careful evaluation. Depending
 5 on the location, design, and pricing of greens fees and/or memberships, new course
 6 development could have significant environmental, economic, and social impacts.
 7 Furthermore, Ko'olau Poko is mostly built-out and land areas that could possibly
 8 accommodate a new golf course are either in preservation or long-term agricultural
 9 use. Consequently, the development of additional golf courses in the Ko'olau Poko
 10 region is not desired.

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

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

12

13 Policies relating to golf courses:

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

15 Guidelines relating to golf courses:

- 16 • Maintain golf courses to provide view amenities for adjacent urban areas,
 17 especially from well-used public rights-of-way, parks and vista points. Where
 18 necessary, redesign golf course facilities or layouts to reduce the visual
 19 prominence of large accessory buildings.

- 1 • Design and maintain existing golf courses to avoid or minimize environmental
2 impacts, such as siltation, pesticide and fertilizer runoff, destruction of coastal,
3 riparian and wetland habitat, etc.
- 4 • Optimize the function of golf courses as passive drainageways, maximizing
5 their potential to retain or detain stormwater runoff.
- 6 • Provide safe access through golf courses, as necessary, for regional
7 continuity of pedestrian and bicycle systems.
- 8 • When necessary for safety reasons, use landscape screening, setbacks and
9 modifications to the course layout rather than fencing or solid barriers.
- 10 • Provide appropriate buffers between golf courses and surrounding residential
11 areas.

12

13 ***Cemeteries***

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

18 Guidelines for cemeteries:

19

- 20 • Maintain the open space character of the cemeteries through very low lot
21 coverage ratios.
- 22 • Where located in the State Conservation District or in preservation area
23 designated by this Plan, above-grade structures shall be limited to maintain
24 the open space character of the cemetery.
- 25 • Limit above-grade structures to grave markers of modest size; and necessary
26 administrative and maintenance support buildings that are minimally visible
27 from public rights-of-way, entries and vista points.
- 28 • Where direct, indirect, or cumulative impacts of any proposed cemetery
29 expansion will affect rare, threatened, or endangered species; or where
30 direct, indirect, or cumulative impacts of any proposed cemetery expansion
31 on sensitive areas are identified in any environmental setting; measures to
32 mitigate, reduce, or rectify any adverse impacts shall be formulated.
- 33 • Any proposed expansion by Hawaiian Memorial Park must include a 150-foot
34 buffer from residential homes, a 2,000-foot buffer from the Pohai Nani senior
35 living community, and a phased approach to sales and marketing to ensure
36 that the land adjacent to the residential homes on Lipalu Street is the last

1 portion of land used for cemetery interment, in order to minimize potential
2 impacts to neighboring residents.

- 3 • Hawaiian Memorial Park shall record with the State of Hawaii Bureau of
4 Conveyances or the State of Hawaii Land Court, or both, as appropriate, a
5 conservation easement on the entirety of the 156-acre undeveloped portion of
6 its Pikoiloa Tract property (TMK No. 4-5-033: 001) that would limit any other
7 future development on the property, except for the 28.2-acre portion of the
8 property that encompasses the proposed Hawaiian Memorial Park expansion
9 site, and the 14.5-acre portion of the property that encompasses the
10 proposed Kawa'ewa'e Heiau cultural preserve.

12 **3.1.4 PROTECTION OF OTHER NATURAL RESOURCES**

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

15 **3.1.4.1 Policies**

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

22 **3.1.4.2 Guidelines**

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

32 **3.1.5 RELATIONSHIP TO MAP A-1, OPEN SPACE**

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

35

- 1 • **Mountains, Wildlife Preserves and Nature Parks.** These areas are
2 designated for preservation and are to remain outside of the Community
3 Growth Boundary. Small wetlands and agricultural lots consisting of less than
4 10 acres may be included within the Community Growth Boundary, but the
5 intent is to preserve them in their present use, even if they are not specifically
6 shown on Map A-1, Open Space.
- 7 • **Shoreline Areas.** All public shoreline parks, whether managed by the City or
8 the State, are designated for preservation and shown on Map A-1, Open
9 Space. Smaller existing and proposed access points to the shoreline are
10 indicated by symbols on the map.
- 11 • **Agricultural Areas.** Map A-1, Open Space, shows all areas designated for
12 agriculture on the Map A-2, Land Use. Some of these lands are in the State
13 Urban District, but almost all are outside of the Community Growth Boundary.
- 14 • **Golf Courses and Cemeteries.** The golf courses and three largest
15 cemeteries in Ko'olau Poko are shown for their visual contributions to open
16 space by virtue of their size and landscape character.
- 17 • **Natural Gulches, Streams and Drainageways.** The riparian areas of
18 perennial streams that are significant for their natural resource quality or that
19 have potential for recreational accesses in urbanized areas are designated as
20 stream management corridors, which are discussed in Section 4.6.
21

22 **3.2 PARKS AND RECREATION**

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

33 **3.2.1 ISLAND-WIDE PARKS**

34 Ko'olau Poko's regional, beach and nature parks are listed in Table 3.1. Compared
35 to other regions of the island, Ko'olau Poko has a disproportionate share of park

1 acreage dedicated to natural and cultural preserves, which is a reflection of the
 2 region's physical assets and historical use. For future additions to Ko'olau Poko's
 3 island-wide park land inventory, priority is given to the acquisition of shorefront
 4 properties primarily in Kāne'ohe and secondarily in Kailua, as stated in Section
 5 3.1.3.2 Shoreline Areas.

6
 7

Table 3.2 Island-Wide Parks in Ko'olau Poko			
Park Type/Name	Acreage	Park Type/Name	Acreage
Regional Parks		Nature Parks	
Kahalu'u Regional Park ¹	34.6	Waihe'e Valley Nature Park	149.6
Kualoa Regional Park ¹	<u>153.4</u>	<u>He'eia Kea Valley Nature Park³</u>	<u>218.5</u>
Subtotal	188.0	Waikāne Nature Park ³	<u>503.0</u>
		Subtotal	871.1
Beach/Shoreline Parks		Botanical Gardens	
Bellows Field Beach Park (weekend use)	54.2	Ho'omaluhia Botanical Garden ²	370.8
He'eia State Park	18.5		
Kailua Beach Park	35.2	Total Acreage	1,735.0
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 ²	46.9		
Waiāhole Beach Park	20.0		
Waimanālo Bay Beach Park	74.8		
Waimanālo Beach Park	<u>37.6</u>		
Subtotal	305.1		

¹ Portions of these parks function as beach parks or nature parks.

² Portions of this park are also considered as nature park.

³ 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.

8

1 **POLICIES**

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

- 4
- 5 • Increase the inventory of island-wide parks by giving priority to the acquisition
6 of shorefront properties primarily in Kāne'ōhe and secondarily in Kailua. (Note
7 that expansion of the inventory of island-wide parks is of lower priority than
8 expansion of the inventory of community-based parks in Ko'olau Poko as
9 provided in Section 3.3.2.)
- 10 • Maintain and enhance present island-wide parks by utilizing land area not
11 fully developed for recreation use. Island-wide parks are part of the region's
12 abundance of natural and scenic resources and contribute to the
13 attractiveness of Ko'olau Poko to both residents and visitors.
- 14 • Carefully site active playfields and supporting facilities intended for intensive
15 use, and use appropriate landscape screening to reduce the potential impacts
16 on surrounding areas.
- 17 • Construct park facilities in a manner that avoids adverse impacts on natural
18 resources or processes in the coastal zone or any other environmentally
19 sensitive area. In the design of recreation areas, incorporate natural features
20 of the site and use landscape materials that are indigenous to the area in
21 order to retain a sense of place.
- 22 • Integrate and link recreational attractions, which may be designed to have
23 distinct identities and entries, with surrounding areas through the use of
24 connecting roadways, bikeways, walkways, landscape features and/or
25 architectural design.
- 26

27 **GUIDELINES**

28 **Passive or Nature Parks**

- 29 • Acquire and develop the proposed Ha'ikū Valley Cultural and Nature
30 Preserve, including access to Ha'ikū Stairs.
- 31 • Improve the Waikāne Nature Preserve and Waihe'e Valley Nature Park.

1 **Active Recreation Areas**

- 2 • Acquire additional shorefront land for parks in Kāne'ohe and Kailua with
3 particular attention to increasing shoreline access in Kāne'ohe.
- 4 • Locate bus stops and loading areas at principal entries and adjacent to
5 convenient pedestrian accesses to main activity areas within the park.
- 6 • Provide amenities and service facilities to accommodate "tailgate" picnics in
7 parking areas for sporting events, including shading canopy trees within the
8 parking lot as well as nearby picnic tables and outdoor grills.
- 9 • Locate areas designed for sporting events that attract high numbers of people
10 along major collector streets and separate them as much as possible from
11 residential areas and significant wildlife habitats.
- 12 • Expand active recreational facilities by incorporating facilities such as
13 playfields and playcourts in regional and beach parks and in the former
14 sanitary landfill site at Kapa'a.

15 **3.2.2 COMMUNITY-BASED PARKS**

16 Park areas that serve more localized populations are classified as community-based
17 parks. This group includes district, community, and neighborhood parks as well as
18 other, smaller park areas (see Table 3.3).
19

20

Table 3.3 Types of Community-Based Parks			
Park Type	Average Size (Acres)	Population Service Size	Typical Facilities
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

21 DPR uses a standard of two acres per every 1,000 persons in evaluating service
22 needs, although this figure varies according to each community's situation. Ko'olau
23 Poko contains a total of approximately 167 acres of community-based parks (see
24 Table 3.4). Based on DPR's standard and Ko'olau Poko's 2010 population of

1 115,164, this represents a deficit of approximately 63 acres of community-based
 2 parks. With an expected 2035 population of 115,000, there will still be a deficit in
 3 acreage if there is no addition to the park land inventory. At present, the only
 4 planned addition to the community-based park inventory in Ko'olau Poko is a one-
 5 acre expansion of the Kāne'ōhe Civic Center Neighborhood Park.

6
 7 Acquisition of new park land is dependent currently on the Park Dedication
 8 Ordinance which imposes a recreation requirement on new housing. This method
 9 cannot be used to make up the existing deficit in community-based park lands in
 10 Ko'olau Poko because the amount of new park improvement is generally intended to
 11 only serve new development.
 12

Table 3.4 Community-Based Public Parks in Ko'olau Poko			
Park Type/Name	Acreage	Park Type/Name	Acreage
District Parks		Neighborhood Parks, continued	
Kāne'ōhe District Park	31.4	Kaluapuhi Neighborhood Park	5.8
Kailua District Park	18.7	Kāne'ōhe Civic Center Park	4.2
Waimanālo District Park	<u>25.3</u>	Kapunahala Neighborhood Park	3.9
Subtotal	75.4	Kea'alau Neighborhood Park	3.7
Community Parks		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'ōhe Community & Senior Center	2.0	Keolu Hills Neighborhood Park	6.3
Kāne'ōhe 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>	Mini Parks	
Subtotal	26.9	Ka'elepulu Mini Park	1.6
Neighborhood Parks		Pōhākupu Mini Park	<u>3.5</u>
Bayview Neighborhood Park	8.0	Subtotal	5.1
Laenani Neighborhood Park	1.4	Total Acreage	
He'eia Neighborhood Park	4.0	167.1	

*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.

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

7

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

18

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

25

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

37

1 **POLICIES**

2 The following policies relate to community-based parks:

3

- 4 • Increase the inventory of community-based parks to provide sports and
5 recreation facilities for Ko'olau Poko residents in appropriate locations in
6 Kailua, Kāne'ōhe, Kahalu'u, and Waimanālo with land acquisition to reduce
7 the existing deficit of such parks in these areas.
- 8
- 9 • Increase recreation facilities in existing parks and increase access to public
10 school facilities in areas where there is limited opportunity to expand park
11 space.
- 12
- 13 • Require new residential development provide land for open space and
14 recreation purposes in lieu of payment of a fee for park dedication purposes,
15 if the project is of sufficient size to set aside usable land to meet
16 neighborhood recreational needs.
- 17
- 18 • Pursue the development of greenways along the following streams and
19 drainage channels: Kāne'ōhe Stream, from Kāne'ōhe Bay to Kamehameha
20 Highway; Kea'ahala Stream, from Kāne'ōhe Bay to Kahekili Highway;
21 Kawainui Stream, from Kailua Bay to Kawainui Marsh; Kawa Stream, from
22 Mokulele Drive to Kāne'ōhe Bay Drive; and Ka'elepulu Stream, from Kailua
23 Bay to Ka'elepulu Pond.
- 24

25 **GUIDELINES**

- 26 • Design and site structural improvements and landscaping in community-
27 based parks in such a way as to enhance the aesthetic value of these open
28 space elements.
- 29
- 30 • Mitigate visual impacts of large recreation buildings or structures, lighting,
31 parking lots, perimeter fencing along major collector streets and other
32 utilitarian elements through building design, plantings or other appropriate
33 visual screens adjacent to residential areas and major roadways.
- 34
- 35 • Encourage multi-use and/or modest expansion of existing facilities over the
36 construction of new structures to minimize impacts on open space.
- 37
- 38 • Prepare a functional plan for the acquisition of new community-based parks in
39 Kailua, Kāne'ōhe, Kahalu'u, and Waimanālo.
- 40

- 1 • Have master plans for development of new parks or redevelopment of
2 existing parks provide for facilities and accessible pathways from surrounding
3 streets to facilitate pedestrian and bicycle access to parks.
4
- 5 • The DPR should explore ways, through cooperative agreements and mutual
6 indemnifications with the UH, DOE and non-profit organizations, to design
7 and operate facilities to achieve efficiencies and reduce duplication in the
8 development and use of athletic, recreation, meeting, and parking facilities.
9

10 **3.3 HISTORIC AND CULTURAL RESOURCES**

11 Ko'olau Poko's landscape includes many vestiges of its cultural past, including
12 ancient fishponds fronting Kāne'ōhe Bay, terraces for the cultivation of taro, several
13 *heiau* and other sacred sites, and various remains of pre-historic habitation. On a
14 smaller scale, there are also historic structures and places representing Ko'olau
15 Poko's more recent past.
16

17 Due to the relatively recent urban development of the region, the most significant
18 remnants of Ko'olau Poko's past are archaeological sites. In 1930, an
19 archaeological survey of O'ahu documented numerous sites in the area⁷. Erosion
20 or other land altering activities such as agricultural use and urban development had
21 destroyed many of these sites, even at that time.
22

23 Table 3.5 lists some of the significant archaeological sites in Ko'olau Poko including
24 ancient fishponds and known remaining sacred sites such as *heiau* and fishing
25 shrines many of which are listed on the Hawai'i or National Registers of Historic
26 Places. The approximate location of these sites and other significant cultural
27 features is shown in Exhibit 3.2. This representative list is not intended to document
28 all significant archaeological sites in Ko'olau Poko.
29

⁷ McAllister, J. Gilbert. Archaeology of O'ahu, 1933. p. 57.

1

Table 3.5 Significant Archaeological Sites in Ko'olau Poko	
Feature	Reference
Moli'i Fishpond	McAllister, SHPD
Kualoa <i>Ahupua'a</i> Historical District	SHPD
Puakea <i>Heiau</i> , Hakipu'u	McAllister
Kukuianiani <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

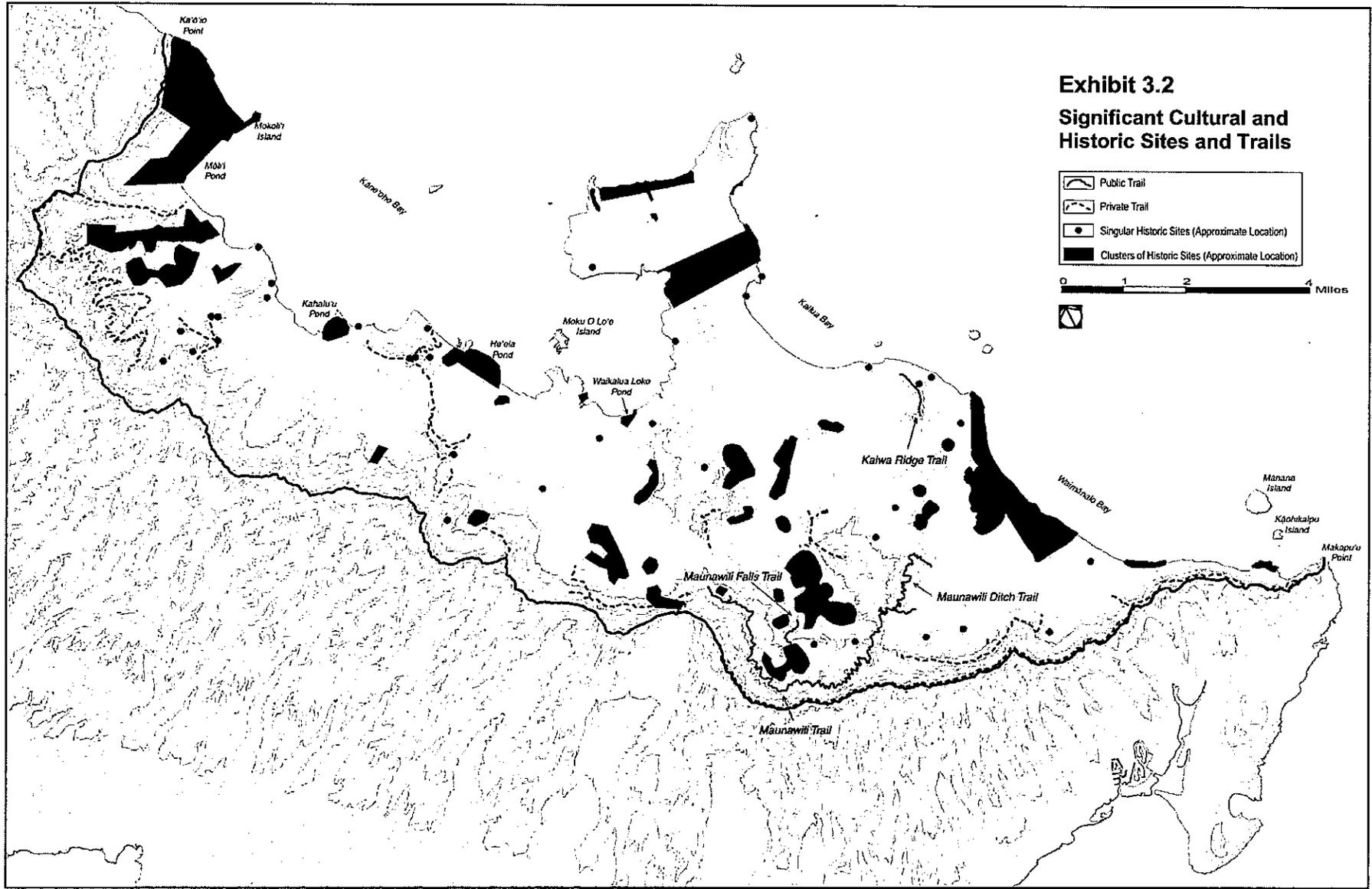
2
3

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

- 4
- 5 • Makapu'u Lighthouse
- 6 • Waikane Store
- 7 • Lanikai Entry Marker
- 8 • Ha'ikū Plantation Gardens, Kane'ohe
- 9 • Hygienic Store, Kahalu'u
- 10 • Waiāhole Poi Factory
- 11 • Kane'ohe State Hospital
- 12 • Hawai'i Youth Correction Facility - Kawaiolo, Kailua
- 13 • Byodo-in Temple, Valley of the Temples, 'Ahuimanu
- 14 • Boettcher Estate, Kalama Beach Park, Kailua
- 15 • Kane'ohe Ranch offices, Maunawili
- 16 • Waimanālo Ditch System

17
18 The cultural richness of Ko'olau Poko is significant. In addition to the previously
19 listed sites, other sites highly valued by Ko'olau Poko residents include: Holomakani
20 Heiau (Kailua), Na Pohaku o Wahine (Kailua), Kawainui Marsh Archaeological
21 District (Kailua), Waikalua Loko Fishpond (Kane'ohe), Ahu o Laka Island, Nu'upia
22 Ponds (at entrance to Marine Corps Base Hawai'i).

23
24 There are also many private residences, at various locations, which are more than
25 50 years old that have sufficient architectural distinction and integrity to make them
26 eligible for listing on either the National or State Registers.



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

This page intentionally left blank.

1 **3.3.1 POLICIES**

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

23
24 **3.3.2 GUIDELINES**

25 Native Hawaiian cultural and archaeological sites:

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

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

6 Historic sites and landmarks the following guidelines apply:

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

18 **3.4 AGRICULTURAL USE**

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

29
30 According to the City and County of Honolulu Department of Planning and
31 Permitting's Geographic Information System data, there are 6,179 acres of land in
32 Ko'olau Poko that are within the State Land Use Agricultural District and are
33 designated as ALISH⁸. These lands are considered good farm land. Not all may be
34 in production, but those that are consist primarily of small farms.

⁸ As of August 2012.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31

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.

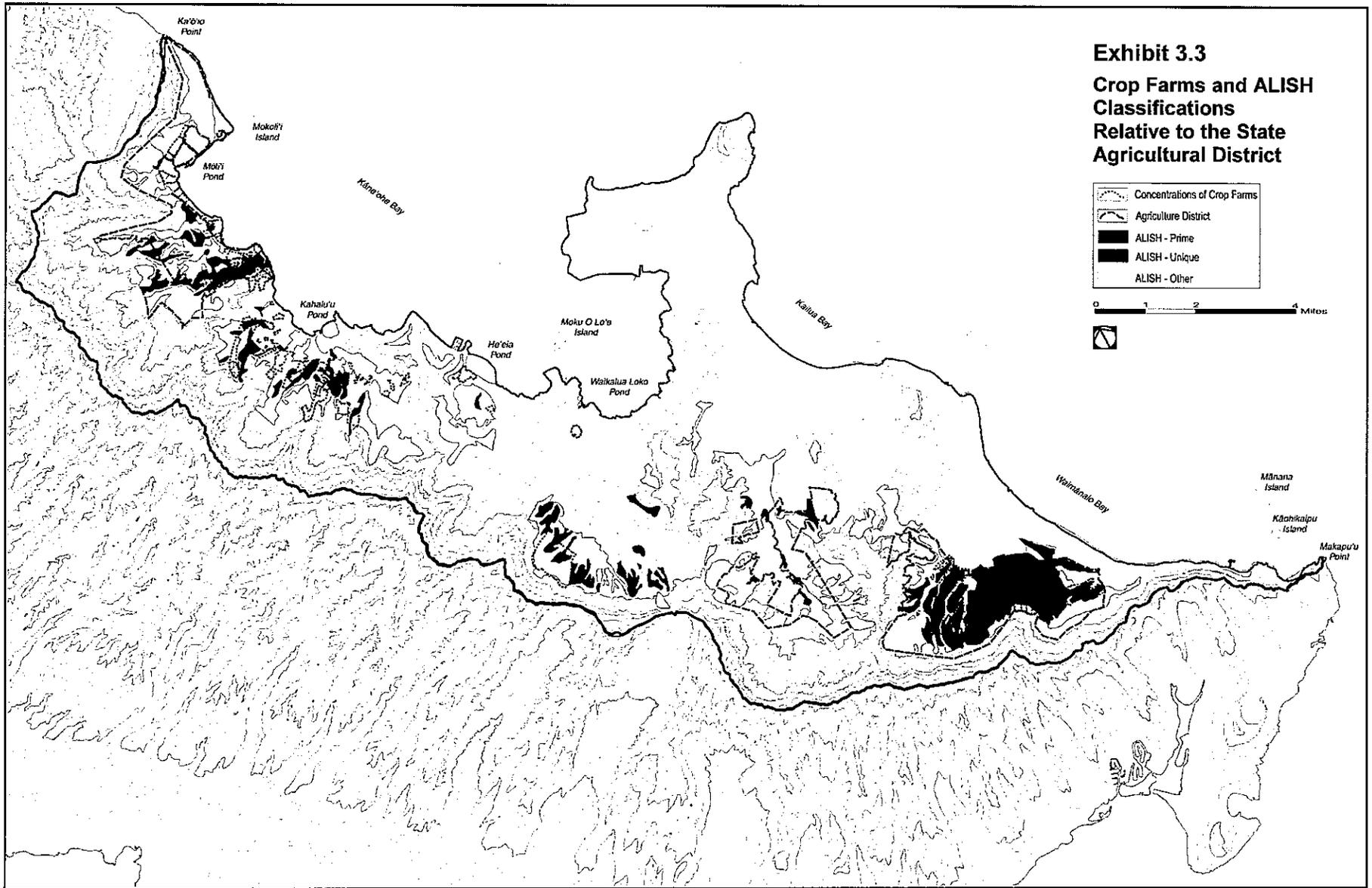


Exhibit 3.3
Crop Farms and Alish
Classifications
Relative to the State
Agricultural District

	Concentrations of Crop Farms
	Agriculture District
	ALISH - Prime
	ALISH - Unique
	ALISH - Other

0 1 2 4 Miles



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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

This page intentionally left blank.

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

8
9 Land use policy can support agricultural activities in other ways, as well. For
10 example, zoning and development codes can restrict non-agricultural uses to those
11 that are intended to meet the needs of the rural community or that are related to
12 agricultural operations in the area. It can also propose the development of facilities
13 and programs that support agricultural activities and the marketing of products.

15 **3.4.1 POLICIES**

16 The following policies apply to lands designated for agricultural use:

- 18 • Encourage agricultural use of small lots.
- 19 • Adopt development and public works standards that are appropriate and cost-
20 effective for rural, agricultural areas.
- 21 • Provide support infrastructure, services and facilities to foster and sustain
22 agricultural operations.
- 23 • Implement tax policies and easements that promote active, long-term
24 agricultural uses.
- 25 • Encourage organic and sustainable agriculture.
- 26 • Encourage self-contained land-based aquaculture in appropriate locations.
- 27 • Prevent the conversion of agricultural lots to residential or other non-
28 agricultural uses.
- 29 • Modify standards for public infrastructure in rural and agricultural areas in
30 accord with the character and needs of such areas.
- 31 • Develop and apply use standards to provide for all agricultural activities and
32 uses customarily associated with agricultural areas, including ranching and
33 plant nurseries (crop production with on-site retail or wholesale sales).

- 1 • In agricultural districts, craft nuisance regulations in zoning and environmental
2 codes to give preference to agriculture use over residential use.
- 3 • Limit non-agricultural uses to those that provide support services for
4 agricultural operations or operations related to public renewable energy
5 sourcing, provided it does not remove high quality agricultural land.
- 6 • Provide tax incentives, technical and financial assistance, and public land or
7 facilities that support agricultural operations and/or the marketing of products.
- 8 • Promote land trusts, conservation easements, agricultural dedications, and
9 other mechanisms as incentives to preserve agricultural land use.
- 10 • Promote and provide opportunities for small family farms.
11

12 **3.4.2 GUIDELINES**

- 13 • Limit the floor area of dwellings and prevent inappropriate urban uses, such
14 as meeting facilities and conditional uses that have no direct relationship to
15 agricultural or local community needs. Permit a dwelling only if it is accessory
16 to a verifiable agricultural use on the same lot.
- 17 • Require new residential development to maintain an adequate buffer when
18 adjacent to agricultural lands, giving consideration to topographic barriers,
19 prevailing winds, and the noise and air-borne emissions associated with the
20 type of agricultural operation.
- 21 • Adopt standards for roadway and other infrastructure design that are
22 appropriate and intended for continued agricultural use rather than residential
23 use.
- 24 • Require the acknowledgement of agricultural standards in the subdivision
25 process and in all deeds to lots.
- 26 • Focus performance standards for agricultural zoning districts on preventing
27 degradation of the natural environment, maintaining the viability of agricultural
28 uses, and protecting the health and safety of agricultural workers rather than
29 on disturbance to residential uses.
- 30 • Encourage development proposals of more than two lots to apply for cluster
31 housing which provides a larger, contiguous area reserved for agriculture use.
- 32 • Structure property tax assessments and rates to encourage long-term leases
33 for agricultural operations. Also, adopt lower development fees and

1 standards for agricultural subdivisions that do not involve the construction of
2 dwellings.

- 3 • Adopt zoning standards that promote the use of natural energy sources to
4 support agricultural uses.
- 5 • Permit revenue-producing activities on lots where a commercial agricultural
6 operation is being conducted, as ancillary uses. Allow these activities only if
7 they do not interfere with surrounding agricultural uses. Examples of
8 compatible activities include camping, picnicking, horseback riding, training
9 and instruction, rodeos, polo matches, and tours of botanical gardens,
10 fishponds, and *kalo lo'i*. Private parties promoting agricultural production or
11 agriculture-related educational activities may be compatible, depending on
12 the intensity of use and the location and size of the property. Recreational
13 activities involving motorized vehicles and thrill craft are generally not
14 considered compatible.
15

16 **3.5 RESIDENTIAL USE**

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

- 20
- 21 • "Infill" development of remaining vacant lands in areas that are already
22 urbanized;
- 23 • Subdivision of larger residential lots into smaller parcels at various locations
24 throughout the region;
- 25 • Expansions of existing homes to accommodate larger households;
- 26 • Residential development on Marine Corps Base Hawai'i and lands under the
27 jurisdiction of the Department of Hawaiian Homelands or the Office of Hawaiian
28 Affairs;
- 29 • Additional housing units on existing residential lots through such programs as
30 'ohana dwellings/accessory dwelling units; and
- 31 • Housing above storefronts in town centers.
32

33 While the development of vacant parcels is readily identified and their effects are
34 more immediately apparent, the physical changes wrought by incremental
35 intensification of residential use in existing built-up neighborhoods through
36 subdivisions and home expansions will be slower and more subtle. Effective

1 residential lot design standards which limit building height, coverage, paving, and the
2 removal of landscaping may be implemented to avoid the long-term cumulative
3 impact of this gradual transformation, which could adversely affect the character of
4 existing neighborhoods.

5
6 Although recognized as a region with a slow growth policy, Ko'olau Poko continues
7 to have a high demand for housing.

8
9 Land use planning at the local level has a limited ability to shape market forces or to
10 influence the rate and amount of property taxes, but it can restrict transient
11 occupancy of housing. Currently, except for nonconforming uses, vacation rentals
12 within areas outside resort designations are not allowed. The current General Plan
13 does not support vacation rentals in residential areas. The military can be
14 encouraged to take a more active role in providing housing on-base for their
15 personnel and dependents in order to increase the availability of housing for the
16 local resident population.

17
18 Another concern of some Ko'olau Poko residents is the amount of large tour buses
19 visiting the neighborhoods and the increase in vehicular and foot traffic. Residents
20 are concerned about the potential hazards of large tour buses traveling on streets
21 that have no sidewalks which could pose a danger to pedestrians and bicyclists. In
22 general, the community would like to limit tour bus stops, loading, and unloading by
23 prohibiting any new off-street parking or loading areas for large (15 passengers or
24 more) private vehicles unless used for school or public transportation vehicles. To
25 address the potential impacts and hazards that tour buses may have, a study could
26 be undertaken to evaluate the impact of large vehicles on residential streets and
27 implement its recommendations where warranted.

28
29 As noted in Section 2.1.7, Ko'olau Poko has two types of residential communities
30 that are located within the Community Growth Boundary: one more suburban in
31 character and the other more rural. The suburban communities are those identified
32 in the General Plan as "urban fringe" areas, corresponding to the suburban
33 communities of Kāne'ohe, Kailua, Mokapu Peninsula, Maunawili and 'Āhuimanu
34 within the State Urban District boundary. The "rural" areas within the Community
35 Growth Boundary consist of smaller, more dispersed, less intensively developed
36 residential communities and towns than those of Ko'olau Poko's "urban fringe"
37 areas; namely, the sections of Waimānalo, Kahalu'u, Wai'āhole and Waikāne in the
38 State Urban District where there are clusters of parcels that are less than two acres
39 in size occupied by dwellings or buildings used for community or commercial
40 purposes other than agriculture.

41

1 While these two types of residential communities have some common features, they
2 are distinguishable by their built form, particularly with respect to density of
3 development. Accordingly, Section 3.5.2 contains two sets of guidelines for
4 residential development: one for rural communities and the other for suburban
5 communities.
6

7 **3.5.1 POLICIES**

- 8 • Protect the character of existing residential areas and enhance desirable
9 residential amenities.
- 10 • In accordance with the General Plan, increase housing capacity and address
11 the trend toward decreasing household size through the development of new
12 homes on lots presently designated for low-density residential use, and the
13 expansion of existing homes in existing residential neighborhoods.
- 14 • Respond to the special needs of an aging population by providing future
15 housing development for the elderly in a variety of living accommodations that
16 are affordable to low- and moderate-income, gap group, and other elderly
17 households; such as multi-generation households, group homes, assisted
18 living units, and continuing care retirement communities.
- 19 • Provide greater emphasis on safe, accessible, convenient and comfortable
20 pedestrian routes, bus stops, and bike routes in residential areas, even if this
21 requires somewhat slower travel speeds or less direct routes.
- 22 • Allow community facilities such as schools, churches and meeting halls, as
23 well as home-based occupations, with appropriate limitations on scale, siting
24 and intensity of activity to respect adjacent residential uses and the prevailing
25 character of the surrounding neighborhood.
- 26 • Encourage bus, pedestrian, and bicycle travel, particularly to reach
27 neighborhood destinations such as schools, parks, and convenience stores,
28 recognizing the need for accessible design and safe travel conditions for
29 elderly and/or disabled people. Implement passive and active automobile
30 traffic calming measures on residential neighborhood streets and plant street
31 trees to provide shading for sidewalks and bus stops. Provide sufficient area
32 within the public right-of-way to accommodate bus stop shelters.
- 33 • Encourage energy efficient features, such as the use of solar panels for
34 heating water or electricity, and passive solar design, such as the use of
35 window recesses and overhangs and orientation of openings to allow natural
36 cross-ventilation. Also, incorporate resource conservation measures, such as

- 1 water flow constrictors and facilities for the sorting of waste materials for
2 recycling, in the design of new development and expansions of existing
3 dwellings. Minimize the visual impacts of such measures.
- 4 • Avoid safety and health problems inherent in the development of land with
5 steep slopes and/or potentially unstable soil conditions. Reevaluate and
6 revise development standards governing such conditions to reflect the most
7 current civil, soils, structural engineering and geological findings related to
8 this subject as well as the analysis of historical experience on O'ahu.
9 Development within the 100 year floodplain needs to conform with regulations
10 and guidelines of the Federal Emergency Management Agency.
 - 11 • Regulate nuisance in zoning and environmental codes such that residential
12 uses are given preference over non-residential uses within residential zoning
13 districts.
 - 14 • Evaluate the impact of large vehicles on residential streets and implement its
15 recommendations, where warranted.
16

17 **3.5.2 GUIDELINES**

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

20 **3.5.2.1 Rural Communities**

- 21 • Adopt development standards and design guidelines for residential-
22 designated areas within the Community Growth Boundary in order to:
 - 23 ○ Minimize impervious surfaces;
 - 24 ○ Require greater building setbacks than in suburban residential zoning
25 districts;
 - 26 ○ Generally limit building heights to two stories;
 - 27 ○ Allow relatively narrow roadway widths;
 - 28 ○ Allow alternative sidewalk designs, as compared to suburban
29 communities, providing they comply with public safety and ADA
30 standards;
 - 31 ○ Allow the use of detention basins and grassed swales for stormwater
32 drainage instead of concrete curbs and gutters;

- 1 ○ Encourage the retention of a neighborhood’s character by avoiding a
2 concentration of group living facilities and group homes;
- 3 ○ Promote passive solar design, such as the use of sloped roof forms
4 with wide overhangs, and residential-scaled energy conservation and
5 natural energy harnessing devices;
- 6 ○ Promote water conservation measures, such as flow constrictors,
7 xeriscaping, and use of non-potable water sources for irrigation; and
- 8 ○ Achieve an overall residential density of no greater than four principal
9 dwelling units per acre.

11 **3.5.2.2 Suburban Communities**

- 12 • Adopt development standards and design guidelines for lots designated for
13 residential use within the Community Growth Boundary in order to:
 - 14 ○ Retain the physical character and definition of neighborhoods and
15 minimize long-term adverse impacts of expansions of existing homes
16 and new infill development on surrounding neighborhoods;
 - 17 ○ Enhance the identities of neighborhoods through the use of
18 landscaping, natural features, and building form and siting;
 - 19 ○ Encourage appropriate scale and privacy with respect to surrounding
20 residential properties when infill development such as new homes or
21 expansion of existing homes occurs;
 - 22 ○ Provide a range of housing at varying densities, depending on the
23 characteristics of the surrounding neighborhood and the physical
24 features of the site, but not to exceed six dwelling units per acre;
 - 25 ○ Limit building height to two stories;
 - 26 ○ Reduce the visual dominance of vehicular parking on residential lots
27 and discourage the paving of yards;
 - 28 ○ Discourage the use of solid barrier walls that obscure views of the front
29 yard and dwelling entrances from the street;
 - 30 ○ Prohibit development on slopes of 20 percent or greater that have soil
31 characteristics indicating potential instability for building purposes;

- 1 ○ Avoid the geographic clustering or concentration of group living
2 facilities and group homes that are licensed by the State and/or
3 allowed by federal laws;
- 4 ○ Promote passive solar design, such as the use of sloped roof forms
5 with wide overhangs, and residential-scaled energy conservation and
6 natural energy harnessing devices; and
- 7 ○ Promote water conservation measures, such as flow constrictors,
8 xeriscaping, and use of non-potable water sources for irrigation.
- 9 • Implement traffic safety measures for streets in residential neighborhoods,
10 including:
 - 11 ○ Install traffic calming modifications at selected street locations where
12 speeding is a chronic problem;
 - 13 ○ Install additional lighting or more visually prominent crosswalks at
14 selected intersections where pedestrian safety is a concern;
 - 15 ○ Post signs or install striping for designated bike routes and bike lanes;
16 and
 - 17 ○ Make sidewalk or pathway improvements and undertake operational
18 measures that are identified as part of a Safe Routes to Schools or
19 Complete Streets program, or other pedestrian safety initiatives.
- 20 • Adopt zoning maps that recognize existing residential apartment
21 developments, but allow new apartment development only under the following
22 circumstances:
 - 23 ○ The site is at least one acre in size and is located in close proximity to
24 a Regional Town Center;
 - 25 ○ The building height does not exceed three stories; and
 - 26 ○ The density does not exceed 30 units per acre.

27 28 **3.5.2.3 Special Needs Housing**

29 Special Needs Housing is typically comprised of facilities designed for certain
30 segments of the population with special living requirements. Categories of special
31 needs groups include low- and moderate-income sectors, elderly, disabled people,
32 and people with health problems or needs for other forms of special care. Often
33 such housing, including group living facilities and group homes, includes special

1 features, such as congregate dining and social rooms; laundry, housekeeping and
2 personal assistance services; shuttle bus services for project residents; and skilled
3 nursing beds or physical therapy clinics.

4
5 Special needs housing are ideally located in close proximity to transit services and
6 commercial centers since those with special needs are less likely or able to drive.
7 Although special needs housing can occur at a variety of scales appropriate to the
8 region's neighborhoods, it is intended that multi-family housing will be the primary
9 form used to achieve economies of scale in the development of special needs
10 housing. Thus, it is anticipated that special needs housing will be accommodated
11 primarily within the low-density apartment areas and the commercial-residential
12 mixed use areas in the Regional Town Centers.

14 3.5.3 RELATION TO MAP A-2, LAND USE

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

17
18 **Rural Communities.** This land use designation corresponds to smaller, more
19 dispersed, less intensively developed residential communities and towns within the
20 Community Growth Boundary.

21
22 **Suburban Communities.** This land use designation corresponds to areas identified
23 in the General Plan as "urban fringe" areas. These residential communities consist
24 of lots typically sized one acre or less.

25
26 **Special Needs Housing.** This land use is not specifically designated on the Land
27 Use Map, but it is allowed in residential and mixed use areas subject to project-by-
28 project review for compatibility with surrounding uses.

29
30 Nonresidential uses that are not specifically designated on the Land Use Map but
31 are allowed in all residential areas include: elementary schools, parks, churches,
32 community centers, day-care centers, and other public facility and utility uses
33 serving the area. It should be noted that some of these uses do require project
34 review and/or public hearings and issuance of permits before they can be developed
35 in residential and rural areas.

36

1 **3.6 COMMERCIAL AND INDUSTRIAL USES**

2

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

9

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

17

18 A "big box" retail establishment is generally a single freestanding store belonging to
19 a chain of stores and measuring 50,000 square feet or more. Big box stores are
20 typically situated on the property to be car-oriented and not pedestrian friendly and
21 big box stores draw customers from an area much larger than the community in
22 which it is located. The amount of floor area, the traffic it generates, the flow of
23 traffic around the community, and the effects on smaller businesses were the main
24 concerns of the recent redevelopment. In general, the community would like to
25 discourage additional big box retail stores or factory outlet stores in the town centers
26 unless they retain a more pedestrian-oriented environment along the sidewalks and
27 not larger than 90,000 square feet of floor area.

28

1
2

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.

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

8

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

9

10 Most of Ko'olau Poko's industrial land is within the Kapa'a light industrial subdivision.
11 The designated industrial land and building inventory is expected to be capable of
12 meeting future demand, especially in light of the declining island-wide demand for

1 industrial space and no windward airport or harbor to generate or sustain high
2 demand in the area. Industrial activities and future opportunities are likely to be
3 limited to small service and repair operations, storage facilities, and other service
4 business uses that are oriented to the needs of the region's suburban and rural
5 communities. Such uses, which are commercial in character, are permitted in the
6 Kāne'ōhe and Kailua Regional Town Centers. The anticipated demand for industrial
7 space in this region will be more light industrial uses and can be accommodated
8 within the existing industrial or mixed use zones of the town centers of Kailua and
9 Kāne'ōhe and in the vicinity of the Kapa'a quarry. However, a light industrial site in
10 Waimānalo should be considered to address parking and maintenance needs of
11 large trucks and industrial vehicles.
12

13 **3.6.1 POLICIES**

14 For purposes of this Plan, the various types of commercial and industrial uses are
15 defined and designated in five categories: Rural Commercial Center, Suburban
16 Commercial Center, Community Commercial Center, Regional Town Center, and
17 Light and Extractive Industry. The policies pertaining to each of these categories are
18 as follows:
19

20 **3.6.1.1 Rural Commercial Center**

21 The Rural Commercial Center is a small cluster of commercial and service uses
22 which serve primarily the surrounding rural community. Due to their highway
23 exposure, many businesses also attract visitors and residents from outside the
24 immediate community. The Rural Commercial Center typically consists of small
25 business establishments located on small land parcels rather than in shopping
26 centers. At present, commercial uses within the rural communities are somewhat
27 dispersed along highway frontages.
28

29 Policies pertaining to Rural Commercial Centers are as follows:

- 30 • Promote a more concentrated, but small-scale center for commercial activities
31 and services for rural communities and agricultural enterprises in Kaha'u
32 and Waimanālo.
- 33 • Maintain consistency in architecture and scale between the building mass of a
34 commercial center and its rural setting. Ensure that the architectural
35 character of commercial centers respects the surrounding context, particularly
36 when located adjacent to a residential area or significant natural or historic
37 feature. Commercial centers lend themselves to the application of urban

1 design features that provide distinctiveness to each center and strengthen the
2 characteristics of the communities they serve.

4 **3.6.1.2 Suburban Commercial Center**

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

12
13 Policies pertaining to Suburban Commercial Centers are as follows:

- 14 • Designate commercial properties within the Community Growth Boundary that
15 are not defined as Community Commercial Centers or Regional Town
16 Centers as Suburban Commercial Centers.
- 17
18 • Maintain the present scale and purpose of the Suburban Commercial
19 Centers, but allow minor expansions of floor area on lots that are presently
20 zoned for commercial use.
- 21 • Emphasize retail stores, personal services and public facilities designed to
22 serve the needs of the surrounding community, i.e., typically residents within
23 a one- to two-mile radius.
- 24 • Incorporate site design and facilities to promote pedestrian and bicycle
25 access.
- 26 • Maintain compatibility in architectural design and scale between the building
27 mass of a commercial center and its urban and natural setting, particularly
28 when located adjacent to a residential area or significant natural or historic
29 feature.

31 **3.6.1.3 Community Commercial Center**

32 The typical Community Commercial Center is situated along an arterial road or at
33 the juncture of major roads. The nucleus is a retail shopping center that occupies
34 between 10 to 30 acres and contains up to 250,000 square feet of floor area, but
35 with the addition of adjacent, smaller sites the entire Community Commercial Center
36 may encompass up to 50 acres. In addition to the uses found in Suburban
37 Commercial Centers, Community Commercial Centers may include offices, service

1 industrial establishments, entertainment and social centers. Windward City
2 Shopping Center and adjacent commercial uses fall into this category.

3 Policies pertaining to Community Commercial Centers are as follows:

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

15 **3.6.1.4 Regional Town Center**

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

24 Regional Town Center policies are as follows:

- 25 • Designate the centers of Kāneʻohe and Kailua as the focal points for regional
26 shopping and services. This may include small to medium-sized office
27 buildings and “service-industrial” establishments.
- 28 • Allow low-density apartment and special needs housing uses in the
29 commercial district to stimulate business activity and create a livelier
30 environment, but not to the extent that it is inconsistent with General Plan
31 population policies, nor to the extent that a net loss of commercial floor area
32 is realized in the affected Regional Town Center.
- 33 • In the centers of Kāneʻohe and Kailua, integrate the pedestrian circulation
34 system with linkages through blocks to public sidewalks and transit stops.

- 1 Encourage the design of storefronts and entries to business establishments to
2 support this pedestrian orientation.
- 3 • Encourage shared use of parking to reduce the dominance of parking lots.
4 Implement a parking improvement district in Kāne'ohe and expand the
5 parking improvement district in Kailua.
 - 6 • Scale and site buildings to be consistent with the surrounding context.
7 Provide appropriate setback and height transitions.
 - 8 • Incorporate site design and facilities to promote pedestrian, bicycle, and
9 transit access.
 - 10 • Promote efficiencies and other improvements in traffic and parking conditions
11 by redesigning or re-siting parking lots, driveways (particularly in the Kailua
12 Regional Town Center) and walkways and providing shuttle bus services
13 within the Kailua and Kāne'ohe communities and their respective Regional
14 Town Centers.
 - 15 • Maintain consistency in architecture and scale between the building mass of a
16 commercial center and its urban and natural setting, particularly when located
17 adjacent to a residential area or significant natural or historic feature. The
18 Regional Town Centers may reflect a more urban architectural character, with
19 emphasis on pedestrian-scaled design and features.
 - 20 • Encourage environmental compatibility via use of energy efficient features,
21 such as solar panels for heating water or electricity, and passive solar design,
22 such as the use of arcades, window recesses and awnings and orientation of
23 openings to allow natural cross-ventilation. Also, incorporate resource
24 conservation measures, such as water flow constrictors and facilities for the
25 sorting of waste materials for recycling, in the design of new development.
26

27 **3.6.1.5 Light Industrial and Extractive Industries**

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

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

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

14 3.6.2 GUIDELINES

15 Guidelines for commercial and light industrial uses are as follows:

16 3.6.2.1 Rural Commercial Centers

17 *Architectural Character and Building Mass*

- 18 ○ Encourage the rustic appearance in building forms, with pitched
19 roof forms or "false-front" parapets characteristic of rural towns in
20 Hawai'i.
- 21 ○ Promote Individual business establishments that are relatively small
22 and focused on provision of goods and services primarily to the
23 surrounding rural community or agricultural activities.
- 24 ○ Site buildings close to the roadway in the manner of a traditional
25 rural village.
- 26 ○ Keep meeting facilities, other than schools or service facilities,
27 relatively small in area and focused on accommodating the needs
28 of the surrounding rural community or agricultural activities.
- 29 ○ In Kahalu'u, improve the commercial center in the vicinity of the
30 Kamehameha Highway-Kahekili Highway intersection in
31 accordance with the design recommendations of the Kahalu'u
32 Community Master Plan (2007).
- 33
- 34

1 **Visual Screening, Lighting and Signage**

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

8 **Vehicular Access**

- 9 ○ In Kahalu'u, implement the traffic calming and transportation
10 measures, i.e., roadway treatments, bus stop relocation, bikeway,
11 that are recommended in the Kahalu'u Community Master Plan
12 (2007).

13 **Outlying Commercial Uses**

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

22 **3.6.2.2 Suburban and Community Commercial Centers**

23 **Architectural Character and Building Mass**

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

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33

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 Kāneʻohe)

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

1 that are an integral part of a regional network, such as elementary
2 schools, fire stations, pump stations, and utility substations, may be
3 located in outlying areas.

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

8 ***Architectural Character and Building Massing***

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

31 ***Pedestrian, Bicycle, and Transit Facilities***

- 32 ○ Provide street frontage improvements for bus stops, including bus
33 shelters and dedicated loading lanes, along all abutting streets that
34 have bus routes.

- 1 ○ Provide a pedestrian pathway from the bus stop to an entrance to
- 2 the main building of the commercial center. Clearly indicate the
- 3 pathway with special paving or markings and provide weather
- 4 protection, where feasible, if the commercial center building is not
- 5 directly connected to the bus shelter.
- 6 ○ Design and place bicycle parking in secure places that are visible
- 7 from the main street or parking entry to the commercial center.

8 ***Visual Screening, Lighting and Signage***

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

21 **3.6.2.4 Light and Extractive Industry**

22 ***Visual Screening, Lighting and Signage***

- 23 ○ Buffer noise and other adverse impacts from quarrying operations
- 24 from adjacent urban uses, wildlife preserves and public roads by a
- 25 combination of landscaped berms and setbacks.
- 26 ○ For light industrial uses, buffer noise and other adverse impacts
- 27 from parking, loading and service areas from adjacent urban uses,
- 28 wildlife preserves and public roads by a combination of solid walls
- 29 or berms and landscaped setbacks.
- 30 ○ Plant a landscape screen, consisting of trees and hedges, along
- 31 roads fronting parking lots or garages.
- 32 ○ Visually screen storage areas for vehicles, equipment, and supplies
- 33 from adjacent roads, wildlife preserves and urban uses by privacy

- 1 walls and by building orientation. Soften the appearance of
2 screening walls by landscaping in front.
- 3 ○ Use fully-shielded lighting that balances the needs for public safety,
4 security, energy conservation, and wildlife protection.

5 ***Drainage and Waste Material***

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

20 **3.6.3 RELATION TO MAP A-2, LAND USE**

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

23
24 ***Rural Commercial Centers.*** The Rural Commercial Centers of the rural
25 communities of Waimanālo and Kahaʻluʻu are illustrated on the Land Use Map and
26 designated “RC.”

27
28 ***Suburban Commercial Centers and Community Commercial Centers.*** The
29 locations of Community Commercial Centers and Suburban Commercial Centers
30 with an aggregate floor area of more than 50,000 square feet are shown on the Land
31 Use Map and designated with “CC” and “SC”, respectively.

32
33 ***Regional Town Centers.*** The components of the Regional Town Centers of Kailua
34 and Kāneʻohe are designated with “TC,” representing the general location, size and
35 shape of the respective land areas.

36

1 **Light and Extractive Industry.** Industrial areas are indicated on the Land Use
2 Map.
3

4 **3.7 INSTITUTIONAL USES**

5 Ko'olau Poko is home to several public and private institutional campuses. Its
6 secondary school campuses are listed and discussed in Section 4.7. Table 3.8 lists
7 other significant institutions.
8

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	<i>Mauka</i> of Kalaniana'ole Highway near Makapu'u
Hawai'i Jobs Corp	<i>Mauka</i> of Kalaniana'ole Highway in Waimanālo
Castle Memorial Hospital	At edge of Kawainui Marsh and the entry to Kailua
Kāne'ohe State Hospital	<i>Mauka</i> of Windward Community College and Kāne'ohe District Park to the Conservation District
Hawai'i Youth Correctional Facility – Ko'olau	<i>Makai</i> of Kalaniana'ole Highway at edge of Kailua
Hawai'i Youth Correctional Facility – Kawaiioa	<i>Mauka</i> of Kalaniana'ole Highway at edge of Kailua

9
10

11 **3.7.1 POLICIES**

12 The following policies are applicable to institutional campuses:

13
14
15

- **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

1 these communities. No new institutional campuses are proposed in this Plan,
2 although they may be appropriate if they respond to or advance the vision for the
3 region.

- 4 • **Existing Campuses.** Existing institutions may expand facilities and programs
5 within the campuses they presently occupy; however, because the major
6 institutions are located adjacent to significant scenic resources, ensure that the
7 campuses retain an open space character. Design and site buildings and
8 facilities on the campus to respect the scenic context. Ensure that the
9 architectural character of institutional buildings and structures respect the
10 surrounding urban and natural features, particularly when located adjacent to a
11 residential area or significant natural or historic feature.
- 12 • **Environmental Compatibility.** Encourage energy efficient features, such as the
13 use of solar panels for heating water, and passive solar design, such as the use
14 of window recesses and overhangs and orientation of openings to allow natural
15 cross-ventilation. Also, incorporate resource conservation measures, such as
16 water flow constrictors and facilities for the sorting of waste materials for
17 recycling, in the design of new development.

18 19 **3.7.2 GUIDELINES**

20 ***Architectural Character and Building Massing***

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

31 ***Pedestrian, Bicycle, and Transit Facilities***

- 32 ○ Provide street frontage improvements for bus stops, including a bus shelter
33 and a dedicated loading lane, along all abutting streets that have bus routes.
- 34 ○ Provide a pedestrian pathway from the bus stop to an entrance to the main
35 building of the institution. Clearly indicate the pathway with special paving or
36 markings.

- 1 ○ Design and place bicycle parking in secure places that are visible from the
2 main street or parking entry to the institution.

3 ***Visual Screening, Lighting and Signage***

- 4 ○ Buffer the noise and other adverse impacts from parking, loading, and service
5 areas from adjacent residential areas by a combination of walls or berms and
6 landscaped setbacks.
- 7 ○ Plant a landscape screen, consisting of trees and hedges, along streets
8 fronting parking lots or garages. Plant shade trees throughout parking lots.
- 9 ○ Visually screen storage areas for vehicles, equipment, and supplies from the
10 street and adjacent lots by privacy walls and buildings, fronted by landscaping
11 used to soften the appearance of large solid walls.
- 12 ○ Signage is non-illuminated or indirectly illuminated. Outdoor lighting is fully-
13 shielded to avoid light trespass over residential areas.

14

15 **3.7.3 RELATION TO MAP A-3, PUBLIC FACILITIES**

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

23

24 **3.8 MILITARY USES**

25 Ko'olau Poko contains the following military installations: Marine Corps Base Hawai'i
26 in Kāne'ohe (MCB Hawaii) on Mōkapu Peninsula; Marine Corps Training Area
27 Bellows (MCTAB); and, the Bellows Air Force Station in Waimanālo. In 1994, all of
28 the Marine Corps landholdings and installations were consolidated under a single
29 command at MCB Hawai'i. This was in part a result of the decision to close the
30 Barbers Point Naval Air Station (BPNAS) in 'Ewa, whose functions were to be
31 absorbed by MCB Hawai'i. On January 5, 2000, the Marine Corps acquired 1,049
32 acres from the Air Force to form MCTAB. The U.S. Air Force retained approximately
33 274 acres for its existing recreation and training area under Detachment 2, 18th
34 Force Support Squadron.

35

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

13

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

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

30

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

37

38 **3.8.1 POLICIES**

- 39 • The State of Hawai'i should continue to pursue the release of surplus federal
40 lands, including those at Bellows, for civilian use. When such is released,

1 reserve beachfront area for recreational use in perpetuity. *Mauka* areas could
2 also be used for recreational purposes or for other purposes. Discourage any
3 residential or commercial uses unless they constitute a minor portion of the
4 total site area and are located outside of flood hazard areas and adjacent to
5 existing similar uses.

- 6 • Encourage energy efficient features, such as the use of solar panels for
7 heating water and electricity, and passive solar design such as the use of
8 window recesses and overhangs and orientation of openings to allow natural
9 cross-ventilation. Also, incorporate resource conservation measures, such as
10 water flow constrictors and facilities for the sorting of waste materials for
11 recycling, in the design of new development.
- 12 • Encourage pro-active and periodic communication between the military and
13 neighboring community organizations, including affected residences of
14 military activities, to disclose and address adverse impacts attributed to
15 military operations. Share in advance with the community and affected
16 residences, schedules for training exercises anticipated to have a significant
17 noise impact and provide contact information for its Public Affairs Office or the
18 Community Plans and Liaison Officer.

19 **3.8.2 GUIDELINES**

20 ***Architectural Character and Building Massing***

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

29 ***Pedestrian, Bicycle, and Transit Facilities***

- 30 ○ Provide street frontage improvements for bus stops, including a bus
31 shelter and a dedicated loading lane along all abutting streets that
32 have bus routes.
- 33 ○ Provide a clearly indicated pedestrian pathway, such as special
34 paving or marking, from the bus stop to the base's main entrance.

- 1 o Design and place bicycle parking in secure places that are visible
2 from the main street or parking entry.

3 ***Visual Screening, Lighting and Signage***

- 4 o Buffer the noise and other adverse impacts from parking, loading,
5 and service areas from adjacent residential areas by a combination
6 of solid walls or berms and landscaped setbacks.
- 7 o For parking lot lighting, use fully-shielded fixtures and low intensity
8 lamps.
- 9 o Plant a landscape screen, consisting of trees and hedges, along
10 streets fronting parking lots or garages. Plant shade trees
11 throughout parking lots.
- 12 o Visually screen storage areas for vehicles, equipment, and supplies
13 from the street and adjacent lots by privacy walls and buildings,
14 fronted by landscaping used to soften the appearance of large solid
15 walls.
- 16 o Use non-illuminated or indirectly illuminated signage. Fully shield
17 lighting to avoid light trespass into residential and public areas.

18 **3.8.3 RELATION TO MAP A-2, LAND USE**

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

27
28 When lands are released from military jurisdiction, the use depicted on the Land Use
29 Map, A-2, shall be the basis for determining the appropriate civilian use. Where
30 major deviations from these designated uses are proposed, an amendment of the
31 Plan and its Land Use Map may be required if large tracts of land are involved.
32

1 **4. PUBLIC FACILITIES AND INFRASTRUCTURE POLICIES AND**
2 **GUIDELINES**

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

6

7 This chapter is organized under the following headings:

8

9 Section

10 4.1 Transportation Systems

11 4.2 Water Systems

12 4.3 Wastewater Management

13 4.4 Electrical and Communications Systems

14 4.5 Solid Waste Handling and Disposal

15 4.6 Drainage Systems

16 4.7 School and Library Facilities

17 4.8 Civic and Public Safety Facilities and Community Resilience

18

19 **4.1 TRANSPORTATION SYSTEMS**

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

25

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

32

33 **4.1.1 ROADWAY NETWORK**

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

37

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

1 leeward sides of the island. The latter, a U.S. Interstate opened in 1997,
2 begins at the MCB Hawai'i in Kāne'ohe and connects to H-1 and the
3 Moanalua Freeway at Halawa.
4

- 5 • **Kamehameha and Kahekili Highways** connect to trans-Ko'olau highways
6 and link Ko'olau Poko to other windward O'ahu locations. In the mid-1990's,
7 Kahekili Highway was widened to six lanes from Likelike Highway to
8 Kahuhipa Street, and to five lanes from Kahuhipa Street to Haiku Road.
9
- 10 • **Kalaniana'ole Highway** links Ko'olau Poko to communities in East Honolulu
11 and serves as a scenic, secondary route for travel between Kailua/Waimānalo
12 and Honolulu.
13

14 The 2035 O'ahu Regional Transportation Plan (ORTP) serves as a guide for the
15 development of recommended major surface transportation facilities and programs.
16 It identifies short- and long-term plans for major highway projects, transit
17 improvements and transportation demand management (TDM) measures (e.g. park-
18 and-ride lots and rideshare programs). The plan lists projects by the time period in
19 which they are expected to be completed. Some projects identified are conceptual
20 or generic in nature and serve as "placeholders" in order to qualify for federal
21 funding rather than as indicators of specific projects or solutions. The following
22 projects are identified in the current ORTP. These are in addition to islandwide
23 projects. The ORTP is currently being updated to year 2040.
24

25 **2011 - 2020 Time Period**

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

33
34 **2021 - 2035 Time Period**

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

- 1 ○ Making intersection improvements at Hui Iwa Street and Kamehameha
2 Highway

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

6
7 In addition to the projects listed under the ORTP, appropriate measures to reduce
8 risks and increase resiliency should be implemented, where feasible, to respond to
9 the impacts of sea level rise due to climate change. Improvement and/or relocation
10 of roadways and associated infrastructure should be considered for new public and
11 private projects in shoreline and storm surge impact areas.

13 **4.1.2 TRANSIT SYSTEM**

14 The Bus system in Koʻolau Poko is organized in three service categories:

- 15
16 • **Suburban trunk service**, which provides direct, multi-stop connections
17 between suburban neighborhoods and activity centers within Koʻolau Poko;
18
- 19 • **Suburban feeder service**, which provides suburban neighborhoods that are
20 not directly served by trunk routes access to the transit system -- namely to
21 express and trunk service routes; and
22
- 23 • **Express service**, which provides direct non-stop connections between
24 Koʻolau Poko and the major activity centers in the urban core of Honolulu.

25
26 To support the express bus service for commuters, a transit center is proposed
27 within the Regional Town Center of Kāneʻohe to function as a collection and
28 distribution hub. The transit center proposal considers parking facilities to provide
29 more convenient access for bicyclists, pedestrians and riders of the “circulator”
30 buses or vans. This, in turn, will stimulate economic and community activity in the
31 Regional Town Center, as envisioned in Chapter 2 of this Plan.

33 **4.1.3 BIKEWAY SYSTEM**

34 Bike Plan Hawaiʻi (2003), a State master plan for bikeways, defines the various
35 types of bikeways:

- 36
37 • **Signed Shared Roadway**. Any street or highway specifically designated by
38 signs for the shared use of bicycles and motor vehicles and/or pedestrians.
39 Such facilities are of two types: a widened curb lane in an urban-type area or
40 a paved right shoulder in a rural-type area. The Signed Shared Roadway is,

1 according to Bike Plan Hawai'i, "...the preferred route for bicycle use," when
2 mainly due to land width or other mitigating factors.
3

4 • **Bicycle Lane.** A portion of a roadway designated by striping, signing, and/or
5 pavement markings for the preferential or exclusive use of bicycles. The right-
6 of-ways assigned to bicyclists and motorists are delineated to provide for
7 more predictable movements of each. Only crossflows by motor vehicles or
8 pedestrians to gain access to driveways or parking facilities or bus stops are
9 allowed.
10

11 • **Shared Use Path.** A bikeway that is physically separated from motorized
12 vehicular traffic by an open space or barrier, and is either within the highway
13 right-of-way or has an independent right-of-way. Often shared with
14 pedestrians, skaters, joggers and other non-motorized users.
15

16 In Ko'olau Poko, the existing bikeway system consists of discontinuous segments of
17 bike lanes, bike routes and bike paths in Kāne'ohe, Kailua, Lanikai and Waimānalo.
18 Significant community interest has been communicated regarding connection of
19 segments and expansion of the bikeway system in general. The State's bikeway
20 master plan proposes substantial additions to Ko'olau Poko's bikeway system to
21 create an interconnected grid through the more populated areas and links to East
22 Honolulu via Kalaniana'ole Highway and to Ko'olau Loa via Kamehameha Highway.
23 The creation of the grid will enhance the potential for bike travel for short commuting
24 and incidental trips. Also, the grid can be expanded by marking bicycle lanes where
25 the existing right-of-way width permits on local streets in residential neighborhoods
26 as part of a "traffic calming" program.
27

28 In 2012, the City Council adopted the O'ahu Bike Plan, which builds upon the 1999
29 Honolulu Bicycle Master Plan.
30

31 **4.1.4 PEDESTRIAN CIRCULATION**

32 For the past several decades commercial developments and residential subdivisions
33 have been required to install sidewalks along street frontages, but there are many
34 areas throughout Ko'olau Poko where there are inadequate surfaces or clearances
35 for walking within the road rights-of-way.
36

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

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

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

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

22

23 **4.1.5 POLICIES**

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

1 **4.1.6 GUIDELINES**

2 **Commuter Travel**

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

18 **Local Trips**

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

35

1 **4.2 WATER SYSTEMS**

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

7
8 The O’ahu Water Management Plan (OWMP) is being updated using the watershed
9 approach to water resource management for each of the eight Development Plan
10 and Sustainable Communities Plan areas. The Ko’olau Poko Watershed
11 Management Plan (KPWMP) was adopted in 2012. The goal of the KPWMP is to
12 formulate an environmentally holistic, community-based, and economically viable
13 plan that balances: (1) the preservation and management of Ko’olau Poko’s
14 watersheds, and (2) sustainable ground and surface water use and development to
15 serve present users and future generations. The KPWMP can be accessed at:
16 [http://www.boardofwatersupply.com/water-resources/watershed-management-](http://www.boardofwatersupply.com/water-resources/watershed-management-plan/koolau-poko-plan)
17 [plan/koolau-poko-plan](http://www.boardofwatersupply.com/water-resources/watershed-management-plan/koolau-poko-plan). The KPWMP provides existing and future water demand
18 projections to 2035.

19
20 **4.2.1 POTABLE WATER**

21 The Board of Water Supply (BWS) is the principal purveyor of potable water in
22 Ko’olau Poko. The BWS Six-Year Capital Improvement Program for fiscal years
23 2015-2020, completed in February, 2015, sets forth BWS’s planned infrastructure
24 improvements for the City and County of Honolulu, including the Ko’olau Poko
25 municipal water system. In 2015, the region consumed 13.4 million gallons per day
26 (mgd) of potable water, approximately 4.0 mgd of which was imported from sources
27 within the Ko’olau Loa region. The BWS projects future water demand based on
28 population growth rather than number of dwellings. Therefore, while additional
29 housing is expected to be built in Ko’olau Poko, notably by the Department of
30 Hawaiian Home Lands (DHHL) in Waimānalo and Waiāhole, with the slight decline
31 in projected population over the next couple of decades (as noted in Chapters 1 and
32 2) potable water demand in the region is expected to remain stable, especially when
33 water conservation measures are implemented. No new source, storage, or
34 transmission mains are planned in the region, but existing source, storage, and
35 water mains must be repaired and replaced as needed.

36 **4.2.2 IRRIGATION WATER**

37 ***Waiāhole and Waikāne***

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

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

4

5 ***Waimānalo***

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

10

11 ***Other Water Systems***

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

16

17 **4.2.3 POLICIES**

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

27

28 **4.2.4 GUIDELINES**

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

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

11

12 **4.3 WASTEWATER MANAGEMENT**

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

22

23 **4.3.1 KAILUA-KĀNE'ŌHE-KAHALU'U WASTEWATER SERVICE AREA**

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

37

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

5
6 Population projections for the Kailua-Kāne'ohe-Kahalu'u area indicate a declining
7 population between 2010 and 2035. However, in order to address the problems
8 mentioned above and to accommodate projected five-year peak storm flows,
9 substantial expansions and modifications of the Kailua WWTP, the Kāne'ohe and
10 'Āhuimanu Wastewater Preliminary Treatment Facilities (WWPTF), and the
11 collection system were and are continuing to be made.

12
13 Major proposed improvements include:

14
15 ***Kailua Regional WWTP***

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

21
22 ***Kāne'ohe WWPTF***

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

27
28 ***'Āhuimanu WWPTF***

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

31
32 ***Collection System***

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

37
38 **4.3.2 WAIMĀNALO WASTEWATER SERVICE AREA**

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

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

6
7 Homes in Waimānalo that are not connected to the public sewers are served by
8 individual wastewater systems, which are generally either cesspools or septic tanks
9 with leaching fields. The unsewered areas include certain portions of the low lying
10 coastal areas and all of the inland agricultural lots. In addition, nearly 15 percent of
11 the homes in sewerred areas are not connected to the sewer system and continue to
12 use individual wastewater systems.

13
14 There are water quality and public health concerns associated with the continued
15 use of individual treatment systems (primarily cesspools) in the low-lying coastal
16 areas. Algal blooms have occurred periodically in the past in the nearshore waters
17 of Waimānalo. It is uncertain whether nutrients from individual wastewater treatment
18 systems, stormwater runoff, and/or treatment plant effluent promoted such algal
19 blooms.

20
21 Between 2000 and 2035, residential population serviced by the Waimānalo WWTP
22 is projected to increase from approximately 10,087 to 10,745 residents, or by about
23 6.5 percent. The service area population is projected to grow primarily due to new
24 housing development proposed by the Department of Hawaiian Home Lands
25 (DHHL), and expansion of the wastewater collection system to service existing
26 unsewered dwellings.

27
28 To address these concerns, the average design capacity of the Waimānalo WWTP
29 will be increased from 0.7 mgd to 1.1 mgd⁹. The expansion will include a new
30 secondary biological treatment process, an effluent filtration system, additional
31 injection wells, new sludge thickening facilities, an upgraded electrical system, and
32 added personnel and maintenance facilities. There will also be an ultraviolet
33 disinfection system and effluent pumping facilities to allow the use of recycled water
34 for irrigating selected agricultural lots and the Olomana Golf Links.

35 36 **4.3.3 POLICIES**

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

⁹ Hawai'i Pacific Engineers. Waimānalo Wastewater Facilities Plan, April 1997.

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

10 **4.3.4 GUIDELINES**

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

22 **4.4 ELECTRICAL AND COMMUNICATIONS SYSTEMS**

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

34
35 The growth in telecommunications systems is more likely to outpace population
36 growth. The 1990's decade saw substantial development of the telecommunications
37 infrastructure throughout the island, including Ko'olau Poko. Many new antennae
38 and relay devices were installed throughout the region, usually at higher elevations

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

4

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

9

10 Antennas have been around as long as we have had radio and television services.
11 Antennas associated with communication purposes have grown tremendously
12 especially since the U.S. introduction of mobile communication devices in the early
13 1980's. While the telecommunication industry has provided more convenient
14 communication capabilities for individuals, it has also increased the public agencies'
15 abilities to provide faster and more efficient responses to those in need, particularly
16 on an emergency basis.

17

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

22

23 The public has also raised concerns about the environmental effects of
24 electromagnetic field exposure associated with radio transmissions, as evidenced by
25 the presence of antennas. However, the Federal Communications Commission
26 (FCC) is responsible for evaluating the human environmental effects of radio
27 frequency (RF) emissions from FCC-regulated transmitters. The federal guidelines
28 specifically preclude local decisions affecting environmental effects of radio
29 frequency emissions, assuming that the provider is in compliance with the
30 Commission's RF rules.

31

32 **4.4.1 POLICIES**

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

- 1 • Encourage co-location of antennas; towers should host the facilities of more
2 than one service provider to minimize their proliferation and reduce visual
3 impacts.
- 4 • Mount antennas onto existing buildings or structures so that public scenic
5 views and open spaces will not be negatively affected. However, except for
6 the occupant's personal use, antennas on single-family dwelling roofs in
7 residential districts are not appropriate.
- 8 • Use stealth technology (i.e. towers disguised as trees) especially on free-
9 standing antennas towers in order to blend in with the surrounding
10 environment and minimize visual impacts.

11 **4.4.2 GUIDELINES**

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

33 **4.5 SOLID WASTE HANDLING AND DISPOSAL**

34 Solid waste collection, transport, and disposal operations on the island are provided
35 by the City Department of Environmental Services, Refuse Division. Municipal
36 refuse collection trucks provide curbside pickup for most single-family residences.

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

6
7 Collected refuse is taken from the Kapa'a Transfer Station to a recycling center,
8 incinerator or a sanitary landfill. Incineration, handling the majority of the island's
9 waste disposal, is done at the H-POWER plant, located in the 'Ewa region. The
10 City's sanitary landfill is at Waimānalo Gulch, also in the 'Ewa region.

11
12 Potential new landfill sites on O'ahu are extremely limited because of stringent
13 federal and state environmental requirements. Ko'olau Poko has not had a sanitary
14 landfill since the closure of the Kapa'a site in 1997.

15
16 A reduction of the amount of refuse going to landfills would lessen transportation
17 costs and the need for landfill space. This can be possibly achieved by full
18 participation in the waste sorting and collection program by individual households,
19 commercial buildings, government offices, parks maintenance, etc. By sorting out
20 green waste which can be recycled into usable mulch, and materials such as
21 cardboard, paper, and beverage bottles and cans which can be recycled into usable
22 material, the amount of refuse headed to landfills and overall waste may be
23 significantly reduced.

24 **4.5.1 POLICIES**

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

28 **4.5.2 GUIDELINES**

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

1 **4.6 DRAINAGE SYSTEMS**

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

4
5 The water quality and riparian habitat of many of these streams has been adversely
6 impacted by diversions, channel alterations and polluted stormwater runoff. These
7 problems are generally more severe along stream segments that traverse highly
8 urbanized areas, but irrigation systems, water well development and land use
9 conditions in agricultural and conservation areas have also created impacts. Still,
10 Ko'olau Poko contains significant stream segments of high resource value, and the
11 quality of many other segments could be improved by restoring natural habitat and
12 adopting stream corridor management practices.

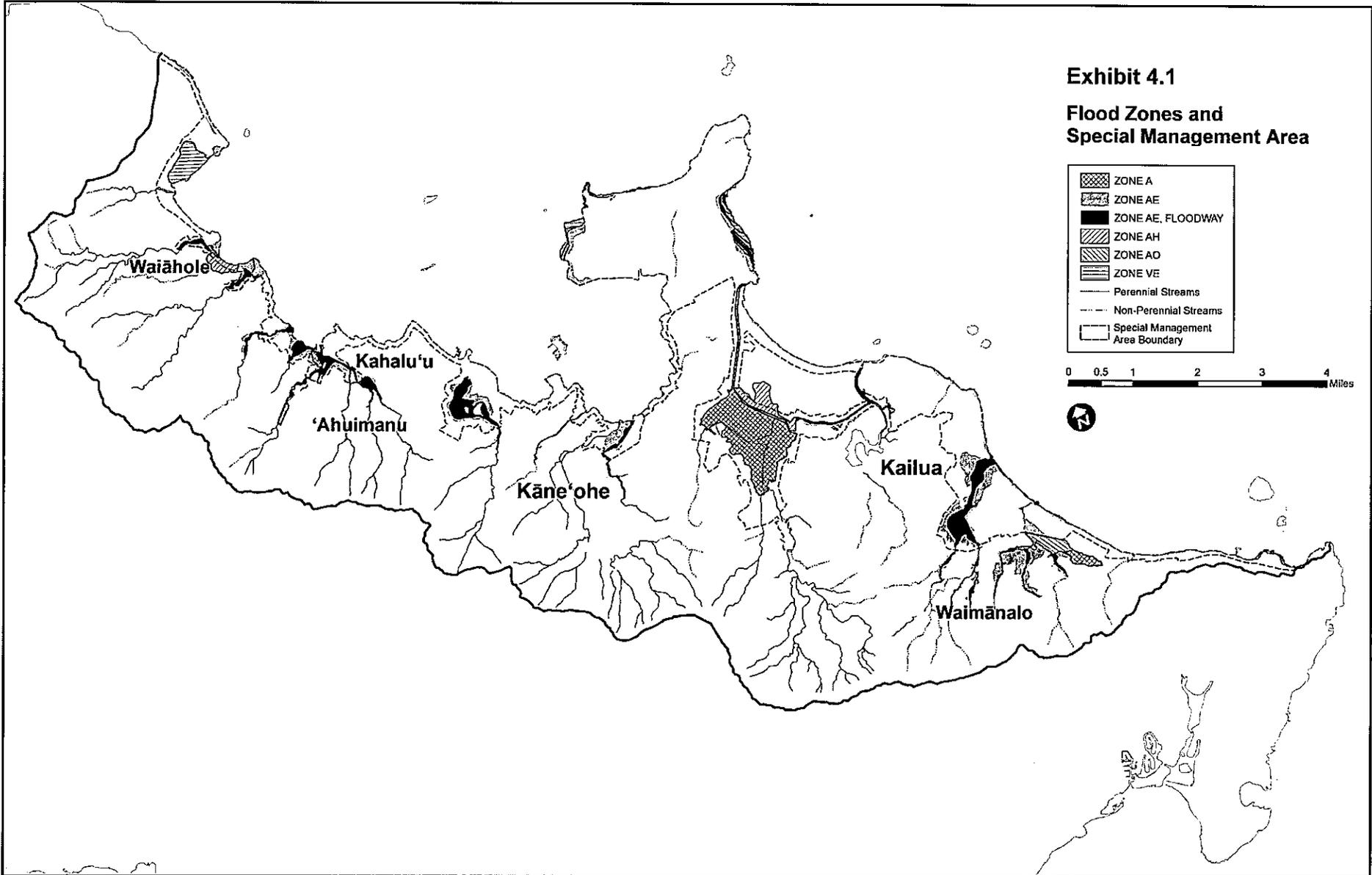
13
14 All of Ko'olau Poko's major watersheds have urban and agricultural areas in
15 regulatory flood zones (see Exhibit 4.1) In the 1960's and 1970's, several large
16 flood control projects were undertaken to remove or reduce the most frequent and
17 severe threats of flooding. The most visible results of those flood projects are the
18 Kawainui Marsh and flood berm, the Kahalu'u lagoon, and the Ho'omaluhia dam and
19 stormwater detention basin. Following a major flood event in 1987, improvements
20 were made to the design and maintenance of the Kawainui flood control project.
21

1
2

Table 4.1 Environmental Quality and Flood Zones of Perennial Streams in Ko'olau Poko			
Stream	Environmental Quality		Areas in Flood Zone
	Aquatic	Riparian	
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
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

3
4
5
6

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.



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20

This page intentionally left blank.

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

6
7 Due to the high cost and adverse environmental effects of formal flood control
8 structures, flood protection measures have turned to non-structural approaches. In
9 1980, the City adopted development standards based on the Federal Flood
10 Insurance Program to prevent encroachments into floodways and reduce the risk of
11 property damage. In 2000, the City adopted storm drainage standards to address
12 both the quantity and quality of storm runoff for flood control and environmental
13 quality purposes¹⁰. Periodic maintenance of stormwater basins, including wetlands,
14 and stream channels and outlets is another element of the flood protection strategy.
15 Soil conservation measures, especially in agricultural areas, are also important to
16 reduce sediment and maintain the downstream capacity of the stream channel.
17

18 **4.6.1 POLICIES**

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

¹⁰ The Rules Relating to Storm Drainage Standards was updated in 2012.

1 • Keep drainageways clear of debris to avoid the flooding problems that have
2 occurred in the past.

3 • Low Impact Development strategies are recommended.
4

5 **4.6.2 GUIDELINES**

6 • Emphasize retaining or detaining storm water for gradual release into the
7 ground as the preferred strategy for management of storm water.

8 • Prevent the blocking of downstream channels during major storm events by
9 properly maintaining large-capacity boulder and debris basins in upper valleys
10 above urbanized areas.

11 • Integrate planned improvements to the drainage system into the regional
12 open space network by emphasizing the use of retention basins, creation of
13 passive recreational areas, and recreational access for pedestrians and
14 bicycles without jeopardizing public safety.

15 • In places where the hardening of stream channels is unavoidable or highly
16 desirable to prevent significant loss of property or threat to public health and
17 safety, design improvements in a manner which protects natural resource and
18 aesthetic values of the stream, consistent with the guidelines expressed in
19 Section 3.1.3.4.

20 • Require periodic maintenance of stream channels and stormwater detention
21 basins, including natural wetlands, to improve and retain their capacity for
22 flood conditions while taking care to maintain their biological and aesthetic
23 values.

24 • Designate a public agency to assume jurisdiction over abandoned irrigation
25 ditches and reservoirs for the purpose of maintaining them as important
26 elements of the flood control system.
27

28 **4.7 SCHOOL AND LIBRARY FACILITIES**

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

1 may be subject to a school impact fee. This fee will help pay for improvements in
 2 order to accommodate the additional students who will live in the future residential
 3 developments.
 4

Table 4.2 Public School Enrollment and Capacity			
School	2009-2010 Enrollment	2008-2009 Capacity	Under/(Over) Capacity
<u>Elementary</u>			
'Āhuimanu	415	491	76
Aikahi	495	620	125
Ben Parker	283	507	224
Enchanted Lake	420	606	186
He'eia	484	736	252
Kaelepulu	193	228	35
Kahalu'u	233	357	124
Kailua	356	530	174
Kainalu	509	700	191
Kāne'ohe	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
<u>Intermediate</u>			
Kailua	680	1,113	433
King	663	1,043	380
<u>High School</u>			
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

1 Private schools have a relatively small presence in Ko'olau Poko. As of 2009,
 2 Ko'olau Poko's 11 private schools had a combined enrollment of 2,921 (see Table
 3 4.3). If enrollment increases in these private schools, it is likely that enrollment will
 4 decline in area public schools because most students are expected to be drawn from
 5 within the region rather than outside.
 6

Table 4.3 Private Schools in Ko'olau Poko – 2008-2009			
School	PS/K-8	9-12	TOTAL
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

7 Source: Hawai'i Association of Independent Schools Enrollment Report 2008-2009.
 8

9 Colleges, universities, and research institutions in Ko'olau Poko include the
 10 University of Hawai'i's (UH) Windward Community College, UH's Hawai'i Institute of
 11 Marine Biology, UH's College of Tropical Agriculture and Human Resources
 12 Waimanalo Research Station, and Hawai'i Pacific University. These institutions
 13 utilize the outdoors as open classrooms, taking advantage of Ko'olau Poko's natural
 14 environment and biota. They also add to Ko'olau Poko's diversity and quality of life.
 15

16 Ko'olau Poko contains three public libraries administered by the DOE. The regional
 17 library is located in Kāne'ohe. The other two libraries are in Kailua and Waimānalo,
 18 the latter of which is incorporated in the Waimānalo Elementary and Intermediate
 19 School. No additional libraries are planned.
 20

21 **4.7.1 POLICIES**

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

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

6 **4.7.2 GUIDELINES**

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

17

18 **4.8 CIVIC AND PUBLIC SAFETY FACILITIES AND COMMUNITY** 19 **RESILIENCE**

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

29

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

1 ambulance unit is planned in Ka'a'awa where an ambulance bay has been
 2 completed at the new Ka'a'awa fire station.
 3
 4 Emergency shelters in the event of a potential disaster will be opened selectively
 5 depending on the severity of the situation as determined by the Department of
 6 Emergency Management. Shelter locations for the Ko'olau Poko and Ko'olau Loa
 7 regions are listed on Table 4.4. Kailua has been designated as a disaster-ready
 8 community. Other communities should be encouraged to become disaster-ready
 9 communities as well. Emergency planning should be updated according to the most
 10 recent Federal Emergency Management Agency and National Oceanic and
 11 Atmospheric Administration flood inundation maps.
 12
 13

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

14
 15
 16 Community resilience is the ability of a community to prepare for anticipated
 17 hazards, adapt to changing conditions, and withstand and recover rapidly from
 18 disruptions. In order to protect lives, livelihoods, and quality of life, communities
 19 should plan for damages and disruptions to buildings and infrastructure systems
 20 from natural, technological, and human-caused hazards. Planning for a more

1 resilient community involves a comprehensive, risk-based approach that is tailored
2 to their community's needs for maintaining vital services. The U. S. Department of
3 Homeland Security and the National Institute of Standards and Technology, U. S.
4 Department of Commerce, provides policy, support information and guidelines for
5 community resilience planning and implementation strategies that will better prepare
6 communities for future hazard events. The City and County of Honolulu,
7 Department of Emergency Management, prepared various plans and operations
8 guides to prepare, prevent, protect, respond and recover from hazards.
9

10 **4.8.1 POLICIES**

- 11 • Provide adequate staffing and facilities to ensure effective and efficient
12 delivery of basic governmental service and protection of public safety.
- 13 • Locate regional civic facilities in the Regional Town Centers of Kāneʻohe
14 and/or Kailua.
- 15 • Encourage the development of more emergency shelters.
- 16 • Encourage disaster resilient communities.
- 17

18 **4.8.2 GUIDELINES**

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

1 **5. IMPLEMENTATION**

2 Many counties, cities and other local jurisdictions on the U.S. mainland have
3 instituted comprehensive planning programs that emphasize proactive, community-
4 based planning and implementation processes. These local governments have
5 sought to establish a strong link between planning policies and guidelines, and
6 specific organization, funding and actions needed to implement a variety of public
7 and private projects and programs. The following sections are intended to
8 strengthen the linkage to implementation to realize the vision for the future and the
9 policies and guidelines articulated in this Plan. Implementation will vary depending
10 upon the priorities and resources of each department.

11
12 This chapter is organized under the following headings:

13
14 **Section**

- 15 5.1 Overview and Planning Implementation Tools
 - 16 5.2 Public Facilities Investment Priorities
 - 17 5.3 Development Priorities
 - 18 5.4 Special Area Plans
 - 19 5.5 Functional Planning
 - 20 5.6 Review of Zoning and Other Development Applications
 - 21 5.7 Five-Year Sustainable Communities Plan Review
 - 22 5.8 Implementation Matrix
- 23

24 **5.1 OVERVIEW AND PLANNING IMPLEMENTATION TOOLS**

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

- 27
- 28 • Initiating zoning map and development code amendments to achieve consistency
29 with the vision, policies and guidelines of the Sustainable Communities Plan;
30
- 31 • Guiding public investment in infrastructure through Functional Plans and Special
32 Area Plans in support of the vision, policies and guidelines of the Sustainable
33 Communities Plan;
34
- 35 • Reviewing zoning and other development applications based on how well they
36 support, conform to and carry out the purposes of the Sustainable Communities
37 Plan;
38
- 39 • Incorporating Sustainable Communities Plan priorities through the Public
40 Infrastructure Map and the City's annual budget process;

- 1 • Advising the State government on the content of the Sustainable Communities
2 Plan and seeking to conform State actions including those of DHHL to the vision,
3 policies, and guidelines of this Plan; and
4
- 5 • Conducting a review of the vision, policies, guidelines, and CIP priority
6 investments of the Ko'olau Poko Sustainable Communities Plan every five years
7 and recommending revisions as necessary.
8

9 **5.2 PUBLIC FACILITY INVESTMENT PRIORITIES**

10 The vision for Ko'olau Poko requires the cooperation of both public and private
11 agencies in planning, financing, and improving infrastructure. The City must take an
12 active role in planning infrastructure improvements, such as land acquisition and site
13 improvements for proposed parks, provision of adequate public access to the
14 shoreline and mountain areas, provision of pedestrian, bicycle, and other
15 transportation options, and improvements to wastewater and stormwater
16 management systems and other proposals of this Plan.
17

18 **5.3 DEVELOPMENT PRIORITIES**

19 Projects to receive priority in the approval process are those which:
20

- 21 • Land acquisition and improvements for public projects that are consistent with
22 the Sustainable Communities Plan's vision, policies and guidelines;
- 23 • Action on applications for land use and other regulatory approvals that are
24 consistent with the Sustainable Communities Plan's vision, policies and
25 guidelines; and
- 26 • Use of vacant usable parcels or sites ready for redevelopment and conform to
27 the Sustainable Communities Plan Map A-2, Land Use.
28

29 **5.4 SPECIAL AREA PLANS**

30 For areas requiring particular attention, Special Area Plans provide more detailed
31 policies and guidelines than are provided by the Sustainable Communities Plan.
32 The form and content of Special Area Plans depend on what characteristics and
33 issues need to be addressed in greater detail in planning and guiding development
34 or use of the Special Area.
35

36 Special Area Plans can be used to guide land use development and infrastructure
37 investment in Special Districts, Redevelopment Districts, or Resource Areas. Plans
38 for Special Districts provide guidance for development and infrastructure investment
39 in areas with distinct historic or design character or significant public views. Plans

1 for Redevelopment Districts provide strategies for the revitalization or redevelopment
2 of an area. Plans for Resource Areas provide resource management strategies for
3 areas with particular natural or cultural resource values.

4
5 In Ko'olau Poko, Special Area Plans are proposed for the following locations and
6 purposes:

- 7
- 8 • ***Kailua Regional Town Center.*** A plan to improve pedestrian circulation, public
9 transit service, landscaping and public open spaces, street fixtures and signage,
10 and building appearance in the central commercial district and civic center.
- 11 • ***Ko'olau Greenbelt.*** A plan to restore, protect and maintain the area at the base
12 of the Ko'olau Mountain Range through a variety of mechanisms that may
13 include land trusts and tax incentives.
- 14 • ***Ha'ikū Valley, Waihe'e and Waikāne Nature Preserves, Kawainui Marsh, and***
15 ***Nu'upia Fishponds.*** Plans for improved public access and preservation of
16 these resources should be prepared.

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

19

20 **5.5 FUNCTIONAL PLANNING**

21 Functional planning is the process through which various City agencies determine
22 needs, assign priorities, phase projects, and propose project financing to further
23 implement the vision, policies, and guidelines articulated in the Sustainable
24 Communities Plan. This process may take a variety of forms, depending upon the
25 missions of the various agencies involved, as well as upon requirements imposed
26 from outside the City structure, such as federal requirements for wastewater
27 management planning. Typically, functional planning occurs as a continuous or
28 iterative activity within each agency.

29
30 Through the functional planning process, City agencies responsible for developing
31 and maintaining infrastructure and public facilities or for provision of City services
32 review existing functional planning documents and programs. As a result of these
33 reviews, the agencies then update, if required, existing plans or prepare new long-
34 range functional planning documents that address facilities and service system
35 needs. Updates of functional planning documents are also conducted to assure that
36 agency plans will serve to further implement the Sustainable Communities Plan as
37 well as to provide adequate opportunity for coordination of plans and programs
38 among the various agencies.

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

4

5 • A resource-constrained long-range capital improvement program. A “resource-
6 constrained” program is one that identifies the fiscal resources that can be
7 reasonably expected to be available to finance the improvements.

8 • A long-range financing plan, with identification of necessary new revenue
9 measures or opportunities.

10 • A development schedule with top priorities for areas designated for earliest
11 development.

12 • Service and facility design standards, including level of service guidelines for
13 determining adequacy.

14

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

21

22 Functional planning is intended to be a proactive public involvement process which
23 provides public access to information about infrastructure and public facility needs
24 assessments, alternatives evaluations, and financing. Outreach activities should
25 involve Neighborhood Boards, community organizations, landowners, and others
26 who may be significantly affected by the public facilities and infrastructure projects or
27 programs to be developed to further implement the policies of the Sustainable
28 Communities Plan.

29

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

39

1 **5.6 REVIEW OF ZONING AND OTHER DEVELOPMENT APPLICATIONS**

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

7
8 Projects that do not involve significant zone changes will be reviewed by the
9 Department of Planning and Permitting for conformance with the policies,
10 development priorities, and guidelines of the Ko'olau Poko Sustainable Communities
11 Plan and the population policies of the General Plan. For mixed-use zoning allowing
12 residential use, the applicant should prepare an analysis of the projected population
13 impacts of the change to verify that such impacts will not be inconsistent with the
14 population policies of the General Plan as they apply to Ko'olau Poko. Those
15 projects requiring an Environmental Assessment (EA) or Environmental Impact
16 Statement (EIS) shall follow the provisions of Hawai'i Revised Statutes, Chapter
17 343.

18
19 **5.6.1 ADEQUATE FACILITIES REQUIREMENT**

20 All projects requesting zone changes shall be reviewed to determine if adequate
21 public facilities and infrastructure will be available to meet the needs created as a
22 result of the development. Level of Service Guidelines to define adequate public
23 facilities and infrastructure requirements will be established during the Capital
24 Improvement Program.

25
26 In order to guide development and growth in an orderly manner as required by the
27 City's General Plan, zoning and other development approvals for new developments
28 should be approved only if the responsible City and State agencies indicate that
29 adequate public facilities and utilities will be available at the time of occupancy or if
30 conditions the functional agency indicates are necessary to assure adequacy are
31 otherwise sufficiently addressed.

32
33 The Department of Planning and Permitting, as part of its report on the consistency
34 of the project with the Ko'olau Poko Sustainable Communities Plan vision, policies,
35 and guidelines, will review and summarize any individual agency's findings regarding
36 public facilities and utilities adequacy that are raised as part of the EA/EIS process.
37 The Department of Planning and Permitting will address these findings and any
38 additional agency comments submitted as part of the agency review of the zone
39 change application and recommend conditions that will be included in the conditional
40 zoning approval to insure adequacy of facilities.

41

1 **5.7 FIVE-YEAR SUSTAINABLE COMMUNITIES PLAN REVIEW**

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

7
8 In the Five-Year review, the Ko'olau Poko Sustainable Communities Plan will be
9 evaluated to see if the regional vision, policies, guidelines, and implementing actions
10 are still appropriate, with particular attention to the issue of sustaining long-term
11 agriculture.
12

13 **5.7.1 ADOPTION OF THE SUSTAINABLE COMMUNITIES PLAN AND EXISTING LAND USE**
14 **APPROVALS**

15 This Sustainable Communities Plan will go into effect upon its adoption by
16 ordinance. Land use approvals granted under existing zoning, Unilateral
17 Agreements, and approved Urban Design Plans will remain in force and guide
18 entitlement decisions until any zoning action to further implement the vision, policies,
19 and guidelines of the Ko'olau Poko Sustainable Communities Plan is initiated. If an
20 EA or EIS was accepted in the course of a Development Plan land use approval for
21 a project, it should be acceptable to meet the requirement for an initial project
22 EA/EIS when zone change applications are submitted for subsequent phases of the
23 project unless the project scope and land uses are being significantly changed from
24 that described in the initial EA/EIS.
25

26 **5.8 IMPLEMENTATION MATRIX**

27 This section provides a summary of the guidelines in Chapters 3 and 4 of this Plan
28 that identify specific physical improvements and actions in order to help organize
29 and facilitate plan implementation.
30

31 Table 5-1 lists each of the guidelines and identified related plans, regulatory code or
32 action, and the public or private entities responsible for implementing the action.
33 The table is organized by land use and infrastructure category, with the categories
34 listed according to the order of Chapters 3 and 4.
35

36 The table is not exclusive. Programs and initiatives that are consistent with the
37 Plan's policies and guidelines may be added. In addition, new funding sources or
38 public-private partnerships may expand and/or alter policy implementation.
39

- 1 • The first column of the table – Policies/Guidelines – is comprised of the guideline
2 statements for each land use category. Policy statements are used if the land
3 use category does not include guidelines.
- 4 • The second column – Program – relates each statement to a specific regulatory
5 code, functional plan or other action. The term “project review” indicates the
6 review of discretionary land use approvals, such as State land use, zoning and
7 special management area use permits. In some instances, To Be Determined
8 (TBD) was used to indicate that the related code/plan/action was not clear. TBD
9 actions are intended to be identified and developed by the agencies responsible
10 for implementation.
- 11 • The third column – Agency – identifies the public and/or private entities
12 responsible for implementing the policy or guideline. Although many of the
13 implementing actions fall under DPP’s jurisdiction, some actions are the
14 responsibility of other Federal, State or City departments or public agencies,
15 while a few have been assigned to private entities or individual landowners.
- 16 • The last column – Role – describes the role of the named agency in carrying out
17 the code revision or action, either as primary implementer, or as an advocate or
18 partner of the primary implementer. For the implementation of certain guidelines
19 there is more than one primary implementer if more than one code revision or
20 action is necessary or multiple jurisdictions are involved.
- 21

1 **Table 5.1**
 2 **Implementation Matrix**
 3

Policies/Guidelines	Program	Agency	Role
Sec 3.1.3.1 Open Space Preservation – Mountain Areas			
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"> • Provide recreational, cultural and educational benefits; and • 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. 	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
Sec 3.1.3.2 Open Space Preservation – Shoreline Areas			
Maintain existing <i>makai</i> view channels along Kalaniana'ole Highway between Makapu'u Point and Waimānalo Beach Park; along Kawailoa 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"> • 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. 	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 shorefront areas, with following locations as priorities: <ul style="list-style-type: none"> • 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 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 • 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. 	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
Sec 3.1.3.3 Open Space Preservation - 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.	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
Sec 3.1.3.4 Open Space Preservation - 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.	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 Hawaii's Coastal Nonpoint Pollution Control Program Management Plan to prevent pollution of wetlands, streams, estuaries and nearshore waters.	SWM, Project Review	DPP	Regulator
Sec 3.1.3.4 Open Space Preservation – Other Open Space Elements			
<i>Agriculture</i> <ul style="list-style-type: none"> 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. 	Project Review	DPP	Regulator

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> 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 Pöhākapu and Kukulono residential neighborhoods. 	Project Review	DLNR	Implementer
<p><i>Golf Courses</i></p> <ul style="list-style-type: none"> 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. 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. 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 golf course layout rather than fencing or solid barriers. Provide appropriate buffers between golf courses and surrounding residential areas. 	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
	Project Review	DPP	Implementer
<p><i>Cemeteries</i></p> <ul style="list-style-type: none"> Maintain the open space character of cemeteries through very low lot coverage ratios. 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. 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. 	Project Review	DPP	Regulator
	Project Review	DPP, DLNR	Regulator
	Project Review	DPP	Regulator
3.1.4 Other Natural Resources			
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
3.2.1 Island-Wide Parks			
<i>Passive or Nature Parks</i> <ul style="list-style-type: none"> • 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. 	CIP	DDC/DPR	Implementer
	CIP	DDC/DPR	Implementer
<i>Active Recreation Areas</i> <ul style="list-style-type: none"> • Acquire additional shorefront 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. 	CIP	DDC/DPR	Implementer
	CIP	DDC/DPR	Implementer
Sec 3.2.2 Community-Based Parks			
<i>Community-Based Parks</i> <ul style="list-style-type: none"> • 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 adaptive re-use and/or modest expansion of existing facilities over the construction of new structures to minimize impacts on open space. 	CIP, OPS	DDC/DPR	Implementer
	CIP, OPS	DDC/DPR	Implementer
	CIP, OPS	DDC/DPR	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'ōhe Stream, from Kāne'ōhe Bay to Kahekili Highway; Kawainui Stream, from Kailua Bay to Kawainui Marsh; Kawa Stream, from Mokulele Drive to Kāne'ōhe Bay Drive; and Ka'elepulu Stream, from Kailua Bay to Ka'elepulu Pond	CIP, SAP, Project Review	DDC, DPP	Implementer
Sec 3.3.2 Historic and Cultural Resources			
<p><i>Cultural and Archaeological Sites</i></p> <ul style="list-style-type: none"> Require preservation <i>in situ</i> 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 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. 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 Office and the owner of the land on which the site is located. 	<p>Project Review</p> <p>Project Review</p> <p>Project Review</p> <p>Project Review</p> <p>Project Review</p>	<p>DLNR</p> <p>DLNR</p> <p>DLNR</p> <p>DLNR</p> <p>DLNR PRIV, CBO</p>	<p>Implementer</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer Advocate</p>
<p><i>Historic Sites</i></p> <ul style="list-style-type: none"> 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 allow for adaptive reuse through a permit review process. 	<p>OPS</p> <p>LUO, Project Review OPS</p> <p>TAX, LUO</p>	<p>DLNR</p> <p>DPP DLNR</p> <p>DLNR, BFS DPP</p>	<p>Implementer</p> <p>Implementer Implementer</p> <p>Implementer Implementer</p>

Policies/Guidelines	Program	Agency	Role
Sec 3.4.2 Agricultural Use			
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 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
Sec 3.5.2.1 Residential Use – Rural Communities			
Adopt development standards and design guidelines for residential-designated areas in rural areas which: <ul style="list-style-type: none"> • Minimize impervious surfaces • Require greater building setbacks than in suburban residential zoning districts; 	LUO	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> • Generally limit building heights to two stories; • Allow relatively narrow roadway widths • Allow alternative sidewalk designs, as compared to suburban residential neighborhoods, 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; • Avoid the geographic clustering and 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. 			
Sec 3.5.2.2 Residential Use – Suburban Communities			
<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"> • 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 40 percent or greater that have soil characteristics indicating potential instability for building purposes; 	LUO, BLDG	DPP DPP DPP DPP DPP DPP DPP DPP	Implementer Implementer Implementer Implementer Implementer Implementer Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> • Avoid the geographic clustering or concentration of group living facilities and group homes that are licensed by the State; • 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. 	BWS	DPP DPP BWS	Implementer Implementer Advocate
<p>Implement traffic safety measures for streets in residential neighborhoods, including:</p> <ul style="list-style-type: none"> • 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. 	CIP, OPS	DTS DOT	Implementer Advocate
<p>Adopt zoning maps that recognize existing residential apartment developments, but allow new apartment development only under the following circumstances:</p> <ul style="list-style-type: none"> • 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. 	Zoning Maps, Project Review	DPP	Implementer
Sec 3.6.1.1 Commercial and Industrial Uses – Rural Commercial Centers			
<p>Architectural Character and Building Mass</p> <ul style="list-style-type: none"> • 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 public 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. 	LUO, Project Review CIP	DPP DDC	Implementer Implementer

Policies/Guidelines	Program	Agency	Role
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> Encourage informal landscaping, subdued road signage and lighting, and parking lots 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. 	<p>LUO, Project Review</p> <p>CIP</p>	<p>DPP</p> <p>DOT</p>	<p>Implementer</p> <p>Implementer</p>
<p>Vehicular Access</p> <ul style="list-style-type: none"> Study the impact of large vehicles on residential streets and implement its recommendations where warranted. 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. 	<p>CIP</p> <p>CIP</p>	<p>DTS</p> <p>Community</p> <p>DOT, DTS</p>	<p>Implementer</p> <p>Advocate</p> <p>Implementer</p>
<p>Outlying Commercial Uses</p> <ul style="list-style-type: none"> 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. 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. 	<p>LUO, Project Review</p> <p>CIP</p>	<p>DPP</p> <p>DDC</p>	<p>Implementer</p> <p>Implementer</p>
Sec 3.6.1.2 and 3.6.1.3 Commercial and Industrial Uses – Suburban and Community Commercial Centers			
<p>Architectural Character and Building Mass</p> <ul style="list-style-type: none"> Retain the residential character; height, size, and massing of buildings for compatibility with adjacent residential areas. 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. 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. 	<p>LUO, Project Review</p>	<p>DPP</p>	<p>Implementer</p>
<p>Vehicular Access</p> <ul style="list-style-type: none"> 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. 	<p>LUO, Project Review</p> <p>Subdivision</p>	<p>DPP</p>	<p>Implementer</p>

Policies/Guidelines	Program	Agency	Role
<p>Pedestrian and Bicycle Facilities</p> <ul style="list-style-type: none"> • 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 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. 	LUO, Project Review	DPP, PRIV	Implementer
<p>Visual Screening, Lighting, and Signage</p> <ul style="list-style-type: none"> • 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. 	LUO, Project Review	DPP	Implementer
Sec 3.6.2.3 Commercial and Industrial Uses – Regional Town Centers (Kailua and Kāne’ohe)			
<p>Mix of Uses</p> <ul style="list-style-type: none"> • 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. 	<p>CIP</p> <p>LUO, Project Review</p> <p>LUO, Project Review</p>	<p>DDC, DAGS DPP</p> <p>DPP</p> <p>DPP</p>	<p>Implementer Advocate</p> <p>Implementer</p> <p>Implementer</p>
<p>Architectural Character and Building Massing</p> <ul style="list-style-type: none"> • 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. • Avoid blank facades on portions of buildings visible from public areas by using texture, articulation, color, and fenestration to create visual interest. 	LUO, Project Review	DPP	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> 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. 			
<p>Pedestrian, Bicycle, and Transit Facilities</p> <ul style="list-style-type: none"> 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 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. Provide bicycle racks for security. Locate bicycle racks to be visible and readily accessible from the street entry to the commercial center. 	<p>CIP</p> <p>LUO, Project Review</p>	<p>DTS/DDC</p> <p>DPP</p>	<p>Implementer</p> <p>Implementer</p>
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> 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 use of direct illumination of building features. Use only fully-shielded lighting should be shielded to avoid direct visibility from residential areas. 	<p>LUO, Project Review</p>	<p>DPP</p>	<p>Implementer</p>
<p>Sec 3.6.2.4 Light and Extractive Industry</p>			
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> 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. 	<p>LUO, SWM, Project Review</p>	<p>DPP</p>	<p>Implementer</p>

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> 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. 			
<p>Drainage and Waste Material</p> <ul style="list-style-type: none"> 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. Prevent litter and other waste material from encroaching into adjacent sites through the use of proper operational means, as well as landscaping. 	SWM, PHS	DPP, DOH	Implementer
Sec 3.7.2 Institutional Uses			
<p>Architectural Character and Building Massing</p> <ul style="list-style-type: none"> 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. 	LUO, Project Review	DPP	Implementer
<p>Pedestrian, Bicycle, and Transit Facilities</p> <ul style="list-style-type: none"> 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 racks to provide security and be visible from the main street or parking entry to the institution. 	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"> • 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. 	LUO, Project Review	DPP	Implementer
Sec 3.8.2 Military Areas			
<p>Architectural Character and Building Massing</p> <ul style="list-style-type: none"> • 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. 	Base Master Plan	MIL DPP	Implementer Advocate
<p>Pedestrian, Bicycle, and Transit Facilities</p> <ul style="list-style-type: none"> • 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 racks to provide security and be visible from the main street or parking entry. 	Base Master Plan	MIL	Implementer
<p>Visual Screening, Lighting and Signage</p> <ul style="list-style-type: none"> • 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, 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. 	Base Master Plan	MIL	Implementer

Policies/Guidelines	Program	Agency	Role
<ul style="list-style-type: none"> Use non-illuminated or indirectly illuminated signage. Fully shield lighting to avoid light trespass into residential and public areas. 			
Sec 4.1.6 Transportation Systems			
<p>Commuter Travel</p> <ul style="list-style-type: none"> 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 and vanpooling. 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. 	<p>INF, CIP, OPS</p> <p>INF, CIP, OPS</p> <p>INF, CIP, OPS</p> <p>INF, CIP, OPS</p> <p>OPS</p> <p>INF, CIP, OPS</p>	<p>DOT</p> <p>DTS</p> <p>DTS</p> <p>DTS</p> <p>DOT</p> <p>DOT</p>	<p>Implementer</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer</p>
<p>Local Trips</p> <ul style="list-style-type: none"> 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 and the Kāne'ohe Town Plan. 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. Design streets to accommodate personal mobility vehicles for travel within and between town cores and residential areas. 	<p>INF, CIP</p> <p>INF, CIP</p> <p>SR&R</p> <p>OPS</p> <p>CIP</p>	<p>DTS, DOT</p> <p>DPP</p> <p>DTS, DDC</p> <p>DPP</p> <p>DTS, DDC</p> <p>DOT,</p> <p>DTS, DDC</p>	<p>Implementer</p> <p>Advocate</p> <p>Implementer</p> <p>Implementer</p> <p>Implementer</p>
Sec 4.2.4 Water Systems			
<p>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.</p>	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
Sec 4.3.4 Wastewater Management			
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
Sec 4.4.2 Electrical and Communications Systems			
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"> 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 Exhibit 3.2. 	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
Sec 4.5.2 Solid Waste Handling and Disposal			
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 'Āhuimanu 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
Sec 4.6.2 Drainage Systems			
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
Sec 4.7.2 School and Library Facilities			
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
Sec 4.8.2 Civic and Public Safety Facilities and Community Resilience			
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

Policies/Guidelines	Program	Agency	Role
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

1

1 **APPENDIX A: CONCEPTUAL MAPS**

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

- 4
5 Map A-1: Open Space
6 Map A-2: Land Use
7 Map A-3: Public Facilities
8

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

- 12
13 1. These maps are general and conceptual, and are not intended to
14 be used to determine specific land use boundaries. Such boundaries are
15 to be determined during the review of specific land use or public facilities
16 investment decisions, and their exact locations are to be guided by the
17 vision and policies of this Plan.
18
19 2. These maps illustrate the Plan's visions and policies which are
20 presented in Chapters Two, Three, and Four. These policy statements
21 are considered the most important elements of the Plan.
22

23 The maps are considered illustrations of policies. However, the text should be
24 consulted to determine the appropriate application of the Plan vision, policies,
25 and guidelines for any specific project or location. In case of disagreement, the
26 text should prevail over the map depiction.
27

28 A brief explanation of the terms used in each of these maps follows.
29

30 **A.1 COMMUNITY GROWTH BOUNDARY**

31
32 The Community Growth Boundary (CGB) is intended to define and contain the
33 extent of developed or "built" areas of Ko'olau Poko's urban fringe and rural
34 communities. Its purpose is to provide an adequate supply of land to support the
35 region's established suburban and rural communities while protecting lands
36 outside the boundary for agricultural and open space preservation values. Areas
37 within the CGB are generally characterized by significant tracts of residential,
38 commercial, industrial or mixed-use development, and smaller, more dispersed,
39 less intensively developed residential communities and towns areas that are
40 clearly distinguishable from the unbuilt or more "natural" portions of the region.
41 Each generation should re-evaluate the relevance of the boundary in light of their
42 own time.
43

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

1 Waiahole and Waihee; and the residential, low-density apartment and business
2 districts of Kahalu'u and 'Āhuimanu. The CGB should also include
3 approximately 24 acres of land in 'Āhuimanu (TMK Nos. 4-7-032:001 through
4 4-7-032:005; 4-7-032:007 through 4-7-032:009; 4-7-032:025; 4-7-032:036; and
5 4-7-032:51) to allow for rezoning from the agricultural district to the residential
6 district, for the development of individual homes for the existing long-time
7 residents.

8

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

29

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

44

1 **A.2 AGRICULTURAL AREA**

2
3 Agricultural areas are lands with agricultural value by virtue of current agricultural
4 use or high value for future agricultural use, including those areas identified as
5 Prime, Unique, or Other Important lands on the Agricultural Lands Important to
6 the State of Hawai'i (ALISH) maps. These are lands suitable for crop growing,
7 grazing and livestock raising, flower cultivation, nurseries, orchards, aquaculture,
8 or similar activities.

9
10 Under the State Constitution, the State is to identify Important Agricultural Lands
11 (IAL). Once identified, these lands cannot be rezoned except under a "super
12 majority" vote. To date, IAL lands have not been identified. In 2005, Act 183 was
13 adopted to address this mandate. It established a two-step process:

- 14
- 15 • The State Legislature would adopt incentives to assure the long term use
16 and protection of IAL.
 - 17
 - 18 • The State Legislature would approve adequate funding to allow the
19 counties to prepare maps identifying IAL lands which would then be
20 adopted by the State Land Use Commission.

21
22 Act 233, enacted in 2008, adopted the incentive programs. To date, no state
23 funding has been appropriated to the City and County of Honolulu for the
24 mapping; however, the Department of Planning and Permitting has begun the
25 mapping process. Lands identified for agricultural purposes by this Plan are
26 serving as a basis for the county mapping process.

27
28 In Ko'olau Poko, the Agricultural Areas include the following:

- 29
- 30 • Areas in the agricultural districts, except areas in the inventory of
31 Hawaiian Memorial Park and the Hawai'i State Veterans Memorial
32 Cemetery, developed golf courses, and public nature preserves or nature
33 parks;
 - 34
 - 35 • Areas in the country district, except those parcels immediately adjoining a
36 residential district lying within the Community Growth Boundary; and
 - 37
 - 38 • The campus of Le Jardin Academy.

39
40 **A.3 PRESERVATION AREA**

41
42 The Preservation Area is established to protect undeveloped lands which form an
43 important part of the region's open space fabric, but that are not valued primarily
44 for agricultural uses. Such lands include important wildlife habitat, archaeological
45 or historic sites, significant landforms or landscapes over which significant views
46 are available, and development-related hazard areas.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46

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;

- 1
- 2 • Golf courses and cemeteries not located within the Community Growth
- 3 Boundary and/or Agricultural Areas as described above;
- 4
- 5 • Military lands, except those at MCB Hawai'i developed with uses
- 6 associated with the residential, apartment, commercial, industrial and
- 7 mixed-use districts;
- 8
- 9 • Correctional and detention facilities mauka of Kalaniana'ole Highway; and
- 10 • The campuses of the Oceanic Institute and Sea Life Park.
- 11

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

14 **A.4 MAP A-1: OPEN SPACE**

15
16
17 The Open Space Map illustrates the region's major open space patterns and
18 resources as outlined in Chapter 3. It highlights major open space elements and
19 resources, including agricultural and preservation lands, major recreational parks
20 and golf courses, important views, and important boundaries.

21
22 This map also indicates the general locations of community and neighborhood
23 parks, public access points along the shoreline, and major trails providing
24 mountain access.

25 **A.5 MAP A-2: LAND USE**

26
27
28 The Land Use Map shows the desired long-range land use pattern for Ko'olau
29 Poko, i.e., the land use pattern that will be realized through implementation of the
30 Ko'olau Poko Sustainable Communities Plan. The map contains the following
31 plan elements within the Community Growth Boundary:

32
33 **RESIDENTIAL.** The category consists of single-family homes in areas currently
34 configured with relatively large lots, e.g., lots of one acre or more and referred to
35 as "rural communities". Also within the "rural communities" the category consists
36 of single-family homes in "country" settings, in areas with current lot sizes
37 ranging from just less than one acre to about one-eighth acre (future
38 subdivisions, if any, of "rural communities" areas are anticipated to have lots no
39 smaller than about one-quarter acre). Within the "suburban communities", the
40 "Residential" category consists of single-family homes or townhouses with
41 individual entries.

42
43 **LOW-DENSITY APARTMENT.** These uses generally refers to low-density, low-
44 rise multi-family residences, including townhouses, stacked flats and apartment
45 buildings. Dwelling units in these buildings may share common exterior entries.

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

7
8 **SUBURBAN COMMERCIAL CENTER.** These centers are labeled “SC” and
9 generally represent clusters of commercial establishments intended for
10 neighborhood service. Uses typically include grocery and sundry stores and
11 other services and shops catering to common household- or neighborhood-level
12 convenience items.

13
14 **COMMUNITY COMMERCIAL CENTER.** These centers are labeled “CC” and
15 generally represent clusters of commercial establishments with a retail shopping
16 center as a nucleus and encompassing up to 50 acres. In addition to the uses
17 found in Neighborhood Commercial Centers, Community Commercial Centers
18 may include offices, service industrial establishments, entertainment facilities and
19 social centers.

20
21 **REGIONAL TOWN CENTER.** The Regional Town Centers for Ko’olau Poko are
22 comprised of the main town areas of Kailua and Kane’ohe. These centers are
23 labeled with the designation “TC.” The Regional Town Centers may contain a
24 wide variety of uses, including commercial establishments, civic services, mixed
25 use commercial-residential areas, and mixed use industrial-commercial areas.

26
27 **INDUSTRIAL.** Industrial areas lying outside the Regional Town Centers are
28 found at Kapa’a and the MCB Hawai’i.

29
30 **INSTITUTIONAL.** Major institutional uses include: the Oceanic Institute near
31 Makapu’u; the Job Corps campus in Waimānalo; the correctional and detention
32 facilities and corporation yards adjacent to Mount Olomana and the Pohakupu
33 neighborhood; Castle Medical Center; the windward campus of Hawai’i Pacific
34 University; and the combined campus areas of Windward Community College
35 and the Hawai’i State Hospital.

36
37 **MILITARY.** The general areas of MCB Hawai’i and Bellows that are used
38 primarily for activities related to national defense are shown on the Land Use
39 Map. At MCB Hawai’i, these areas are distinguished from other support areas
40 used for housing, preservation, recreation, and commercial and industrial
41 activities although it is recognized that those support areas will remain integral to
42 the base.

43
44 **PUBLIC FACILITIES.** The existing highways and major roads, the Kailua and
45 Waimanalo wastewater water treatment plants, and public intermediate and high

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

3

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

5

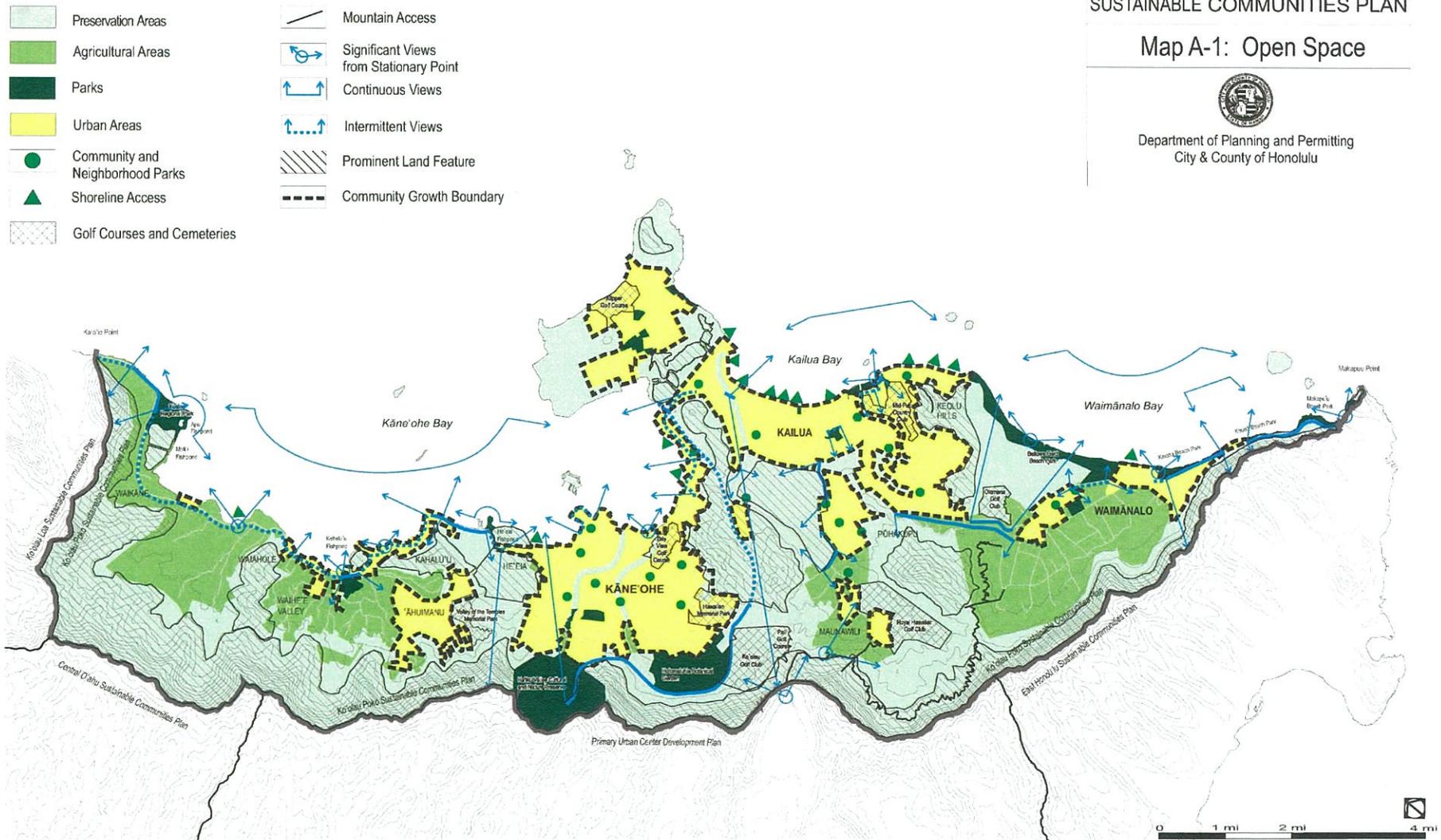
6 The Public Facilities Map illustrates major existing and future public facilities and
7 major privately-owned facilities including golf courses. Its purpose is to display
8 the public resources or assets available within the region. It also depicts general
9 locations of future transit centers and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

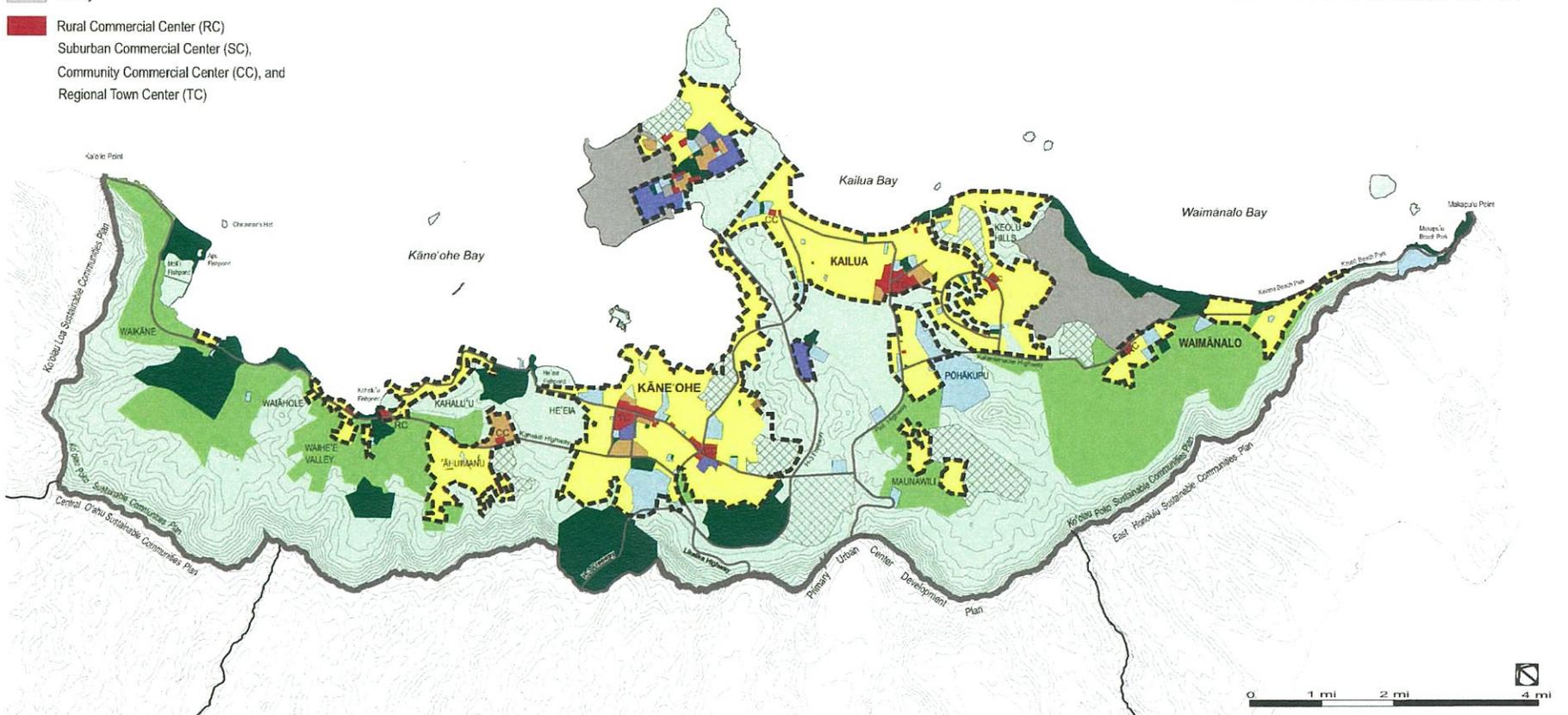
-  Freeways, Highways, and Major Roads
-  Community Growth Boundary
-  Golf Courses and Cemeteries

KO' OLAU POKO
SUSTAINABLE COMMUNITIES PLAN

Map A-2: Land Use



Department of Planning and Permitting
City & County of Honolulu



KO'OLAU POKO SUSTAINABLE COMMUNITIES PLAN

Map A-3: Public Facilities



Department of Planning and Permitting
City & County of Honolulu

